

Data Cloud features cover functionality for enterprise customer data in five key categories:

- Connect
- Harmonize
- Unify
- Analyze and Predict
- Act

Data Cloud: Overview

Data Cloud: Capabilities

Connect

Data Cloud offers multiple methods that allow users to connect their data:

- Connectors
- APIs
- MuleSoft

Connectors

Data Cloud connectors make the process of integrating your data from common sources fast and easy, without having to rely on a data integration team. The bundles below allow you to connect to each source system and retrieve the most commonly used data with clicks, not code:

- Marketing Cloud Email Studio
- MobileConnect
- MobilePush
- Marketing Cloud Data Extensions
- Salesforce CRM
- Marketing Cloud Personalization
- Common Cloud Storage Providers
- Commerce Cloud

APIs

In addition to the standard connectors, Data Cloud gives users the ability to connect data from any source with its Ingestion APIs.

The Streaming API can be used to send real-time event information to Data Cloud, such as engagement information from your website or mobile application. It uses a fire-and-forget pattern to synchronize micro-batches of updates between the source system and Data Cloud in near-real time. Data is processed asynchronously approximately every 15 minutes.

For systems without a pre-built connector, the Bulk API provides a way for data to be prepared in large batches of up to 150Mb at a time by external platforms and sent to Data Cloud for ingestion.

MuleSoft

The MuleSoft Anypoint platform contains dozens of pre-configured connectors for common platforms to easily and quickly transfer data from systems outside of Salesforce into Data Cloud. Consume or activate data to any cloud and any application.

Build a trust-based, first-party data asset. Provide transparency and security for data gathered from individuals who provide consent for its use and receive value in exchange.

About Ingesting Data:

- Native connectivity: Get trusted connections to sales, service, marketing, commerce, Tableau data, loyalty, and personalization.
- Batch and streaming data ingestion: Get high-scaled batch ingestion service for enterprise data and streaming service for real-time access to web and app-based data, from an integrated Webtag and mobile software development kit (SDK).
- API access: Use the power of MuleSoft to access many different sources of enterprise data plus get easy access to Amazon Web Services (AWS) S3.
- Manage consent and preferences: Track consent preferences in compliance with consumer privacy laws while capturing known and unknown data.

Data Cloud Brings It All Together

Data Cloud not only allows companies to ingest data from any connected source but brings powerful tools to work at an enterprise scale:

- Open data access—and zero-copy data—with Snowflake, meaning you can access data in Snowflake without moving or copying it.
- Transform your data at the time of ingestion to normalize data for better optimization and organization

Harmonize

The Customer 360 Data Model

The Customer 360 Data Model is the standard Data Cloud data model that helps with the interoperability of data across applications. The Customer 360 Data Model reduces the complexities of integrating data across cloud applications by providing standardized data interoperability guidelines. It can be adopted and extended to create data lakes, generate analytics, train machine learning models, build a single view of the customer, and more. The Customer 360 Data Model is organized into subject areas that represent a major business concept, like customer information, product, or engagement data.

Data Model Object (DMO)

Once data has been ingested into Data Cloud, it can be mapped to objects based on the Customer 360 data model. When a customer maps their data in this way, it creates a Data Model Object (DMO). The result is a normalized entity within the Customer 360 data model, like an Individual or a Sales Order.

Sometimes, organizations have data that doesn't fit into a standard model, and that's completely OK. Data Cloud allows for the creation of custom Data Model Objects to allow customers to create a data model that meets their exact needs.

For Data Cloud, mapping your source data to Data Model Objects (DMOs) is a critical step in establishing a standardized way of understanding data that originates from different systems but still references similar types of information, and it's a critical component for being able to identify a unified individual.

Unify

Unify Source Profiles

One of the critical features of Data Cloud is Identity Resolution. Identity Resolution is the process of identifying and linking all the different data records that refer to the same real-world entity or object, such as a person. It's an important task in data management and analysis, as it helps to ensure data quality, reduce redundancy, and improve integration.

Identity Matching

A key component of Identity Resolution is the concept of matching. When it comes to methods used to identify an individual, Data Cloud uses both deterministic (exact) matching, such as a matching email address, or probabilistic (fuzzy) matching, which uses machine learning and statistics to identify similar records with a high degree of probability of being matched. An example might be a person who goes by both Matthew and Matt, in different contexts.

Identity Reconciliation

Identity Reconciliation is the other key component of Identity Resolution. When two or more identities are matched, Identity Reconciliation dictates the rules by which duplicate attributes are chosen to represent that Unified Individual. Data Cloud allows you to customize these rules to make sure you're referencing the right attributes about each individual.

Unified Customer Profiles

When two or more identities love each other very much they join up and create a unified profile! Just kidding, but not really. A Unified Profile is the product of Identity Resolution. It's a complete and consistent view of a customer or entity that combines data from multiple sources. Why did the marketer create a Unified Profile of her cat? To better understand her purr-sonality!

Declarative Tools

With Data Cloud, powerful data manipulation and aggregation tools are available to use in an easy, click-based UI.

Cross-Device Identity Management

Your customers have a complex digital footprint that comes from multiple types of identities created from their interaction with various advertisements, social media platforms, and devices. Data Cloud keeps track of all these identities, and when it has enough information to match these identities together, it adds that information to that individual's Unified Profile.

Analyze and Predict

The unified data model provided by Data Cloud builds a powerful foundation to enable businesses to use analytical tools to gain insights and make data-driven decisions.

The resulting data model provides a complete picture of the customer, allowing businesses to identify trends, patterns, and opportunities for growth.

With the ability to aggregate and analyze data across multiple channels and touchpoints, businesses optimize marketing strategies, improve customer experiences, and drive business performance.

How are insights gained?

- Calculated insights: Data Cloud is capable of performing complex aggregations on unified data through click-based tools or using SQL.
- Streaming insights: Aggregations are not only for bulk data. Real-time data streams can be calculated and aggregated to launch powerful actions to personalize every moment.
- Tableau integration: A native integration with Tableau enriches business intelligence (BI) for driving deeper insights using the unified profile. Developers can also take advantage of JavaScript tools for accessing the profile data Java Database Connectivity (JDBC) drivers.
- Datorama integration: Reference the Data Cloud unified data model in Datorama to accelerate time to value in building analytical and predictive models for marketing and advertising campaigns.
- Data provisioning: Analysts have made it clear that the single most differentiated feature of such a platform is its ability to provision data embedded with intelligence, create harmonized data packages provisioned for specific endpoints, and design for specific business personas. This is the core Data Cloud development approach.

Go from a data set to an intuitive dashboard in Tableau with a single click of a button. Deep data exploration is enhanced with flexible, market-leading visual analytics to help you tell a story with data. The intuitive user experience makes data exploration possible for everyone, so no matter your skill level, you'll be able to make informed decisions.

Act

What's the impact of segmentation and activation?

- Ability to query data: At the heart of Data Cloud is its segmentation engine, which gives business users the ability to query all of the data in the system, create granular segments of customers, and understand their composition.
- Attributes from other systems: Automatically use attributes from sales, service, commerce, loyalty, enterprise resource planning (ERP), and modeled data in an easy-to-use, declarative interface, and get immediate population results.
- Easy activation: Activation is as easy as clicking a button to send segment data along for activation in messaging, advertising, personalization, and analytics systems.

Discover more about segmenting and activating data.

- Comprehensive data: Access data from marketing, sales, service, commerce, data warehouses and lakes, and any source available on demand.
- Smarter data: Use integrated, Einstein-calculated attributes to add modeled data, like propensity and Customer Lifetime Value (LTV) scores.
- Immediate results: Run queries and use drag-and-drop segmentation tools to test and build audiences with incredible speed at an enterprise scale.
- Activate anywhere: Activate data for advertising, marketing, and personalization through every Marketing Cloud product, and send it to external partners.

A unified data platform enables businesses to activate their customer data and use its power across marketing, advertising, sales, service, and commerce platforms. By creating a complete view of their customers, businesses segment and target their audiences with personalized experiences and messaging. This results in increased customer engagement, improved conversion rates, and higher customer lifetime value. With a unified data platform, businesses make data-driven decisions that drive growth and improve customer satisfaction.

Data Ethics

What are Data Ethics?

Data ethics are moral guidelines governing the gathering, protection, use, and sharing of data and how it affects individuals. This is particularly important for personal data.

Use and Collect Individual Information Appropriately

Give customers control of their preferences and hold organizations accountable for honoring those preferences. Customers must have a say in how organizations use their data. Data Cloud helps build a unified profile of customers to better track and honor their preferences across all

omnichannel marketing practices. If end users haven't explicitly opted-in to share their data, then don't ingest it into Data Cloud.

Provide Clear Exchange of Value for Data

Ensure that customers receive clear benefits in exchange for their data. What do they get in return? Customers provide data to improve their customer experience and feel valued. Providing tangible benefits and transparently communicating them helps build trust and foster long-term relationships.

Treat Sensitive Data Carefully

Some data types are more sensitive than others. There's no definitive list of sensitive data points, but carefully consider asking for data, such as age, gender, or ethnicity. Each organization should define sensitive data and determine the reasons for collecting it.

Here are some additional examples of sensitive data to consider excluding:

- Protected status, including race, health, veteran, or disability
- Gender identity
- Sexual orientation
- Religion
- Ethnicity
- Citizenship
- Political affiliation

Collect and Use Only What's Necessary

Limit the use of data to only what's necessary to create more personalized experiences for customers. Avoid collecting unnecessary demographic, socioeconomic, behavioral, or transactional data.

Choose Partners Carefully

When sharing data with third-party partners for advertising purposes, be intentional about selecting partners and understanding the chain of custody for the data. Review each contract with activation partners to ensure there are clear obligations with respect to the care, custody, and control of any data shared with them. It's important to understand what happens to the data after it's used for a campaign and ensure that partners are properly deleting or disposing of the data as required. Selecting partners with strong data ethics practices can help mitigate risks and protect customer privacy.

In-App Ethics Guardrails

As you use Data Cloud to manage your customer data, it provides reminders to stay mindful of ethics and privacy at key moments. Pay attention to these reminders when mapping customer data, calculating insights, or before adding attributes.

Additional Resources

- [Partner Pocket Guide: Salesforce Data Cloud](#) - Check out this Partner Pocket Guide for a one-stop shop for all content and tools to help you successfully sell and implement Data Cloud.
- [Data Ethics](#) - Scope out data ethics best practices to adopt when using Data Cloud.
- [Customer Data for Marketers](#) - Use customer data to create personalized, engaging experiences.
- [Salesforce Data Cloud](#) - Bookmark this help documentation to ingest, harmonize, unify, and analyze real-time and streaming data with Salesforce Data Cloud.
- [Get Started Using Data Cloud](#) - Bookmark this help documentation before you start using Data Cloud.

Knowledge Check

What are the core pillars of Data Cloud capabilities?

- Connect, Harmonize, Unify, Analyze and Predict, and Act

What does it mean to build a trust-based, first-party data asset?

- Provide transparency and security for data gathered from individuals who provide consent for its use and receive value in exchange.

Which of these is a valid use case for Data Cloud's capabilities?.

- Gain insights on data streams in real time and trigger follow-up actions.
- Build complex segments of unified individuals with related data from multiple platforms.
- Aggregate data from multiple systems to understand a customer's true lifetime value across multiple accounts and devices.

Which of these is a key differentiator of Salesforce Data Cloud?

- User-friendly interface and built on Lightning
- Uses the Customer 360 Data Model
- Integrates easily with Salesforce products and AppExchange

What does "Connect" mean as a capability?

- Synchronize data from external data sources and transform data when needed.

Which statements are true of Data Cloud platform functionality?

- Data from Salesforce, legacy systems, web and app data, and data lakes can be brought into Data Cloud.
- Data is transformed, cleaned, and harmonized into the standard data model.
- Data can be activated in Marketing Cloud Engagement, Advertising, Personalization, and Intelligence.

What does "Unify" mean as a capability of Data Cloud?

- Connect, match, and resolve customer data.

What are data ethics?

- Moral guidelines about the gathering, protection, use, and sharing of data and how it affects individuals
- A way for companies to build trust and transparency with their customers and data

True or false: It's ethical to store any kind of information about a user with or without their consent, even if there's no need for it and they receive no value in exchange.

- False

Data Cloud: Setup

[Request a Data Cloud Trial Org](#)

Where Does Data Cloud Live?

Data Cloud is built on top of the Salesforce Platform, combining:

Core Salesforce org capabilities

- Used for things like: Reports and dashboards, authentication, and the application of sObjects (like 'Activation' or 'Segment') for metadata definition
- Sharing Rules and other data restrictions in Core CRM do not apply to data stored in Data Cloud.

Data Lake stores ingested data and performs transformations

Remember Data Cloud data is not stored as sObjects, but in the Data Lake outside of Core CRM.

API and productized integrations with other Salesforce products

Productized, API integrations with Marketing Cloud, Commerce Cloud, MuleSoft, and out-of-the-box (OOTB) Data Cloud org LWCs to help navigate data stored in Data Cloud

Using an Existing Data Org

Provision Data Cloud inside of a Salesforce org currently used by a business.

It might make sense when...	Keep in mind that...
<ul style="list-style-type: none"> The customer has a single line of business. Customer data is housed in a single Salesforce org. Primary use cases require OOTB Data Cloud LWCs and search capabilities for service agents. 	<ul style="list-style-type: none"> Data org migration and object model refactoring require Data Cloud rework or reimplementation. Data Cloud still requires API access to sObjects from within this org because it replicates that data to the Data Lake. A single Data Cloud instance can connect to multiple Salesforce Core orgs. Data Lake still separately persists ingested data "off core."

Using a New (Separate) Home Org

Deploy a brand-new Salesforce org solely for housing the Data Cloud.

It might make sense when...	Keep in mind that...
<ul style="list-style-type: none"> Multiple Salesforce customer orgs exist. Highly complex enterprise architecture exists. The Data Cloud administration users are different from the Salesforce admin users. 	<ul style="list-style-type: none"> Data Cloud is meant to support a multi-tenant level. You probably need to build custom LWCs in your data org to provide those users with Data Cloud data views.

- | | |
|---|---|
| <ul style="list-style-type: none">• The existing data org is highly customized. | <ul style="list-style-type: none">• Data Cloud can connect to multiple Salesforce core orgs, but only one Enterprise Marketing Cloud account (IED). |
|---|---|

Let's review the steps of the initial setup process for Data Cloud.

- Set up your Data Cloud account.
- Configure additional users by creating profiles.
- Set up connectors to connect data sources.

<https://quip.com/xtBkAY1bZLhV>

Setting Up a Data Cloud Account

To set up a Data Cloud account (especially in a new Salesforce org), the admin needs to assign themselves the "Customer Data Platform Admin" permission set and then set up the Data Cloud instance as outlined [here](#) ([opens in a new tab](#))

User Profiles and Permission Sets

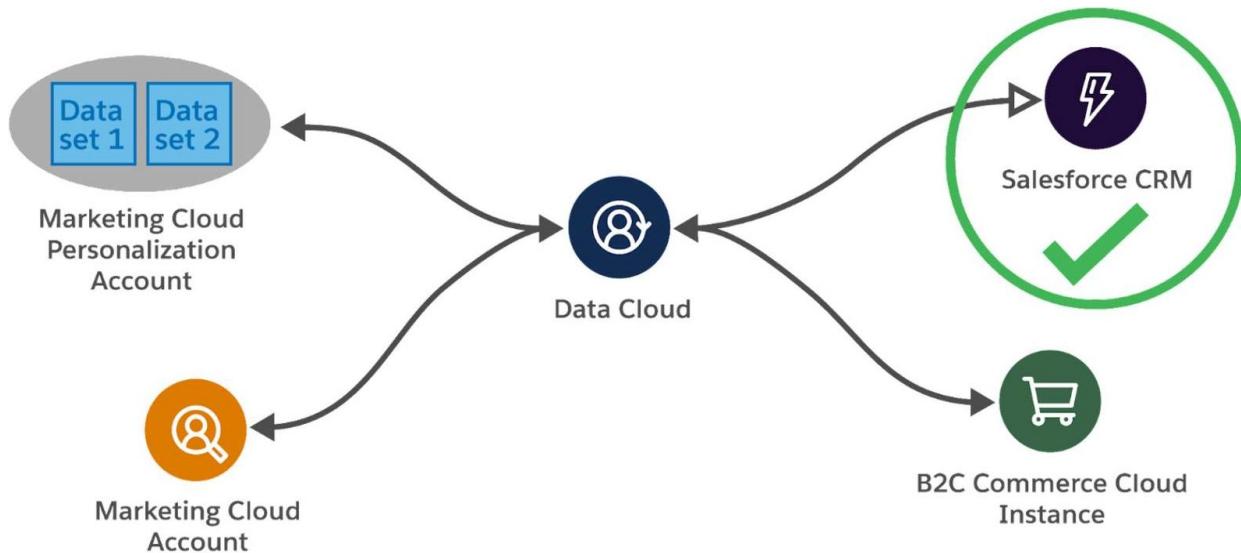
Data Cloud admins create user profiles, add new users, and then assign those users to a standard permission set to gain access to various tools and functions. When provisioning your Customer Data Platform account, make sure to set permissions correctly for your users, as they manage access and visibility in the Customer Data Platform.

There are four Customer Data Platform permission sets:

- **Customer Data Platform Admin:** Responsible for the setup of the application, user provisioning, and assigning permission sets within the system. This role has access to Salesforce Sales Cloud and Service Cloud, in addition to other integrated systems within the core cloud platform. The admin executes day-to-day configuration, support, maintenance, and improvement, and performs regular internal system audits.

- **Customer Data Platform Data Aware Specialist:** Responsible for creating data streams, mapping data to the data model, creating identity resolution rulesets for unified profiles, and for creating calculated insights.
- **Customer Data Platform Marketing Manager:** Responsible for the overall segmentation strategy, including creating activation targets, activations, and 'Customer Data Platform Marketing Specialist' permission.
- **Customer Data Platform Marketing Specialist:** Responsible for creating segments in Customer Data Platform.

We recommend assigning users to these standard permission sets, since they can change with each release as new features become available in the Data Cloud. Cloning existing permissions to create custom permission sets could result in users not having access to features or functionality when standard permission sets change.



Connector Setup

Before connecting a data source, an admin must set up the connectors to bring data in.

Data Cloud has a set of pre-built connectors to the following:

- Salesforce Clouds, such as CRM, Marketing Cloud, B2C Commerce, and Marketing Cloud Personalization.
- External sources, such as external file storage (Google Cloud Storage, Amazon S3).
- API and mobile connectors, such as Ingestion API, Web, and Mobile SDK.

Each connector varies in terms of how the data can be ingested from a batch, real-time or near real-time perspective. It's important for an admin to be aware of the different ingestion patterns for these connectors.

- **Batch** - CRM Connector, Marketing Cloud can ingest and update data hourly so would follow batch pattern.
- **Near Real-Time** - Ingestion API processes small micro-batches of records every 15 minutes so could be considered near real-time.

- **Real-Time** - Web & Mobile Connector can process engagement data every 2 minutes so would be a real-time ingestion pattern.

Salesforce CRM Connector

The Salesforce CRM connector enables access to the Salesforce CRM data, including but not limited to Sales Cloud, Service Cloud, B2B Commerce, and Loyalty Management. The Salesforce CRM Connector supports connections to the following CRM org types:

- **Home org:** This is the org where it's installed. If the customer is using this org for Sales Cloud or Service Cloud or Loyalty Management, they may use the connector to ingest CRM data from within the Home org.
- **External orgs:** These CRM orgs are external to the org where it's installed. Customers may connect to any production external orgs, including other orgs where it may be installed.
- **Sandbox orgs:** These are sandbox CRM orgs that are external to the org where it's installed. Customers may connect to any sandbox external orgs.

Note: If connection to the external org is performed by a non-admin user, then user permissions outlined in [this help article](#) (opens in a new tab)

need to be configured for that user.

Note: If you can't ingest CRM objects and fields via the CRM Connector, you must enable Object and Field Permissions to Access CRM as outlined in [this help article](#) (opens in a new tab)

Loyalty Management must be installed within the same org to support activation to Loyalty Management. Although Loyalty Management data can be ingested via bundles to other CRM orgs, in order to use promotions and associate segments with promotions, they must be in the same org. Check out [this help article](#) (opens in a new tab) for more details.

Salesforce CRM supports 1:1, 1:M, and M:1 connections in the three ways.

- A single CRM instance to a single instance (1:1)
 - A typical example would be Production to Production environment connection.
 - Another example would be connection to the home org when this and Loyalty Cloud are deployed in the same instance.
- A single CRM instance to more than one instances (1:M)
 - This is a good example where data from a single CRM org needs to be segregated by regions or sub-brands, or to maintain data access restrictions that are implemented in CRM at the data (record) level.

- Another example is adherence to the development lifecycle; in this case, development and production environments have to be separated.
- More than one CRM instance to a single instance (M:1)
 - This configuration applies to scenarios where brand data is aggregated from multiple CRM instances into a single, consolidated view of the entire customer base within a single instance.

Amazon S3 Connector

The Amazon S3 connector lets you ingest data from S3 buckets as well as activate data to S3.

The process for setting up S3 connections is different than other connectors. Rather than having an administrator configure the connector within Data Cloud's setup, Amazon S3 connections for data ingestion are configured individually at the data stream level. This means that a single Data Cloud account can connect to multiple S3 buckets if needed. This also means that S3 connections can be made by any user with access to create a Data Source, such as a Data Aware Specialist. Additionally, it means that connection information must be provided each time a new Data Stream is created.

More details about this can be found in the *Data Ingestion* course

Google Cloud Storage Connector

The Google Cloud Storage connector allows you to connect Google Analytics and Google Big Query with Data Cloud, which can then be used for data ingestion. This allows you to enrich Data Cloud profiles with Google Analytics data.

Some example use cases for integration with Google Analytics 360 web engagement data in Data Cloud include:

- A Data Cloud segment of any customers who have browsed running shoes on the website in the past seven days but have not yet purchased anything. You may want to activate that audience for personalized omni-channel messaging to influence their behavior to complete the online purchase.
- A Data Cloud segment of customers who have browsed hiking gear more than three times in the past X days in the San Francisco area. You can target that segment with an in-store promotion for hiking gear to drive them to convert in-store.

Once an admin configures the connection, it can then be used by other users (data-aware specialists or marketing managers) to ingest or activate the data (without needing to know the GCS credentials).

Ingest data using Google buckets: Land and ingest flat file data using Google Cloud storage.

Define Google buckets in setup: Register buckets in setup to simplify stream definition and management.

- Credentials for all related data streams can be easily managed from a single location.

Google Cloud Storage: Limit and refresh schedules.

- Five GCS connections per org are supported.
- Data and files from GCS buckets are kept in sync hourly with Data Cloud infrastructure.

Create a Connection

- Click on the Data Cloud setup.
- Click the Google cloud storage on the left nav.
- Enter the bucket and connection details.
- Click "Save."

Create a Data Stream

- Select the connection.
- Select the file that needs to be ingested.
- Check all the file header and primary key details.
- Click "Save."

Monitor

Go to the data stream tab and check the status.

External Activation Platform

You can now connect to external activation partners (available in AppExchange). An Administrator needs to first setup the External Platform which can then be used by other users to use the External Platform for activation.

Activation Platform Definition for Partners

- **Connect to any system with clicks, not code.**
 - Use your single source of truth audience segments anywhere to drive targeted advertising, insights, and more.
- **Optimize advertising in a post-cookie world.**
 - Deliver audiences for web, mobile, and CTV-targeted campaigns using hashed PII, mobile devices, and OTT.
- **Empower the ecosystem.**
 - Any partner is enabled to create Data Cloud activation connectors via AppExchange or combine capabilities to create innovative solutions.

Additional Resources

- [User Roles and Permission Sets in Data Cloud](#)
- [Connection Tasks in Customer Data Platform](#)
- [Partner Pocket Guide: Salesforce Data Cloud](#)
- [Access and Setup](#)
- [Configure User Permissions for an External Salesforce Org Connection](#)
- [Set Up and Maintain](#)

Knowledge Checkup

Which Permission Set manages the overall segmentation strategy and identifies the target campaigns?

- Marketing Manager

Which tab in the navigation manages the data coming into Data Cloud?

- Data streams

What must the Admin user do first when setting up users in Data Cloud?

- Create profiles for each user role

Which of the following reflects the correct order of the Data Cloud Setup process flow?

- Configure Admin user, provision and complete Data Cloud setup, configure additional users & permissions, and connect to relevant Salesforce Clouds

Which connection can a Data Aware Specialist setup to ingest data from without needing the Admin to explicitly setup the connection?

- Amazon S3

When using the GCS Connector, how frequently is data from Google Cloud Storage synchronized with Data Cloud?

- Every 1 hour

What 2 scenarios would you recommend when provisioning Data Cloud in an existing CRM Data Org?

- Customer data is housed in a single Salesforce Org
- Customer is using Loyalty Management and Promotions

Which permission set is required to setup an External Activation Platform?

- Customer Data Platform Admin

Data Cloud: Data Ingestion

Ingestion and Modeling is 25% of the exam

Watch video on Bundles in link on slide

Data Cloud Accredited Professional Exam

Total Question: 50 | Allotted Time: 75 min | Passing Score: 66 %

Study Tips for Ingestion

Things that require special attention - **study these concepts!**

- **Key Terminology:** Especially DSO, DLO, DMO
- **Data Spaces:** This is a new feature launched since the PLC was last revised
- **Native Connectors:** Understand what's available & review hard limits
- **Cloud Storage:** Understand how to ingest data from Cloud Storage & how S3 differs from Azure, GCS
- **Bundles:** Understand bundle offerings & objects ingested - [watch this video on SFMC bundles](#)
- **Schedules & Modes:** Understand ingestion timings & differences between a full refresh and a upsert
- **Data Categories:** Understand the three types & benefits
- **Formulas & Transformations:** Understand when & how they're applied & limitations
- **Field Types:** Understand what's available (esp. difference b/t Date & DateTime)

Salesforce recommends a combination of hands-on experience, training courses in Partner Learning Camp, and self-study in the areas listed in the Exam Outline section of this exam guide



Normalized and Denormalized Data

Normalized Data

Normalized data is divided into multiple tables, with established relationships to reduce redundancy and inconsistency.



Denormalized Data

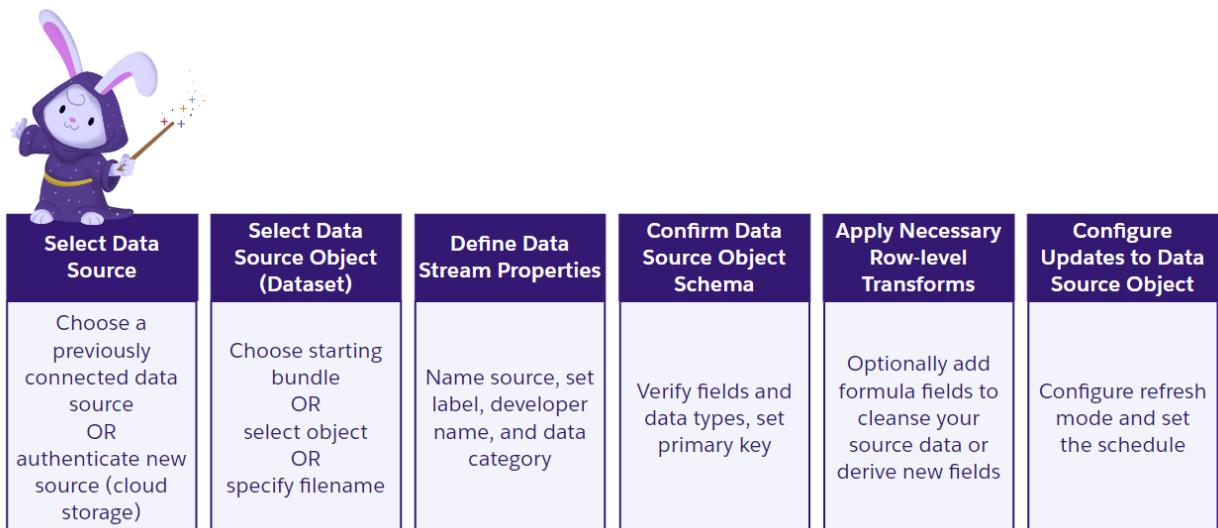
Denormalized data is combined into a single table to make data retrieval faster. The rows contain relational data as column attributes. This format is commonly known as a spreadsheet view.

Customer Id	First Name	Last Name	Home Phone No	Mobile Phone No	Work Phone No
100000100	Dara	Dial	+13175551235	+13175551234	+14155551234
100000104	Tim	Rucker	+12129876544	+12129876543	+14259876543
100000139	Fred	Alveraz	+14152221256	+14152221245	+15102221245
100000206	Anna	Cole	+161778442378	+161778442389	+165078442389

The Data Cloud standard data model is normalized, so it's important to note that incoming data may need to be normalized before it can be mapped to the data model. This is covered in greater detail in the Data Modeling course.

While configuration of the data ingestion for various data sources differs in details, the overall process follows the same model. The next section guides you through the process steps and provides sufficient details to prepare you for the configuration of your Data Cloud instance, regardless of the varieties of data sources.

Configure the Data Stream



Step 1: Select the Data Source

During the set-up process, you configured relevant connectors to your data sources. When configuring the data stream, you have the opportunity to use those connections.

The menu page also presents you with additional options.

In addition to the connections configured in the Data Cloud setup area, other data sources are also presented.

For all connections not configured in the Data Cloud setup area (for example, Amazon S3), part of the configuration involves specifying the authentication credentials and the connection resource (bucket) from which the data needs to be retrieved.

New Data Stream

Select a source for the data stream to unify your data.

Connected Sources

- Marketing Cloud
Starter data bundles and Data Extensions
- Salesforce CRM
Import objects from Salesforce CRM
- Mobile App
Import events from iOS and Android applications
- Website
Import events from your connected websites.
- Ingestion API
Stream and/or bulk upload data from external sources
- Interaction Studio
Marketing Cloud Interaction Studio Bundle

Other Sources

Load a sample file in order to teach the system about your file's structure. At the end of this set up flow, you'll be able to specify where data should be retrieved from on an ongoing basis.

- Amazon S3
Retrieve a file from Amazon Simple Storage Service
- Leverage the CDP Connector in MuleSoft Anypoint Platform to more easily integrate with Salesforce CDP.
[Learn More in MuleSoft](#)

Next

Knowledge Checkup

In the New Data Stream menu, which data sources are available for you to connect to the data stream?

- Connected sources identified during the set-up process, MuleSoft, and cloud-based options like Amazon S3 or Google Cloud Platform

Step 2: Select the Data Source Object

Data Stream operates at a single object or file level.

- In Marketing Cloud, this might be a data extension.
- In Salesforce CRM, it might be a contact or case object.
- In B2C Commerce, it might be a Sales Order Customer Entity or a Sales Order Entity.

For the data sources configured via connectors, you're presented with a dialog box to select a specific object.

The screenshot shows a configuration dialog titled 'New Data Stream'. The top section is labeled 'Configure your Amazon S3 source.' Below this, there are two main sections: 'Authentication Details' and 'Source Details'. The 'Authentication Details' section contains fields for 'S3 Bucket Name' (ravgroup-dev1), 'S3 Access Key' (redacted), 'S3 Secret Key' (redacted), 'Directory' (ecommerce-data/), and 'File Name' (*Order Headers.csv). The 'Source Details' section contains fields for 'Source' (S3_eCommerce_523010893), 'Object Label' (eCommerce Order 523010893), and 'Object API Name' (eCommerce_Order_523010893). At the bottom, there are 'Previous' and 'Next' buttons, with the 'Next' button being blue and highlighted.

Here are some additional considerations when selecting the data source object:

- With Amazon S3 or Google Cloud Platform options, you need to specify details of the file that will be ingested.
- If the file is located in the root directory of the S3 bucket, the Directory attribute can be left blank; otherwise, you'll need to specify the directory.
- The directory specification value should always start with the name (without prefixes) and end with the character (/).
- The file can also be compressed with Zip and GZ compression standards, but the archive can only contain a single file within it.

NOTE:

The filename specification supports a wildcard character (*) in places where part of the name might be dynamic. Here are some examples:

- The filename has a date prefix appended automatically in the source system, such as YYYY-MM-DD Order Headers.csv. The configuration in the data stream to support this can be set as Order Headers.csv.
- The filename has a dynamic prefix and suffix appended to it in the source system, such as YYYY-MM-DD Order Headers <BRAND>.csv. The configuration in the data stream to support this can be set as Order Headers*.csv.

Knowledge Checkup

Identify the two statements that are correct.

- The directory attribute can be left blank if the file Data Stream file is located in the root directory of the S3 bucket.
- The Data Stream file can be compressed with Zip and GZ compression standards.

Step 3: Define the Data Stream Properties

This section focuses on two key fields when defining the data stream properties:

- Source Name: This identifies the source system.
- Category: This determines how data is used.

The Source Name

During the configuration of the data stream, you might need to specify the source name value, unless the connector does it for you.

- For example, the Marketing Cloud data source imposes a value that includes the EID (top-level account identifier), while for Amazon S3, you need to provide a value.
- Choose a name that identifies the source system from where the data originated. You might choose something like POS Terminal or eCommerce Store.

New Data Stream

Configure your Amazon S3 source.

Authentication Details

* S3 Bucket Name ravgroup-dev1	* S3 Access Key	* S3 Secret Key
Directory ecommerce-data/	File Name Order Headers.csv	

Source Details

* Source S3_eCommerce_523010893	* Object Label eCommerce Order 523010893	* Object API Name eCommerce_Order_523010893
------------------------------------	---	--

Previous Next

The Category

Category

Profile Data
 Engagement Data
 Other Data

* Primary Key

Select an Option ▾

Record Modified Field ⓘ

Select an Option ▾

Organization Unit Identifier

Select an Option ▾

The data source category plays an important part in how the data is used within the Data Cloud data model. Let's review each of the categories in a bit more detail.

1. Profile Data
2. Engagement Data
3. Other Data

Profile Data Category

Category

Profile Data
 Engagement Data
 Other Data

* Primary Key

Select an Option ▾

Record Modified Field ⓘ

Select an Option ▾

Organization Unit Identifier

Select an Option ▾

Use the Profile Category for data sources that provide information about individuals with their identifiers, demographic and profile attributes, and contact points (such as email, phone, or postal address).

Think of this category as details about the individuals in the population that will be used as a starting point for profile unification and segmentation. This also implies that profile data will be evaluated for billing purposes once it's mapped into the Data Cloud data model.

Engagement Data Category

Use the Engagement Category for data sources that provide time-series data points. Examples include customer transactions, engagement activities, like opening and clicking through emails, and web browsing histories.

In practice, engagement data provides input for calculated insights and is used in segmentation criteria to assess an individual's behaviors, affinities, and propensity over a period of time.

The form shows the following settings:

- Category:** Engagement Data (selected)
- Event Time Field:** Order Date
- Primary Key:** Select an Option
- Record Modified Field:** Select an Option
- Organization Unit Identifier:** Select an Option

Once you choose the Engagement Data category, you're required to specify which field from the data set correlates to the Event Date.

Be careful!

This field selection can not be edited post-Data Stream set-up. If you choose the wrong attribute, you have to delete and reconfigure the data stream to correct the selection.

With so many customer transactions and engagement activities, how do you choose the right date?

The simplest way is to think about the actual event behind the data you're ingesting, then choose the date that directly corresponds to that event.

Let's look at how Allison, an admin at a consulting firm, handles this situation.

Step 1

The screenshot shows a configuration dialog for a Data Stream. At the top, there's a section labeled "Category" with three options: "Profile Data", "Engagement Data", and "Other Data". "Engagement Data" is selected and highlighted with a red border. Below this is a required field labeled "* Event Time Field" with a dropdown menu showing "Order Date" as the selected option. Further down are fields for "* Primary Key" (dropdown menu "Select an Option"), "Record Modified Field" (dropdown menu "Select an Option"), and "Organization Unit Identifier" (dropdown menu "Select an Option").

When she reaches the Event Time Field, she pauses. She has an important decision to make! Allison wants to get this choice right, because whatever she chooses can't be edited once the Data Stream setup process is complete.

Step 2

To avoid having to delete her work and start over, Allison takes the time to think through the process

Step 3

First, she takes a careful look at the Purchase Order record. It includes the following DateTime attributes:

- Transaction Date
- Shipment Date
- Last Modified Date

Since her objective is to ingest events that represent customer purchases, or transactions, she decides to pull the DateTime when the customer confirmed the purchase and the transaction (or purchase) was initiated.

So she selects Transaction Date.

How do you avoid duplicate records and ensure the events are associated with the DateTime?

To prevent duplicating records within Data Cloud and to ensure that events are associated with the DateTime when they took place, it's important to specify the field within the data source that contains **Immutable Values**.

Immutable Value

- Records whose Value cannot be changed after the object is created
- Immutable Values are essential for maintaining data relevancy and validity.
- Suppose a user chooses the field that can change value over time (a mutable value). In that case, the date specified doesn't represent the event, or it represents a different point in time of that event's lifecycle.



*While not officially part of the primary key definition, the event **DateTime** does determine what “folder” this record gets slotted into in the data lake, making it behave as a composite key when inserting data. It’s extremely important that the right Event Time Field is selected when data is being ingested as Engagement Data Category.*

*The Event Time Field should be an immutable date field (meaning it does not change) and should truly represent the date and time field of when that engagement happened (such as **website browse date**, **purchase date**, or **insurance claim created date**), as opposed to a generic date for when the file was created and extracted.*

*Fields such as **Updated Date** (as it could change) and **file extract date** (which doesn't represent engagement) will NOT be good choices. Special attention should also be given to a field such as **Extracted Date**, because even though that field could be immutable, it would typically be the same for all records in that file and wouldn't spread across different date spans.*

This field boosts both ingestion and query performance. If the system can focus on a subset of the lake provided by this date partition, the system increases efficiency.

Other Data Category

Lastly, use the Other Data category for all other data sources, including engagement data with mutable date fields.

Category

- Profile Data
- Engagement Data
- Other Data

Other Data serves as a broad, miscellaneous category that identifies data related to profile and engagement but doesn't fall into either of these categories.

A few examples include data about products, categories, store or branch locations, and the particulars of the loyalty program.

Knowledge Checkup

Awinha has a Purchase Order record that includes the following DateTime attributes: Transaction Date, Shipment Date and Last Modified Date. She needs to set the Event Time field to ingest data that represents the fact that shipment of the purchase occurred.

Which date should be selected as the Event Time attribute?

- Shipment Date

Step 4: Confirm the Data Source Object Schema

Once the data source is selected, the Data Cloud platform evaluates the data set and presents a list of fields with their suggested data types for the Data Source Object (DSO), similar to the image below.

s3_order_headers_csv (12)

New Formula Field

Header Label	Field Label	Field API Name	Formula ...	Data Type
1	Data Source	DataSource	✓	Text
2	Data Source Object	DataSourceObject	✓	Text
3	Internal Organization	InternalOrganization	✓	Text
4	Total Amount	total_amount		Number
5	Store Number	store_number		Number
6	Status	status		Text
7	Order Number	order_number		Text
8	Order Date	order_date		DateTime (yyyy-MM-
9	Loyalty Points Accrued	loyalty_points_accrued		Number
10	Delivery Method	delivery_method		Text
11	Customer Number	customer_number		Text
12	aux-day-diff	aux_day_diff		DateTime (MM/dd/yy)

The field label column pulls all the relevant field labels for the ingested data and suggests data types for the content in each field.

Keep in mind that as an administrator, you need to review and either confirm or adjust the schema to match your needs.

Header Label

- The Header Label column refers to the raw source data. These aren't editable by design, enabling the opportunity to cross-reference CDP and source data at any time

Field Additions

- CDP automatically adds three data lineage fields - Data Source, Data Source Object and Internal Organization - to every table in order to track each record's origination.

Field Label

- Field Label content defaults to the same text as the header value. However, the content is editable. Keep in mind that these values are used as the display values within the CDP user interface.

Field API Name

- The Field API Name refers to the field in the programmatic context, such as when you need to interact with the object via API

Formula Field

- For the fields that aren't in the source data set, but were instead derived using a formula (including those auto-appended by the platform,) the Formula Field column is checked.

Data Cloud supports the following data types: Data Cloud supports the following data types: **Text**, **Number**, **Date**, and **DateTime**. While the platform is intelligent and recognizes most of the data types appropriately, pay special attention to the date formats. . While the platform is intelligent and recognizes most of the data types appropriately, pay special attention to the date formats.

Data Type	Description
Text	Stores any kind of text data. It can contain both single-byte and multibyte characters that the locale supports. Zero length strings ("") and no value are treated as empty strings.
Number	Stores numbers with a fixed scale of 18 and precision of 38. Scale represents the number of fractional digits. Precision represents the count of digits, regardless of the location of the decimal point. If the data record has a number that's out of range or a non-numerical value, the value is null.
Date	Holds the calendar date without a time part or time zone. Example: yyyy-MM-dd
DateTime	Stores an instant in time expressed as a calendar date and time of day. A valid datetime must include the time part and time zone. If they're not included, it's inferred as 00:00:00 UTC.

 **TIP:**

The significance of choosing the correct data type applies during the mapping of the DSO into the data model.

The source attribute data type must match the data model attribute type. Any attempt to map mismatched data types will raise an error. To review and confirm or change the auto-suggested data types, scroll to the far right of your window.



Always carefully review suggested data types for all of the attributes, because these can't be changed after the creation of the data stream.

Primary Key, Record Modified Field, and Organization Unit Identifier

The form shows a 'Category' section with three radio button options: 'Profile Data' (selected), 'Engagement Data', and 'Other Data'. Below this are three dropdown menus labeled 'Primary Key', 'Record Modified Field', and 'Organization Unit Identifier', each with a 'Select an Option' placeholder. A blue border highlights the entire group of dropdowns.

Category
<input checked="" type="radio"/> Profile Data
<input type="radio"/> Engagement Data
<input type="radio"/> Other Data

* Primary Key
Select an Option

Record Modified Field ⓘ
Select an Option

Organization Unit Identifier
Select an Option

Configuration options for the Amazon S3 data source.

Primary Key

- This value uniquely identifies a given record within the data set and establishes whether a new record from the data source should be added to the DSO or if an existing one should be updated.

Record Modified Field

- This attribute acts as a reference point when the system is deciding whether to update the record continuously, calibrating the latest version of the record.
- It's also useful when data might be received out of order, helping prevent overwriting of the information with the older version.

Organization Unit Identifier

- If your data set includes an attribute that provides a reference to an organization unit, such as Marketing Cloud business unit ID (MID), you can specify that attribute in the Organization Unit Identifier configuration field of the data stream.

Step 5: Apply the Necessary Row-Level Transformations

Now, let's talk about instances where the data doesn't work smoothly with Data Cloud immediately. For example:

- What happens when a data source doesn't include a field with a unique value that can be used as a primary key?
- What if the uniqueness of the record needs to be determined via the **Composite Key**?

Composite Key

- The value that is produced by combining values from more than one field together.

In these situations, Data Cloud provides the ability to create formula fields. Use these to improve and enrich source data.

Formula fields can include a combination of hard-coded literal values, or they can derive and calculate values using formula functions.

💡 TIP:

It's important to know that formulas work at the row level. This means that for any given record processed, the formula context only enables access to the fields of that single record.

No other records from the same data stream or other objects already configured in Data Cloud can be exposed to the formula execution context.

Primary Keys and Missing Attributes

Create attributes needed for the ingestion or mapping of source data.

Use Case: If source data is missing a primary key, or a composite key is needed using a concatenation of literal values with one or more attributes from the data source

Use Case: Creating an event date time for an engagement data set that doesn't have a set date and doesn't need to be updated

Consider functions like CONCAT(), NOW().

Transformation Formula

```
CONCAT(sourceField['Customer ID'], "_ContactPointEmail_",
sourceField['Email'])
```

Normalization

Simplify segmentation and improve usability by bucketing or grouping source data values.

Rather than relying on raw values during segmentation, create an attribute with a predefined set of values that can even be suggested to the end-user in the segmentation criteria user interface.

Use Case: Converting the loyalty points balance into tiers, sport interests into categories, city and postal code into a region, and range of values into Boolean sets

Consider logical functions like IF(), AND(), OR() and NOT().

Transformation Formula

```
IF(  
    sourceField['Points Balance'] <= 3000, "Low", IF(  
        sourceField['Points Balance'] <= 5000, "Medium", "High"  
)  
)
```

Transformation Formula

```
IF(OR(sourceField['Opted In'] == '1', sourceField['Opted In'] == 'Yes'),  
'True', 'False')
```

Standardization

Ensure consistent, clean data values and formatting for segmentation and activation.

Use Case: If the data source contains fields with mixed case values, or includes special characters that need to be removed

Consider text functions like PROPER(), REPLACE(), ISEMPTY(), EXTRACT() and TRIM().

Transformation Formula

```
IF(IS EMPTY(sourceField['Tier']), "Unspecified",  
PROPER(sourceField['Tier']))
```



It's important to know that the UUID() function can't be used as a means to generate primary key values in a majority of use cases.

The reason is that as a formula field function, it produces a new value every time the record is processed. This means that during updates, instead of an upsert, the platform performs an insert operation, adding a duplicate record in Data Cloud.

Be sure to use test functionality when creating a formula field. Approach the design of the formula with requirements and a sample test set that you can validate right at the time of writing the formula.

For example, in the scenario below, it would be appropriate to have at least seven test values for the Total Amount attribute, to ensure that the logic of the formula is validated against each criterion in the enclosed IF() functions:

New Formula Field

Choose items from the functions and fields tabs to create a formula expression.

* Field Label Transaction Weighting	* Field API Name Transaction_Weighting	* Formula Return Type Text
<div style="border: 1px solid #ccc; padding: 5px;"> Search function More ▾ <input type="text"/> <ul style="list-style-type: none"> > Conversion > Date > Logical > Text </div>	Transformation Formula <pre>IF(sourceField['Total Amount'] < 50, 'Unrated', IF (sourceField['Total Amount'] < 100, 'C', IF (sourceField['Total Amount'] < 200, 'B', IF (sourceField['Total Amount'] < 250, 'BB', IF (sourceField['Total Amount'] < 350, 'A', IF (sourceField['Total Amount'] < 500, 'A+', 'AA'))))))</pre>	Tested Value Total Amount <input type="text" value="420"/> <input type="button" value="Test"/> Output <input type="text" value="A+"/>

[Back](#) [Save](#)

Step 6: Configure Updates to the Data Source Object

The last step in the configuration process is to define how the data is written and refreshed in the Data Source Object (DSO).

The first option is to choose the Refresh Mode setting:

New Data Stream

* Data Stream Name
eCommerce Order 5230108

Refresh Mode

 Upert Insert new and update existing data	 Full Refresh Delete existing data and insert new data with each refresh
---	---

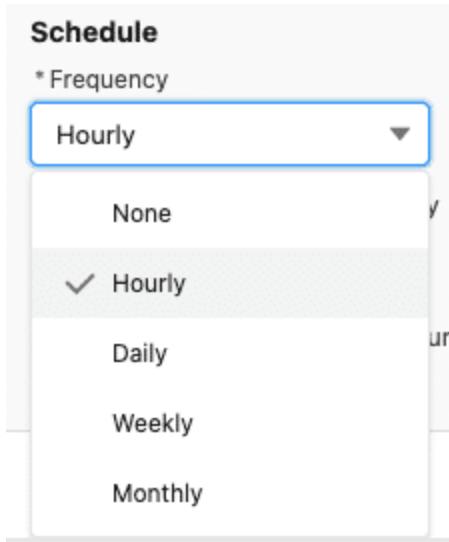
Upert

- Select this setting when the ingested data set contains only new or new and updated records (sometimes called deltas).

Full Refresh

- This setting instructs the platform to clear out the table entirely and replace it with the new records each time.

Important: Depending on the data volume, the Full Refresh setting may result in slower processing; this option should be carefully evaluated for each data source.



A data stream can be scheduled to refresh hourly, daily, weekly, or monthly.

It can also be configured with a None option, providing the opportunity to ingest the data manually.

Data Stream Configuration for Amazon S3

When configuring a data stream for an Amazon S3 data source, a few additional settings are available on the last step of the configuration.

- Authentication Details
- Schedule
- Aggregate Mode

Numbered divider 1

Authentication Details

You can update the Authentication details, the File location, and the Name. If, for any reason, these should be different from those used in the initial set-up.

An example might be configuring the data stream with a minimized or schema-only file with a few sample records while the ongoing version of the file isn't ready yet.

Refresh Source

Amazon S3

Authentication Details

* S3 Bucket Name	* S3 Access Key	* S3 Secret Key
ravgroup-dev1
Directory ⓘ	File Name ⓘ	
ecommerce-data/	*Order Headers.csv	

Refresh only new files
 Log an error if no file is found
 Is headerless file retrieval enabled

Schedule

* Frequency

Hourly

Refresh initial file immediately

Aggregate Mode

When retrieving files from source, combine multiple files into a single file to increase processing efficiency.

Refresh Only New Files

Once the file or files have been retrieved, you can establish a high watermark to track which files have been picked up and which have not, and then pull only new files accordingly. This option is convenient if you aren't planning to remove files from the S3 bucket once they're processed by CDP.

- Refresh only new files
- Log an error if no file is found
- Is headerless file retrieval enabled

Log an Error if No File is Found

When the data stream runs on a schedule, if no files are located in the directory, this setting causes the data stream to fail for that run as a way to provide an alert.

Consider enabling this setting for the data streams that are important, where you'd want to be informed in case the data was unavailable for some reason, but would absolutely be expected to be on a defined schedule.

Enable Headerless File Retrieval

Check this box if the file used during setup had headers, but future files will not.

So, in cases where production files are supplied without headers, the platform relies on the index established during configuration.

Note: It's expected that for such scenarios, the order of the data columns in the file remains unchanged over time.

Schedule

Refresh Source
Amazon S3

Authentication Details

* S3 Bucket Name: ravgroup-dev1
* S3 Access Key:
* S3 Secret Key:
Directory: ecommerce-data/
File Name: *Order Headers.csv

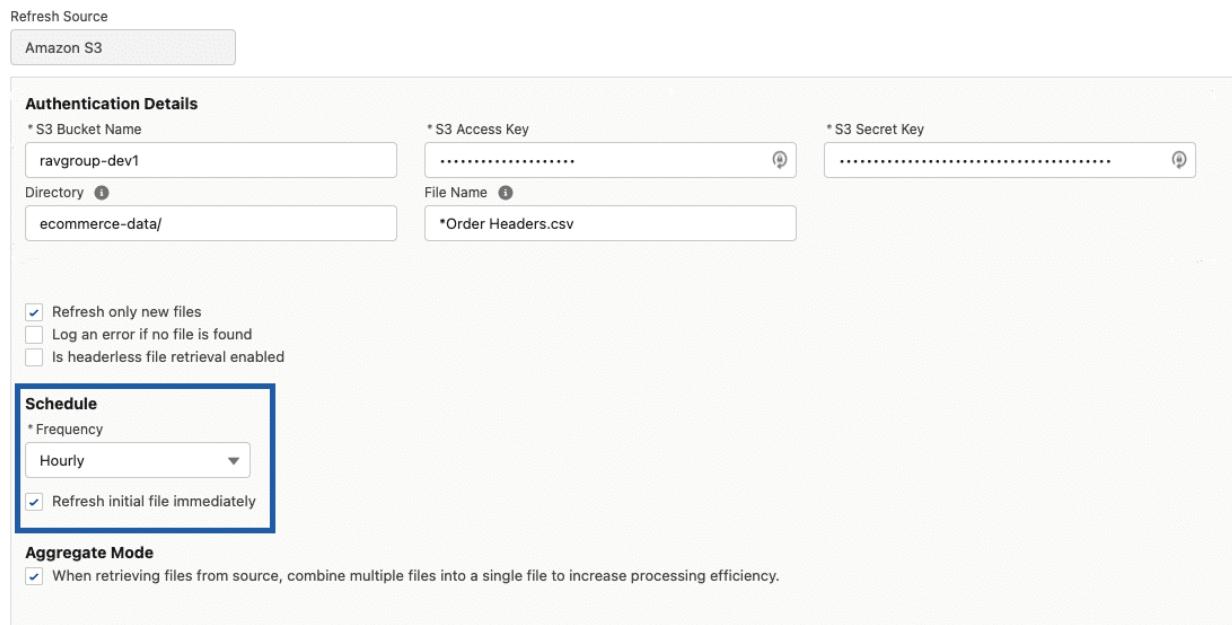
Refresh only new files
 Log an error if no file is found
 Is headerless file retrieval enabled

Schedule

* Frequency: Hourly
 Refresh initial file immediately

Aggregate Mode

When retrieving files from source, combine multiple files into a single file to increase processing efficiency.



Following the **Frequency** setting, an additional checkbox, **Refresh Initial File Immediately**, signifies that a file is retrieved immediately upon saving the data stream instead of waiting for the first scheduled run.

This behavior is analogous to the **Refresh Now** button on the data stream record home page.

Aggregate Mode

The very last setting enables the platform to aggregate files for optimized processing.

Refresh Source
Amazon S3

Authentication Details

* S3 Bucket Name: ravgroup-dev1
* S3 Access Key:
* S3 Secret Key:
Directory: ecommerce-data/
File Name: *Order Headers.csv

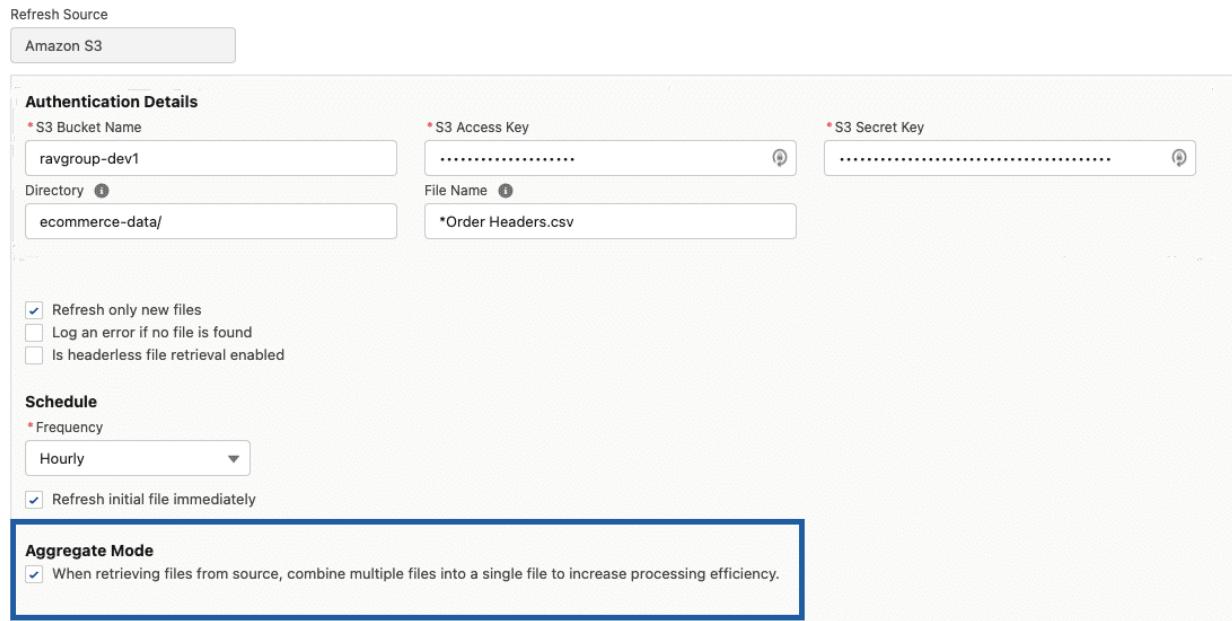
Refresh only new files
 Log an error if no file is found
 Is headerless file retrieval enabled

Schedule

* Frequency: Hourly
 Refresh initial file immediately

Aggregate Mode

When retrieving files from source, combine multiple files into a single file to increase processing efficiency.



It's recommended to leave it checked unless you experience any errors with ingestion of records when multiple files are processed at the same time, such as following the schedule of an external system that provides the data set files to S3 for ingestion.

Data Stream Home Screen

Once you save the configuration, the Data Stream home screen displays where you can see the object details and the fields.

The screenshot shows the Data Stream home screen for an eCommerce Order. At the top, there is a header with a red icon, the text "Data Stream", the object name "eCommerce Order 523010893", and two buttons: "+ Follow" and "Ref". Below the header, there is a summary table with the following data:

Data Stream Status	Last Run Status	Last Refreshed	Last Processed Records	Total Re
Active	Success	15/03/2022, 2:49 PM	500	500

Below the summary table, there are three tabs: "Fields" (which is selected), "Details", and "Refresh History". Under the "Fields" tab, there is a section titled "Data Properties" with the following details:

Object Category	Object Label
Engagement	eCommerce Order 523010893

Under the "Fields" tab, there is also a section titled "Object API Name" with the value "eCommerce_Order_523010893_dll".

At the bottom of the screenshot, there is a table titled "Fields (14)" with 14 rows. The columns are labeled: H... ↑ ↓, Fiel... ↑ ↓, Fiel... ↑ ↓, For... ↑ ↓, Dat... ↑ ↓, Pri... ↑ ↓, Org... ↑ ↓, Eve... ↑ ↓, Sta... ↑ ↓, and a search bar. The table contains the following data:

H... ↑ ↓	Fiel... ↑ ↓	Fiel... ↑ ↓	For... ↑ ↓	Dat... ↑ ↓	Pri... ↑ ↓	Org... ↑ ↓	Eve... ↑ ↓	Sta... ↑ ↓	Search...
1	Business...	Business...	✓	Text	✓				
2	cdp_sys...	cdp_sys...	✓	DateTime					
3	Data So...	DataSo...	✓	Text					
4	Data So...	DataSo...	✓	Text					
5	Internal ...	Internal...	✓	Text					
6	aux-day...	aux-day...	aux_day...	DateTime					
7	Custom...	Custom...	custom...	Text					
8	Delivery...	Delivery...	delivery...	Text					
9	Locality	Locality	Locality	Number					
10	Locality	Locality	Locality	Number					
11	Locality	Locality	Locality	Number					
12	Locality	Locality	Locality	Number					
13	Locality	Locality	Locality	Number					
14	Locality	Locality	Locality	Number					

Refresh History

The Refresh History provides insights into the processing of the data stream. Use it to monitor the ingestion runs along with status, duration, and number of processed records.

This is the area to inspect when troubleshooting data ingestion problems!

The screenshot shows the Salesforce Data Cloud interface. At the top, there are tabs: Fields, Details, and Refresh History, with Refresh History being the active tab. Below the tabs is a section titled "Refresh History (2)" containing a table with two rows of data. The columns include Refresh ID, Date, Action, File Name, Duration, Status, and Record Count. Row 1: Refresh ID 1, Date 15/03/2020, Action Delete, File Name NO FILE..., Duration 0, Status Success, Record Count 0. Row 2: Refresh ID 2, Date 15/03/2020, Action Upsert, File Name NO FILE..., Duration 0:0:19, Status Success, Record Count 500.

Refr...	Refr...	File ...	File ...	Dur...	Stat...	# of ...	# of ...	# of ...
1	15/03/20...	Delete	NO FILE ...	0	Success		0	
2	15/03/20...	Upsert		0:0:19	Success	500	500	0

Below the refresh history is a row of quick actions: + Follow, Refresh Now, Add Source Fields, New Formula Field, and a dropdown menu. The dropdown menu is open, showing three options: Edit Data Stream, Delete Data Stream, and Update Status.

If you need to update the data stream details, use quick actions to either edit Data Stream or add the source or formula fields.

Data Cloud: Explore Salesforce CRM Data Integration

The Salesforce CRM Connector enables the ingestion of data from Salesforce CRM in three ways:

1. Starter Data Bundles: Ingest data sets via Salesforce CRM Starter Data Bundles.
2. Direct Object Ingestion: Choose specific Salesforce CRM object data and ingest them into Data Cloud.
3. Data Kits: Use for bundling CRM data streams

Starter Data Bundles

The Starter Data Bundles provide access to sales, service, and loyalty data, enabling highly personalized messaging experiences for specific customer segments. The bundle deploys data streams and configures mapping to the Data Cloud data model.

New Data Stream

View All permissions are required for any standard or custom objects. [Tell Me More](#)

Select a Salesforce org and a Data Bundle, Object or Data Kit to create a new data stream.

* Salesforce Org: RAV Group - APAC (selected)

Data Bundles (selected)

All Objects

Data Kits


Sales Cloud
 Manage leads, track progress, and automate sales processes with ease.


Service Cloud
 Automate service processes and streamline workflows to transform the agent experience.


Loyalty Management
 A cross-industry loyalty solution to drive brand loyalty and deliver innovative reward and recognition programs.

Previous Next

TIP:

If you have more than one Salesforce CRM connection configured, you must choose a Salesforce Org before any other configuration option is enabled.

In the case of a single org connection, it will be automatically selected in the New Data Stream dialog box.

The Sales Cloud Bundle installs data streams for the account, contact, and lead objects.

New Data Stream

Review and optionally edit your data fields.

Sales Cloud Objects		Account Fields (43)			
		Required	Header Label	Field Label	Field API Name
<u>Account</u>		<input checked="" type="checkbox"/>	Website	Website	Website
Contact		<input checked="" type="checkbox"/>	Account Type	Account Type	Type
Lead		<input checked="" type="checkbox"/>	System Modstamp	System Modstamp	SystemModstamp
		<input checked="" type="checkbox"/>	SIC Description	SIC Description	SicDesc
		<input checked="" type="checkbox"/>	Shipping Street	Shipping Street	ShippingStreet
		<input checked="" type="checkbox"/>	Shipping State/Province	Shipping State/Province	ShippingState
		<input checked="" type="checkbox"/>	Shipping Zip/Postal Code	Shipping Zip/Postal Code	ShippingZip
		<input checked="" type="checkbox"/>	Shipping Longitude	Shipping Longitude	ShippingLongitude
		<input checked="" type="checkbox"/>	Shipping Latitude	Shipping Latitude	ShippingLatitude

Search... [New Formula Field](#)

Previous Next

The Schema Review dialog enables the selection or de-selection of the fields for each respective object, allowing the update of Field Label and Field API Name while preventing any modifications to their data types. Creation of the formula fields is also available.

At the deployment step, the dialog presents the summary of the bundle configuration to be deployed, including refresh mode and schedule. Neither of the options is editable on that step.

The screenshot shows a configuration interface for a 'Sales Cloud' Data Bundle. At the top, it says 'New Data Stream'. Below that, a message states 'Multiple new Data Streams will be created for 'Sales Cloud' Data Bundle'. A table titled "'Sales Cloud' Data Bundle Configuration Details" lists three objects: Account, Contact, and Lead, each categorized as 'Profile' with 'Upsert' refresh mode and 'Hourly' refresh schedule. At the bottom, there are 'Previous' and 'Deploy' buttons, along with a progress bar showing the deployment process.

Name	Category	Refresh Mode	Refresh Schedule
1 Account_00D8c000004e8eG	Profile	Upsert	Hourly
2 Contact_00D8c000004e8eG	Profile	Upsert	Hourly
3 Lead_00D8c000004e8eG	Profile	Upsert	Hourly

Configuration for other starter data bundles follows the same process, but each bundle includes different objects for configuration.

The Sales Cloud bundle includes the following objects:

- Account
- Contact
- Lead

The Service Cloud bundle includes the following objects:

- Account
- Case
- Contact

The Loyalty Cloud bundle includes the following objects:

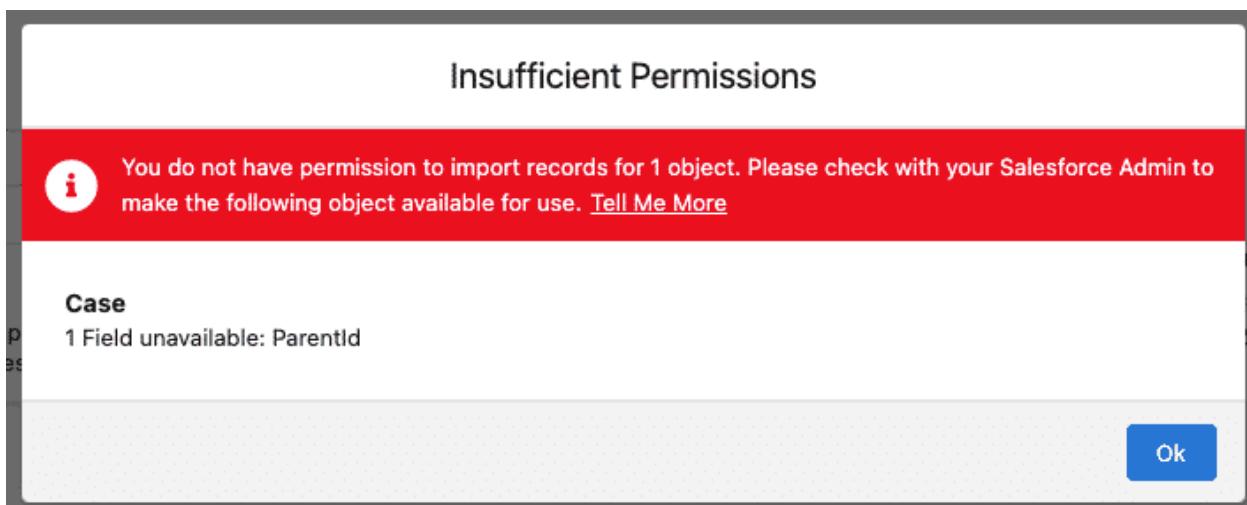
- Benefit
- Benefit Type
- Contact
- Journal SubType
- Journal Type
- Loyalty Ledge
- Loyalty Member Currency
- Loyalty Member Tier
- Loyalty Partner Product
- Loyalty Program
- Loyalty Program Currency
- Loyalty Program Member

- Loyalty Program Member Promotion
- Loyalty Program Partner
- Loyalty Tier
- Loyalty Tier Benefit
- Loyalty Tier Group
- Member Benefit
- Promotion
- Promotion Loyalty Partner Product
- Transaction Journal
- Voucher
- Voucher Definition

 **TIP:**

Keep in mind that access to the objects and fields, including some standard objects like the Case object, must be explicitly granted via the Salesforce Data Cloud Salesforce Connector Integration permission set. Failing to do this results in an Insufficient Permissions error message.

Prevent this simply by enabling **Read and View All** permissions for the object and **Read Access** for each field that needs to be visible to Data Cloud.



As an example, the out-of-the-box configuration for the Service Cloud bundle can raise an Insufficient Permissions error, as illustrated here. This error occurs because permissions on the Parent Case field of the Case object aren't configured to enable Read access for the Data Cloud integration permission set.

To fix the error, follow the Help article "Enable Object and Field Permissions to Access Salesforce CRM in Salesforce Data Cloud" in the Additional Resources lesson in this course. While you're at it, feel free to enable access to other fields for your specific use cases!

For the same reason, the Loyalty Cloud bundle may not appear in the list of bundles, or it might raise an error similar to the Service Cloud bundle. Ensure that all objects listed in the Loyalty Cloud bundle are granted appropriate access permissions to see the configuration and successfully deploy it.

 **TIP:**

The Loyalty Cloud bundle will appear in the list of bundles once access to the Loyalty Program object is enabled.

As of the Spring '23 (242) if you want to use the out of the box capability to setup promotions, Loyalty Management and Data Cloud must be part of the same org. Note: You can always ingest data from a Loyalty Management org to a separate Data Cloud org but to use promotions and segment, they must be in the same org.

Knowledge Checkup

Where are you allowed to select/deselect Account fields and update the Field Label and Field API Name for a Data Stream?

- On the Account Schema Review dialog page

Direct Object Ingestion

You've already learned that the Salesforce CRM Connector provides access to all standard and custom objects supported by the Salesforce Bulk API. But in your day-to-day work, sometimes you need a little more control.

Example

Imagine a scenario where you need to configure additional objects beyond those included in the bundles or where only select objects are required.

The good news is you have options.

Using direct object ingestion, it's possible to directly choose specific objects and configure their ingestion into the Data Cloud.

Select an Object

After selecting the All Objects option, the dialog displays the list of all objects visible to the connector.

New Data Stream

View All permissions are required for any standard or custom objects. [Tell Me More](#)

Select a Salesforce org and a Data Bundle, Object or Data Kit to create a new data stream.

* Salesforce Org: RAV Group - APAC

Data Bundles **All Objects** Data Kits

Salesforce Objects (182)

Label ↓	Object API Name	Custom
<input checked="" type="radio"/> Contact	Contact	
<input type="radio"/> Contact Feed	ContactFeed	

contact

Previous **Next**

1. Find the specific objects you need using either the manual scroll and select or the quick search functionality.
2. Once located, only one object can be selected and configured for deployment at a time.

Specify the Category

Next, the Schema Review dialog box allows you to specify the Category for the object, although it automatically defaults to Profile.

New Data Stream

Review all data stream fields and edit as needed. The data types can't be changed after data stream creation, so review these carefully.

Object Details

* Category: Profile Engagement Other

* Primary Key:

Contact Fields (55)

	Header Label	Field Label	Field API Name
1	<input checked="" type="checkbox"/> Title	Title	Title
2	<input checked="" type="checkbox"/> System Modstamp	System Modstamp	SystemModstamp
3	<input checked="" type="checkbox"/> Salutation	Salutation	Salutation
4	<input checked="" type="checkbox"/> Reports To ID	Reports To ID	ReportsTold
5	<input checked="" type="checkbox"/> Photo URL	Photo URL	PhotoUrl
6	<input checked="" type="checkbox"/> Business Phone	Business Phone	Phone
7	<input checked="" type="checkbox"/> Owner ID	Owner ID	OwnerId
8	<input checked="" type="checkbox"/> Other Street	Other Street	OtherStreet
9	<input checked="" type="checkbox"/> Other State/Province	Other State/Province	OtherState

Search... New Formula Field

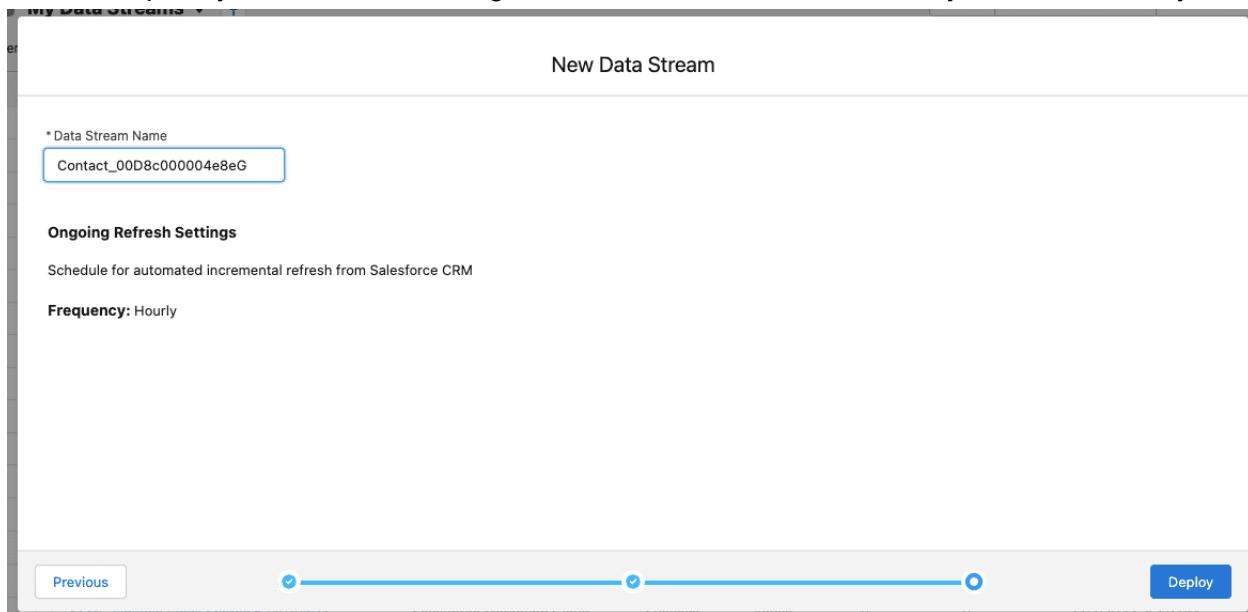
Previous **Next**

TIPS:

- The Primary Key is pre-populated and set to be read-only.
- The following options are available:
 - Selection/de-selection of the fields for each respective object
 - Update of Field Label and Field API Name while preventing any modifications to their data types
 - Creation of the formula fields
- At the deployment step, the dialog allows for a data stream name update, defaulting its value to <Object Name>_<Salesforce Org Id>.

Refresh Schedule

The incremental (ongoing) refresh setting automatically defaults to Hourly since this is the only refresh frequency available at this stage. However, the data stream is fully refreshed weekly.



New Data Stream

* Data Stream Name
Contact_00D8c000004e8eG

Ongoing Refresh Settings

Schedule for automated incremental refresh from Salesforce CRM

Frequency: Hourly

Previous Deploy

Once the data stream is deployed, be sure to map it to the Data Cloud data model, since this method does not provide an automated mapping.

Knowledge Checkup

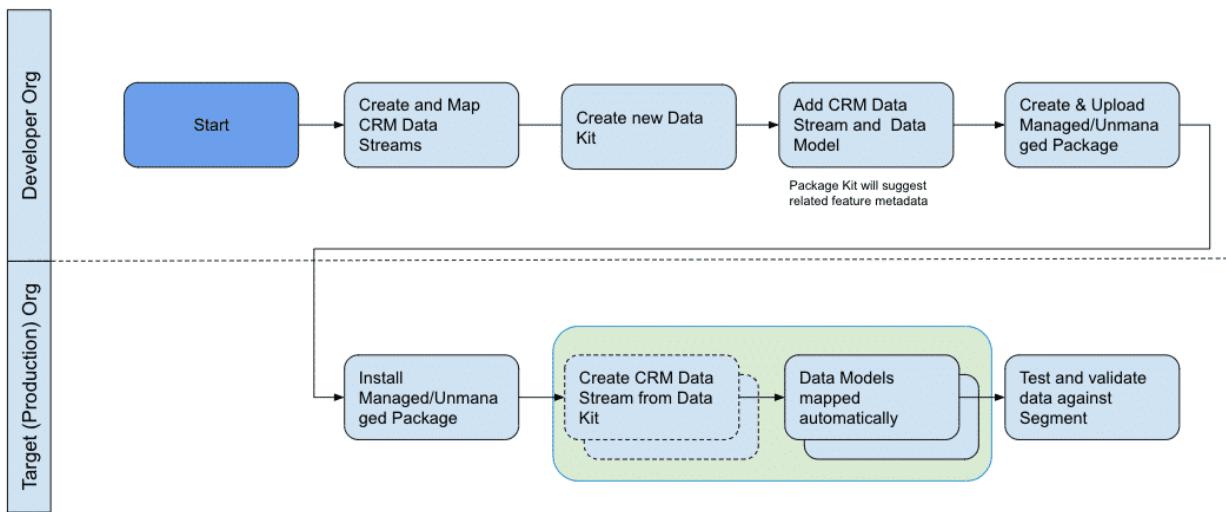
During data stream configuration, which attributes of the CRM object field can be updated at the schema review step? Select the two that apply.

- Field Name
- Field API Name

Data Kits for CRM Data Streams

The third way that the Salesforce CRM Connector enables data ingestion from Salesforce CRM is through data kits.

Data kits provide a new way to bundle CRM data streams and data models with flexibility and ease. As a result, data kits make deploying multiple CRM data streams as easy as when using starter data bundles!



This diagram illustrates the overall process for the creation and deployment of the Data Kit between development and production Data Cloud orgs.

Installing the Data Kit

Data kits are packaged for distribution using Salesforce Platform Packaging. So the very first step in the deployment is to install the package in the destination Data Cloud org.

Once the package is installed, you can locate the data kit under the Data Kits option of the New Data Stream configuration wizard.

New Data Stream

i View All permissions are required for any standard or custom objects. [Tell Me More](#)

Select a Salesforce org and a Data Bundle, Object or Data Kit to create a new data stream.

* Salesforce Org
RAV Group - APAC

Data Bundles All Objects **Data Kits**

Data Stream Bundles

Name	Data Kit ↓
<input checked="" type="checkbox"/> CampaignMember	Campaign_Member

Previous Next

The remaining steps of the configuration follow the same process seen when configuring the Starter Data Bundle. Once the data kit is deployed, if data models were included in the data kit, then data streams will be automatically mapped into the Data Cloud data model.

Knowledge Checkup

True or false: As soon as a data kit (with data models included) is deployed, data streams are automatically mapped into the Data Cloud data model.

- True

Few things to take a note of with regards to Data Transform:

- There is a limited number (3) of Data Transforms that are included with the org, additional transforms can be purchased, with [total limit of 25](#).
- Data Transform can use only one source DLO, e.g. in our case we would not be able to combine same identifiers from the **Booking** DLO. Additional data transform can be created that uses the same target DLO.
- Within a data transform with **UNION** statement there can be only up to 5 **SELECT** queries. For additional data points new data transform need to be created.

Knowledge Check: Data Cloud - Data Ingestion

Can an object be ingested more than once?

- No

When setting up the data source object or schema corresponding to the data set that you're importing, which category would you select when bringing sales order data?

- Engagement Data

What are the Starter Data Bundles available in the Data Cloud CRM Connector?

- Sales Cloud Bundle
- Loyalty Management Bundle
- Service Cloud Bundle

How frequently can CRM data be refreshed in Data Cloud?

- Every hour

What are some of the supported ways that data from CRM can be brought into Data Cloud?

- Data Kits
- CRM Objects
- Data Bundles

Which permissions are required to expose a Salesforce object to Data Cloud? Select all that apply.

- Read
- View All

Which three connectors are available out-of-the-box for data ingestion?

- Sales and Service Cloud
- Marketing Cloud
- AWS S3

Which type of data model is ideal for ingesting into Data Cloud?

- Normalized Data Model

Additional Resource

[Partner Pocket Guide: Salesforce Data Cloud](#)

[Connect Data](#)

[Enable Object and Field Permissions](#)

[Data Cleansing and Preparation](#)

[Data Stream Schedule in Data Cloud](#)

Data Cloud: Data Modeling

Data Cloud - Data Modeling

Glossary

- DSO - Data Source Object
Object that underpins the data stream
- DMO - Data Model Object
Entity within the Data Cloud data model that consolidates the data of the same nature from numerous data sources through data lake objects
- DLO - Data Lake Object
Target destination for records from the data streams
- Customer 360 Data Model
Formerly known as Cloud Information Model (CIM), the Customer 360 Data Model is the foundation for the Data Cloud standard model.
- MDM - Master Data Management
Master Data Management refers to the system that provides data stewardship and governance across the enterprise.

Data Modeling Process Introduction

- Data Modeling is the second step in establishing the data model in our Data Cloud platform. Once the data is ingested in its raw form with optional transformations, you advance to modeling it.
- The model is a consistent, semantic view on top of the data.

Harmonization is the process of mapping the ingested data in alignment with the Customer 360 Data Model.

bullet

Marketers work with harmonized data abstracted from raw source data schemas.

bullet

This means they have a common understanding of data regardless of the source of origin, so they can draw insights from that data for marketing purposes.

Customer 360 Data Model

The Customer 360 Data Model is Data Cloud's standard data model. It helps with the interoperability of data across applications.

Canonical Data Model

Salesforce Customer 360 delivers a 360-view of customers through a canonical data model to drive integration best practices. It prepares a list of objects, fields, metadata, and relationships to ensure consistency across applications and business processes.

Continuous Evolution

The Customer 360 Data Model is continuously evolving, and adaptable to innovations and Salesforce Platform developments.

Default Mappings Included

The Customer 360 Data Model includes default data mappings for various Salesforce products, such as Marketing Cloud, Sales Cloud, and Service Cloud.

Extendable for Custom Requirements

Extend the Customer 360 Data Model to meet custom requirements for unification, segmentation, and activation purposes.

When should you choose the standard or custom data model?

WHY THE STANDARD DATA MODEL?

- Maximizes Data Cloud functionality
- Aligns with Salesforce's opinionated data model
- Speeds time to value by relying on prebuilt object relationships
- Grows your Data Cloud with AppExchange

WHY A CUSTOM DATA MODEL?

- Uses an established in-house data model
- Allows your marketers and data consultants to interact with a familiar model
- Matches existing data structures for easier integration and implementation
- Provides the ability to create custom objects, fields, and relationships

TIP:

You can extend the standard data model with custom attributes, objects, and relationships for a hybrid approach.

While a standard data model can be customized, it should be built thoughtfully and carefully.

- A well-planned and designed data model fuels harmonization. That's why the standard data model includes prebuilt models based on common marketing use cases, which helps marketers understand how to use their data for segmentation and insights.
- It's best to adhere to the standard model as much as possible, extending it only to cover gaps.

Avoid creating separate data model objects for each data source ingested into Data Cloud. The data model objects are meant to combine and express similar data from various data sources in a single object.

Data Transformations



Data is logically organized as 3 parts



Data Source Objects - the original data sources. This is the customer's original file format (e.g. CSV)



Data Lake Objects - the data that is transformed and actually stored in the lake. This is generally stored as Parquet files.



Data Model Objects - These are either materialized or views on top of the Data Lake Objects. These can be CIM objects or materialized ones such as Unified Individual, Computed Insights, transformations etc.

Let's see how the data is transformed as it's ingested and makes its way through different layers of Data Cloud.

Data Source Object (DSO)

- Multi-format: JSON, CSV, PARQUET, ORC
- Multi-sourced: Cloud Storage, MuleSoft, Kafka

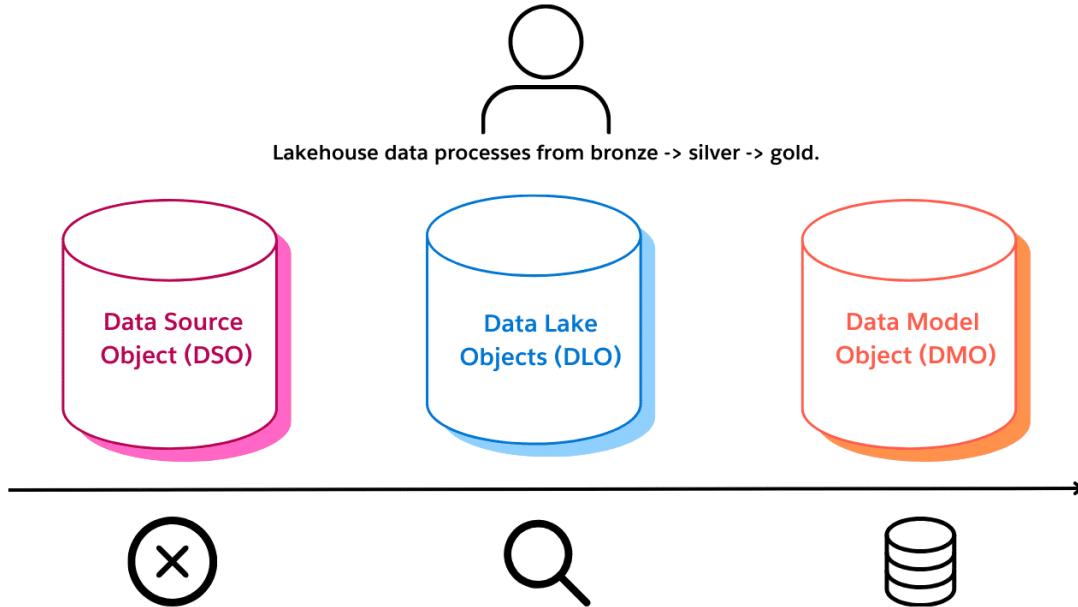
Data Lake Objects

- Semantic mapping-established DLO to DMO
- Simplified, curated data to power business applications

Data Model Object

- Schema-enforced

- Parquet-formatted Iceberg Tables
- Hydrated by transformations
- Typed-profile vs engagement



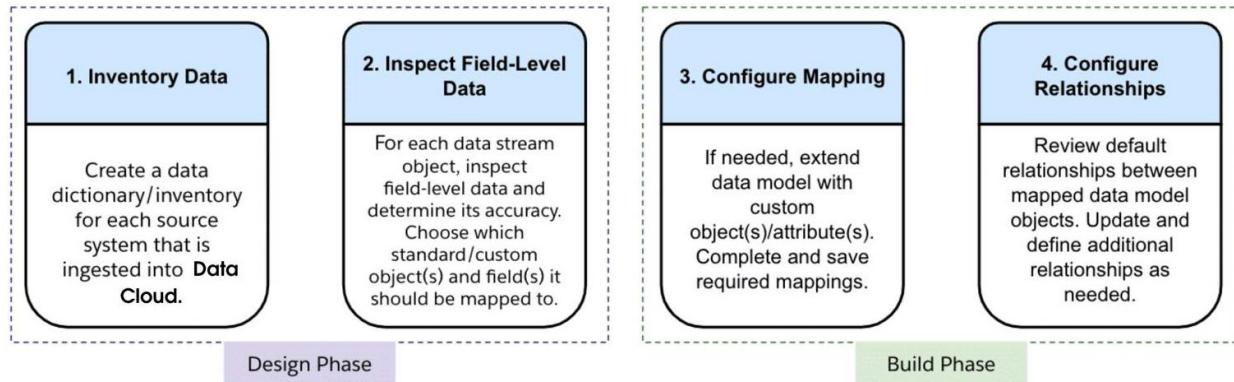
Knowledge Review

Select the two statements that are benefits or features of the standard data model.

- It includes default data mappings for various Salesforce cloud products.
- It's a canonical data model, because it prepares a list of objects, fields, metadata, and relationships to ensure consistency across applications and business processes.

Overview

Data Mapping Process Steps



Knowledge Review

At which point in the data model configuration process can you add custom attributes?

- Configure Mapping

Step One: Inventory Data

Ideally, complete this step ahead of the data ingestion setup process. The purpose of this step is to create an inventory of all data streams ingested into Data Cloud.

The data inventory is quite often created in “offline” mode using a spreadsheet. It would be even more advantageous to use an online tool that can support versioning and provide collaborative access to all contributors, to speed up development.

Knowledge Review

The purpose of the Inventory Data step is to create an inventory of _____ ingested into the Data Cloud.

- Data streams

Step Two: Inspect Field-Level Data

This step fuels the design decisions for the data model in Data Cloud. Ideally, complete this step before the data ingestion setup process.

During this step:

- Establish what data identifies individuals uniquely and ideally across the entire dataset from all sources. This data might be the CRM record ID or MDM ID.
- Identify the relationship between records in source data, and establish whether or not all of them contain required primary keys that are unique at the data model object level.

 TIP: For records or objects missing that level of uniqueness, it highlights the need for using the formula field to create fully qualified primary keys upon ingestion.

Following these activities, it's important to:

- Consider all scenarios and use cases for unification, segmentation, and activation.
- Identify necessary attributes used across various use cases.
- Locate them in the source data.
- Post the inspection, analyze the model-to-be.
- Identify the gaps and build the necessary extensions to the standard data model that support the identified marketing activities and needs.

The data that comes to Data Cloud originates from multiple sources and varies in formats. It's important to assess the arrangement of the records to understand how these will be mapped to the Data Cloud data model. There are two main arrangements to consider—**denormalized** and **normalized**.

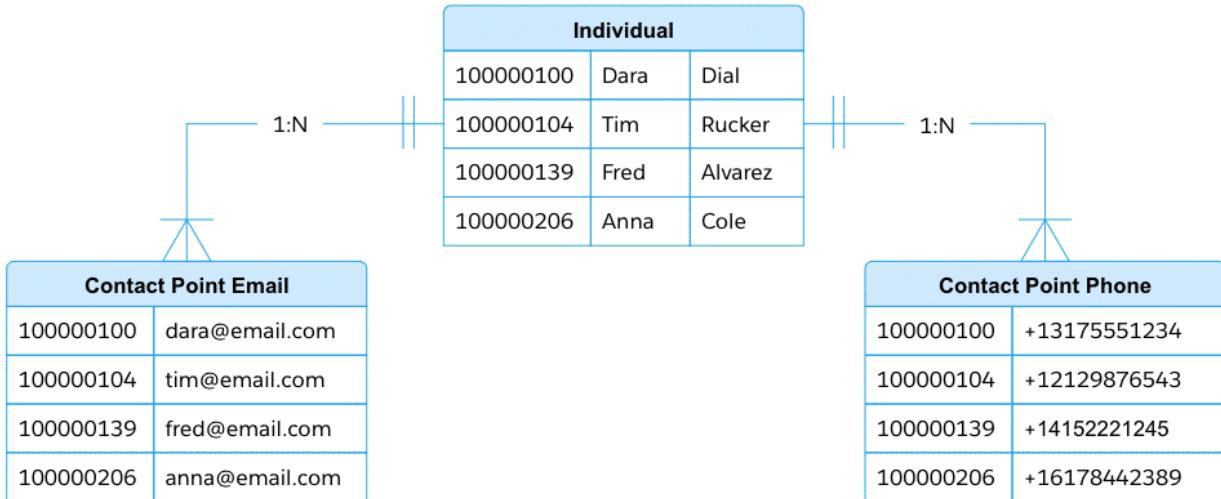
Denormalized Data

Denormalized data takes the form of rows containing relational data as column attributes. This is commonly known as a spreadsheet view. Marketing Cloud data extensions have the same format.

Customer ID	First Name	Last Name	Email Address	Mobile No
100000100	Dara	Dial	dara@email.com	+13175551234
100000104	Tim	Rucker	tim@email.com	+12129876543
100000139	Fred	Alvarez	fred@email.com	+14152221245
100000206	Anna	Cole	anna@email.com	+16178442389

Normalized Data

With normalized data, the row is broken apart into separate table records with established relationships.

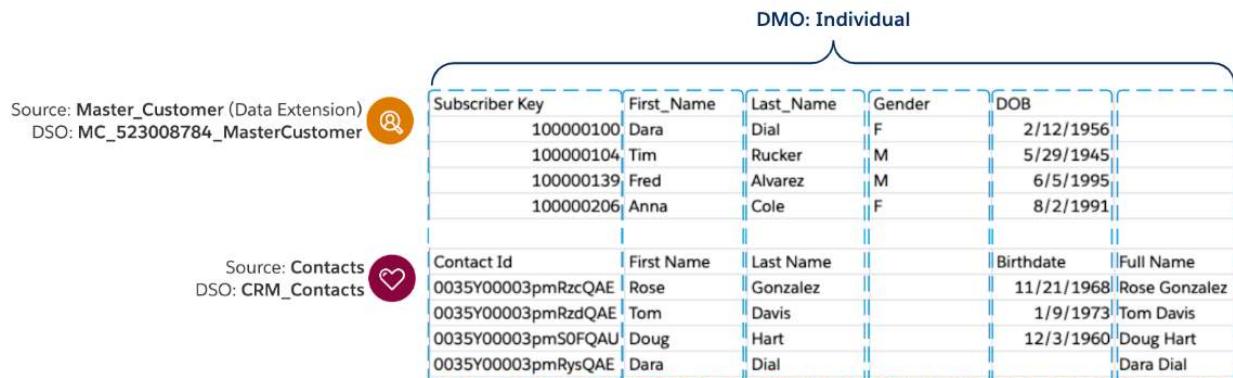


Why Is This Important?

- The Data Cloud standard data model is normalized, meaning that data needs to be normalized before it can be mapped within Data Cloud.
- Not all source systems provide normalized export options or normalize data to the same degree.
- Therefore, due to your assessment of the field-level data, establish how the source data needs to be transformed and mapped into the Data Cloud data model.

Let's look at a few examples of what that assessment might look like.

Mapping Multiple Sources to the Same DMO



In this example, the data comes from a single data extension but needs to be normalized to fit into the Data Cloud data model.

Here, a portion of the fields aligns with the Individual DMO, while another portion aligns with the Contact Point Email and the Contact Point Phone DMOs.

Source: Master_Customer (Data Extension)
DSO: MC_523008784_MasterCustomer

Source: Contacts
DSO: CRM_Contacts

DMO: Individual

Subscriber Key	First_Name	Last_Name	Gender	DOB
100000100	Dara	Dial	F	2/12/1956
100000104	Tim	Rucker	M	5/29/1945
100000139	Fred	Alvarez	M	6/5/1995
100000206	Anna	Cole	F	8/2/1991

Contact Id	First Name	Last Name	Birthdate	Full Name
0035Y00003pmRzcQAE	Rose	Gonzalez	11/21/1968	Rose Gonzalez
0035Y00003pmRzdQAE	Tom	Davis	1/9/1973	Tom Davis
0035Y00003pmS0FQAU	Doug	Hart	12/3/1960	Doug Hart
0035Y00003pmRysQAE	Dara	Dial		Dara Dial

We're inspecting two data sources here—a Marketing Cloud data extension and a Contact object from Salesforce CRM.

1
Source: Master_Customer (Data Extension)
DSO: MC_523008784_MasterCustomer

2
Source: Contacts
DSO: CRM_Contacts

DMO: Individual

Subscriber Key	First_Name	Last_Name	Gender	DOB
100000100	Dara	Dial	F	2/12/1956
100000104	Tim	Rucker	M	5/29/1945
100000139	Fred	Alvarez	M	6/5/1995
100000206	Anna	Cole	F	8/2/1991

Contact Id	First Name	Last Name	Birthdate	Full Name
0035Y00003pmRzcQAE	Rose	Gonzalez	11/21/1968	Rose Gonzalez
0035Y00003pmRzdQAE	Tom	Davis	1/9/1973	Tom Davis
0035Y00003pmS0FQAU	Doug	Hart	12/3/1960	Doug Hart
0035Y00003pmRysQAE	Dara	Dial		Dara Dial

Both of these datasets align well, as they represent individuals. Therefore, they are candidates to be mapped into the Individual DMO.

1
Source: Master_Customer (Data Extension)
DSO: MC_523008784_MasterCustomer

2
Source: Contacts
DSO: CRM_Contacts

DMO: Individual

Subscriber Key	First_Name	Last_Name	Gender	DOB
100000100	Dara	Dial	F	2/12/1956
100000104	Tim	Rucker	M	5/29/1945
100000139	Fred	Alvarez	M	6/5/1995
100000206	Anna	Cole	F	8/2/1991

Contact Id	First Name	Last Name	Birthdate	Full Name
0035Y00003pmRzcQAE	Rose	Gonzalez	11/21/1968	Rose Gonzalez
0035Y00003pmRzdQAE	Tom	Davis	1/9/1973	Tom Davis
0035Y00003pmS0FQAU	Doug	Hart	12/3/1960	Doug Hart
0035Y00003pmRysQAE	Dara	Dial		Dara Dial

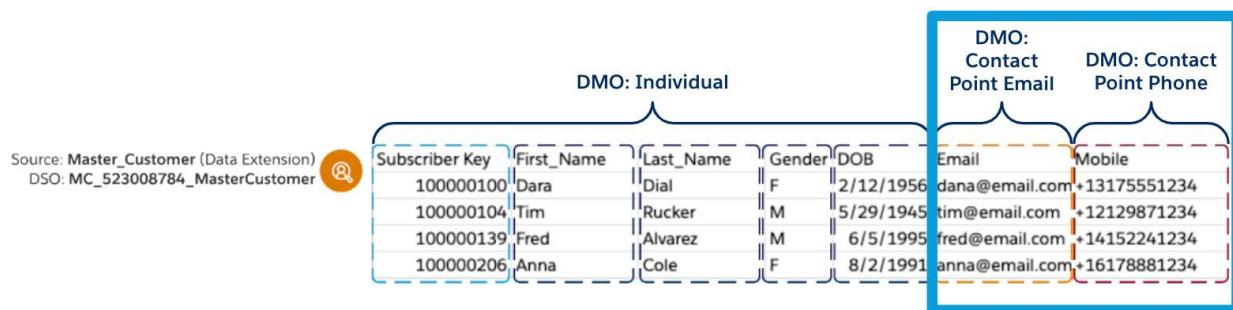
Notice that in some cases, both datasets have fields that map to the same data model attribute. In other cases, only a single dataset maps to a data model attribute (for example, Gender).

Normalizing a Single Data Source



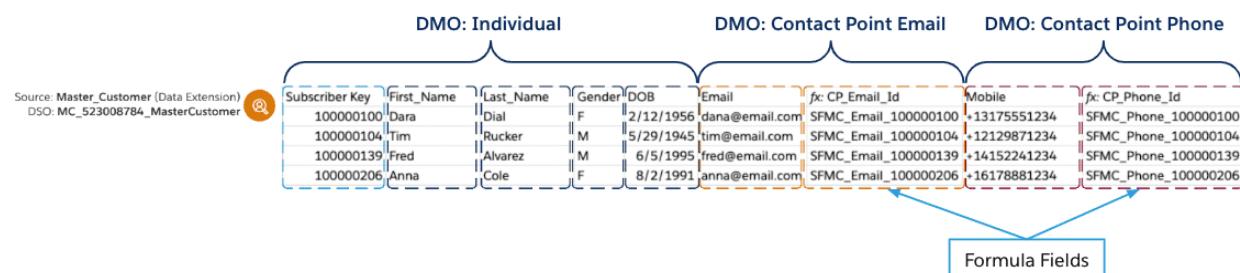
In this example, the data comes from a single data extension but needs to be normalized to fit into the Data Cloud data model.

Here, a portion of the fields aligns with the Individual DMO, while another portion aligns with the Contact Point Email and the Contact Point Phone DMOs.



When mapping data to the DMO, each record requires a primary key that uniquely identifies it across all the data sources.

In this case, attributes that map to Contact Point Email and Contact Point Phone would require something more unique than just a subscriber key value, especially if we want to support the ingestion of multiple email addresses.



Therefore, it makes sense to extend the data upon ingestion through the use of **formula fields**. As you can see, this approach really highlights the value of undertaking such an assessment even before configuring data ingestion.

Transposing a Single Record into Multiple Records

Source: Master_Customer (Data Extension)
DSO: MC_523008784_MasterCustomer

DMO: Contact Point Email

Subscriber Key	First_Name	Last_Name	Primary_Email	Secondary_Email
100000100	Dara	Dial	dara@email.com	dara@email.net
100000104	Tim	Rucker	tim@email.com	tim@email.net
100000139	Fred	Alvarez	fred@email.com	fred@email.net
100000206	Anna	Cole	anna@email.com	anna@email.net

When considering transformation and designing mapping into the Data Cloud data model, it's important to understand certain limits of transformation of records on ingestion. If we are to extend the previous example to include multiple email addresses for a single subscriber record, then this creates a challenge on how to map that dataset.

Source: Master_Customer_Email (Data Extension)
DSO: MC_523008784_MasterCustomerEmail

DMO: Contact Point Email

Subscriber Key	Email Address	fx: CP_Email_Id
100000100	dara@email.com	SFMC_Email_10000100_dara@email.com
100000100	dara@email.net	SFMC_Email_10000100_dara@email.net
100000104	tim@email.com	SFMC_Email_10000104_tim@email.com
100000104	tim@email.net	SFMC_Email_10000104_tim@email.net
100000139	fred@email.com	SFMC_Email_10000139_fred@email.com
100000139	fred@email.net	SFMC_Email_10000139_fred@email.net
100000206	anna@email.com	SFMC_Email_10000206_anna@email.com
100000206	anna@email.net	SFMC_Email_10000206_anna@email.net

Instead of attempting to map both email address fields from the single record, you need to transpose that record before ingesting it into Data Cloud, then normalize it to fit directly into the Contact Point Email DMO, as displayed in this image.

Source: Master_Customer_Email (Data Extension)
DSO: MC_523008784_MasterCustomerEmail

DMO: Contact Point Email

Subscriber Key	Email Address	fx: CP_Email_Id
100000100	dara@email.com	SFMC_Email_10000100_dara@email.com
100000100	dara@email.net	SFMC_Email_10000100_dara@email.net
100000104	tim@email.com	SFMC_Email_10000104_tim@email.com
100000104	tim@email.net	SFMC_Email_10000104_tim@email.net
100000139	fred@email.com	SFMC_Email_10000139_fred@email.com
100000139	fred@email.net	SFMC_Email_10000139_fred@email.net
100000206	anna@email.com	SFMC_Email_10000206_anna@email.com
100000206	anna@email.net	SFMC_Email_10000206_anna@email.net

This transposed dataset provides data in the format that can support multiple email addresses for the same individual.

At the same time, it highlights the need for an additional primary key that should be unique within even that single data source.

Source: **Master_Customer_Email** (Data Extension)
DSO: **MC_523008784_MasterCustomerEmail**

DMO: Contact Point Email

Subscriber Key	Email Address	fx: CP_Email_Id
100000100	dara@email.com	SFMC_Email_100000100_dara@email.com
100000100	dara@email.net	SFMC_Email_100000100_dara@email.net
100000104	tim@email.com	SFMC_Email_100000104_tim@email.com
100000104	tim@email.net	SFMC_Email_100000104_tim@email.net
100000139	fred@email.com	SFMC_Email_100000139_fred@email.com
100000139	fred@email.net	SFMC_Email_100000139_fred@email.net
100000206	anna@email.com	SFMC_Email_100000206_anna@email.com
100000206	anna@email.net	SFMC_Email_100000206_anna@email.net

Once again, the solution to that would be the use of a **formula field** that combines the composite value into a new field, which serves as a primary key during data ingestion setup, and later in data mapping.

Knowledge Review

What are the two main objectives when inspecting field-level data?

- Establish what data identifies individuals uniquely.
- Identify the relationship between records and identify unique primary keys.

Step Three: Configure Mapping

Once the inventory of data is complete, the field-level data is identified and examined, and the mappings to the Data Cloud data model are designed. We can then proceed with the actual mapping process. There are a few things to keep in mind when mapping data.

1. Data Category
2. Extending the Data Model
3. Required Mappings

Data Category

Data Model Objects (DMO) don't have a first-class concept of category. Instead, a DMO inherits its category from the first data source object mapped to it. After the data model object inherits a category, only data source objects with that same category can map to it.

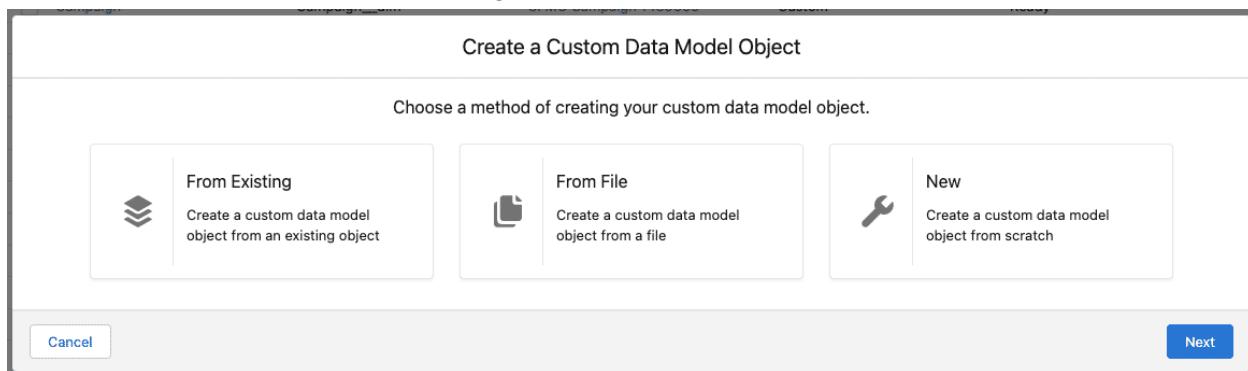


1. The DSO is called POS_Order and is configured with the category set to Engagement Data.
2. Once that DSO is mapped to the DMO Sales Order, that DMO gets assigned the same Engagement Data category.
3. To map any other data source objects, they have to be configured with the same category of Engagement Data. The user interface (UI) filters out any objects with noncompatible categories.

 **TIP:** If you're attempting to map a given data source object but don't see the target data model object in the object selector, ensure that the category of your DSO matches the DSO that's already mapped to the target DMO.

Extending the Data Model

If, during the assessment of the data, there are some gaps identified in the standard data model, you can extend the standard objects by adding new custom attributes to accommodate your requirements. In addition to fields, you can also create custom data model objects from the Data Model tab in the application using one of the available methods.



From Existing

When creating a DMO using the “From Existing” object, the schema for the new object first replicates the existing object and the user is presented with a dialog to adjust the final schema. The dialog enables the removal of the initially configured fields and allows for additional fields to be added.

From File

The option to create a custom object using “From File” requires the schema to be developed and documented in a CSV file, with these four columns in this exact order: “Label, DeveloperName, Type, IsPrimaryKey.”

Here’s an example of the file.

Label,DeveloperName,Type,IsPrimaryKey

Marketing Preference Id,Marketing_Preference_Id,Text,1

Individual Id,Individual_Id,Text,0

Preference Name,Preference_Name,Text,0

Opted In,Opted_In,Text,0

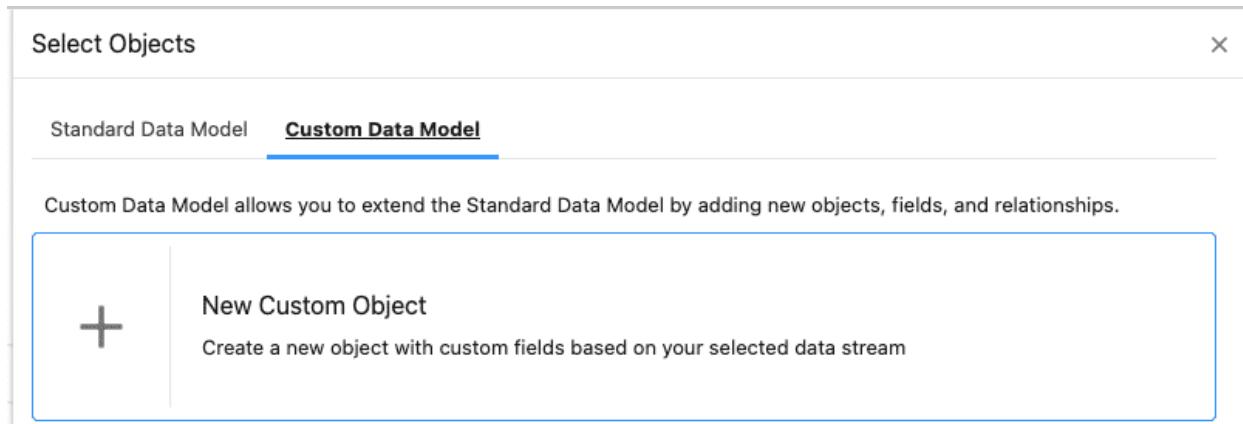
New

The “New Custom DMO” option requires the specification of the object to be developed from scratch, and you’re expected to configure all fields within the UI.

Wait! There's Another Way!

There's one more place where a new, custom DMO can be created.

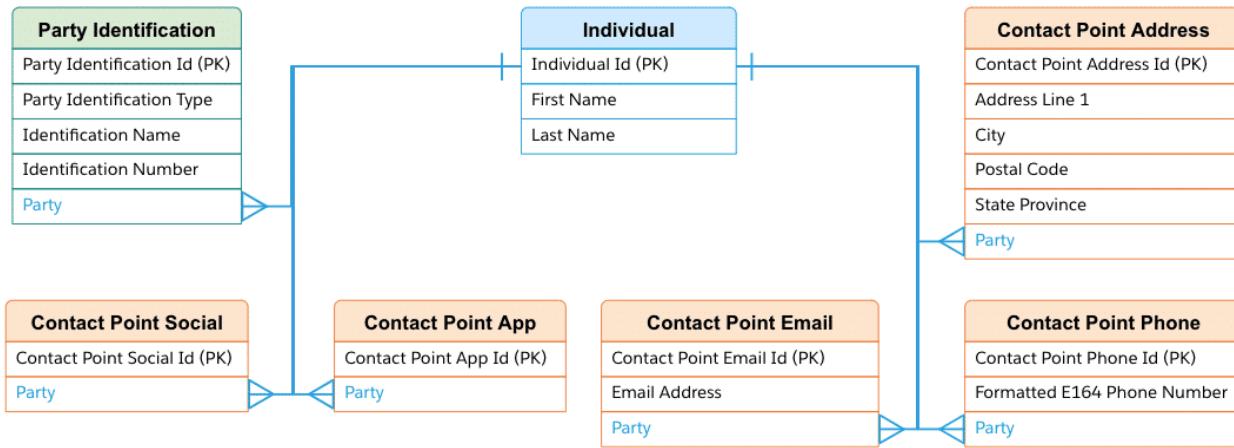
- From the data stream details screen, open Data Mapping and then navigate to the data model object selection.
- Choosing the Custom Data Model tab opens a dialog, where you initiate the creation of a new DMO.



- This flow creates a new data model object by copying the schema from the data source object that you opened.
- You can adjust the schema by choosing which fields to include or exclude, and you can update the field labels. But you won't be able to change the primary key setting or add new fields.
- Use this approach for creating a custom DMO when you need to configure a new DMO that replicates the schema in the original data source.

Required Mappings

Certain data mappings are required for the Data Cloud application to drive value across harmonization, unification, and activation. This diagram outlines these main objects and the key attributes that data sources need to map to.



If you haven't completed the "Map Required Objects" Trailhead unit at the beginning of this course, make sure you do this before completing this lesson. The following instruction will be more understandable.

Here are explanations of the required mappings.

Map to the Individual

The mapping to the Individual DMO is required for all data sources that have a category of Profile Data, as they're all meant to represent individual people.

- These profiles will be subsequently unified into the Unified Individual during the Identity Resolution process.
- To allow for all profile records to be ingested and mapped into the Individual Object, it's important to ensure the Individual ID is unique across various data streams.

TIP: The reference to the Individual Object in other objects within the data model is done via the Party attribute. Think of it as a foreign key relationship that links to an **Individual.Id** attribute. In the diagram above, you can see that each Contact Point <Channel> object, alongside Party Identification, has that reference. While in some cases it might look confusing, take note that when it comes to attributes, **Party = Individual.Id**.

Map to a Contact Point

Next, to enable unification and activation processes to work, it's required to map at least one of the Contact Point <Channel> objects.

- These objects contain contact details for the individuals, such as email addresses, phone numbers, postal addresses, mobile application registration, or social handler.
- Without the contact point, activation wouldn't be feasible, as there wouldn't be a contact detail through which to engage with customers.

Map to the Party Identification

Lastly, the Party Identification object represents a set or sets of third-party identifiers for an individual.

- These identifiers can be MDM ID, Loyalty Card Number, Driver License Number, or similar data points that can associate numerous customer records together.
- We go into more detail about how matching works within the unification process in the Identity Resolution course.
- For now, the brief version is: For the same **Party Identification Type** and **Identification Name** values, the platform will match records with the same **Identification Number**.

Knowledge Review

Match the mapping process to the statement describing the activity.

- **Data Category** is inherited from the first data source mapped to it.
- **Extending the Data Model** adds new custom attributes to extend the standard objects.
- **Required Mappings** drives value across harmonization, unification, and activation.

Step Four: Configure Relationships

Once the mapping process is complete, take a look at the relationships between data model objects. It's important to note that relationships are, in fact, configured on the data model not between the data source objects, as the end-users interact with the data model.

The guidance for mapping is to ensure all objects are tied back directly or indirectly to an entity that will be used in segmentation.

The relationships can be configured from the Data Model tab when opening the details of any object and navigating to the Relationships tab.

Configuring the Individual Object

—

This example provides a preview of the relationships configured for the Individual object.

The key factor to pay attention to is that all necessary objects that are meant to be directly related to this object have a configured relationship.

Individual									
Details		Relationships							
Relationships									
Edit									
Object	Field	Cardinality	Related Object	Related Field					
1 Contact Point Email	Party	ManyToOne	Individual	Individual Id					
2 Contact Point Phone	Party	ManyToOne	Individual	Individual Id					
3 Einstein Email Engagement Scores	Subscriber Key	ManyToOne	Individual	Individual Id					
4 Email Engagement	Individual	ManyToOne	Individual	Individual Id					
5 Individual	Individual Id	OneToOne	Unified Link Individual	Individual Id					
6 Loyalty Program Member	Party	OneToOne	Individual	Individual Id					
7 Marketing Preference	Individual Id	ManyToOne	Individual	Individual Id					
8 Party Identification	Party	ManyToOne	Individual	Individual Id					
9 Sales Order	Sold To Customer	ManyToOne	Individual	Individual Id					

[Delete](#) [Done](#)

Adding Missing Individual Objects

If any of these objects are missing, especially for custom objects, simply add those from this dialog by clicking on the Edit button.

An object is preselected for you, but you need to define which field relates to which object or field, and which cardinality should be set for this relationship.

Cardinality setting defines the relationship between the objects, specifically, how many records of the object on the left-hand side can be related to the record of an object on the right-hand side.

Edit Relationships

Create relationships with Standard or Custom Data Model Objects.

Object	Field	Cardinality	Related Object	Related Field	
Individual	Individual Id	N:1	Marketing Preference	Individual Id	Delete
		1:1			+ New Relationship
		✓ N:1			

[Cancel](#) [Save & Close](#) [Save](#)

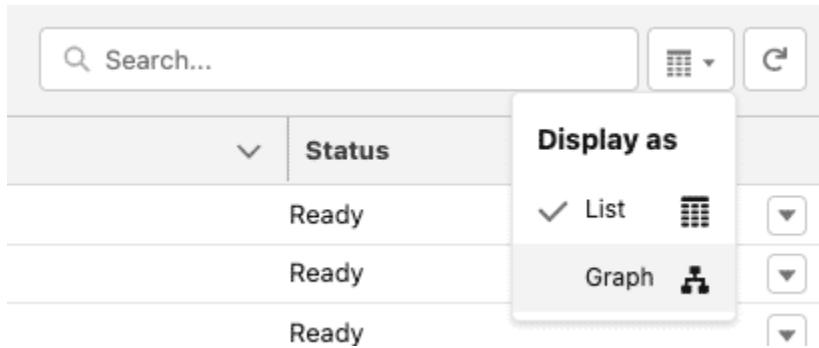
Setting Cardinality Values

In the case of relationships to an Individual object, it's important that any attribute from the objects related with cardinality set to 1:1 can be included in the payload during the activation phase. This doesn't apply to relationships between other objects.

From a segmentation point of view, a relationship with any cardinality value becomes available in the attributes library during the configuration of the segment criteria.

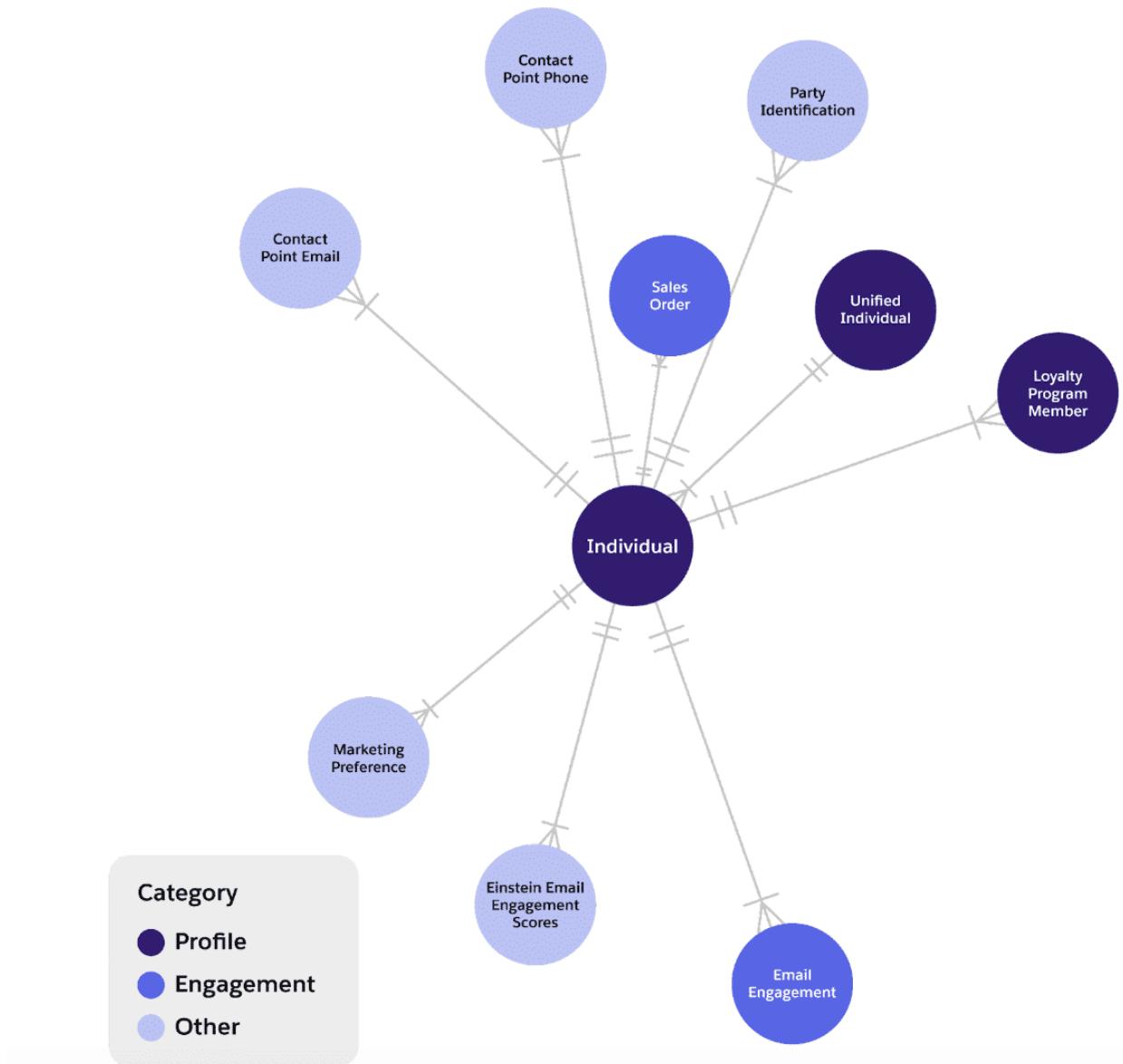
Graphing the Mapped Objects

In numerous cases, it might be better to inspect the relationships or lack thereof not through a single object at a time, but holistically for all mapped objects in the data model.



To achieve that, make use of the Graph View option on the Data Model tab, which lets you access the visual representation of the data model.

The following visual view distinguishes the category applied to any given data model object and enables the identification of any orphan objects if the relationships haven't yet been configured.



Knowledge Review

Which two statements are true about configuring relationships?

- Ensure all objects are tied back directly or indirectly to an entity that will be used in segmentation.
- Use a graph to identify orphan objects when the relationships haven't been configured yet.

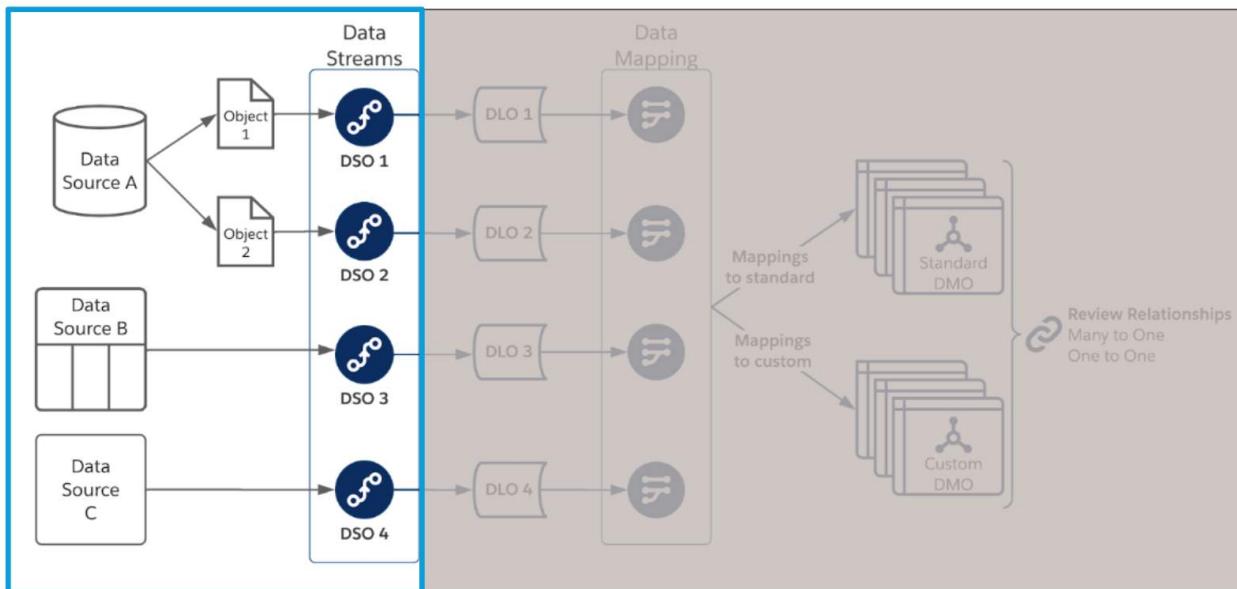
End-to-End Sequence Recap

This data ingestion diagram brings the data model process together by illustrating the key stages that need to take place for the data to be ingested from various data sources and then made available for unification, segmentation, and activation processes.

Step One:

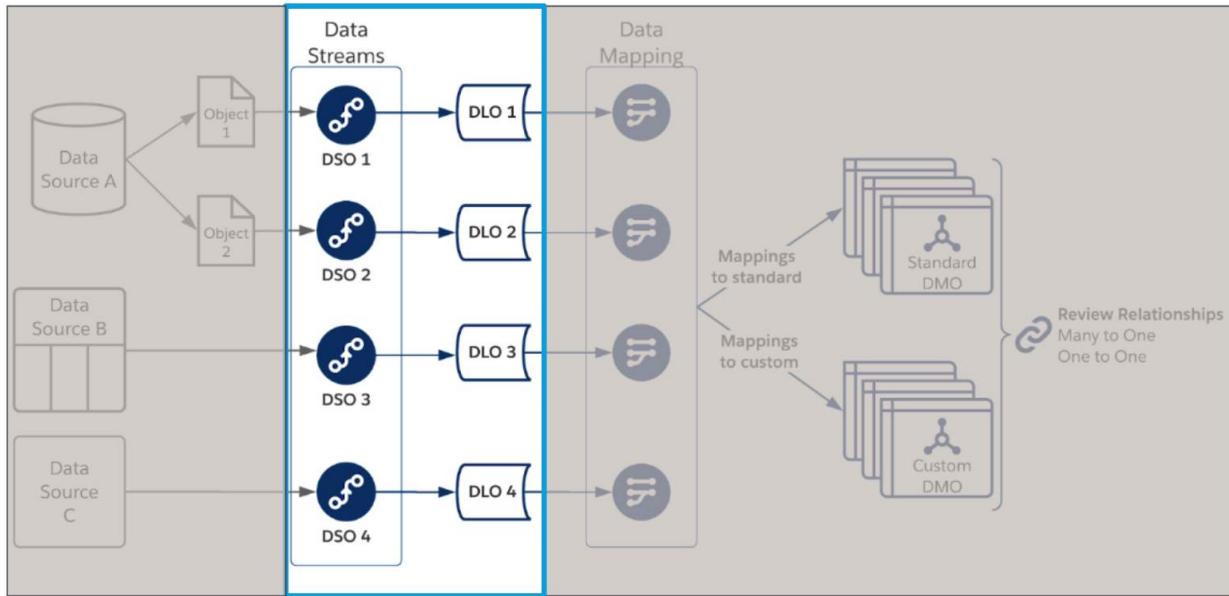
The data is brought from multiple sources, with each of the sources having the same or different formats.

That data is ingested and transformed, if needed, in data streams.



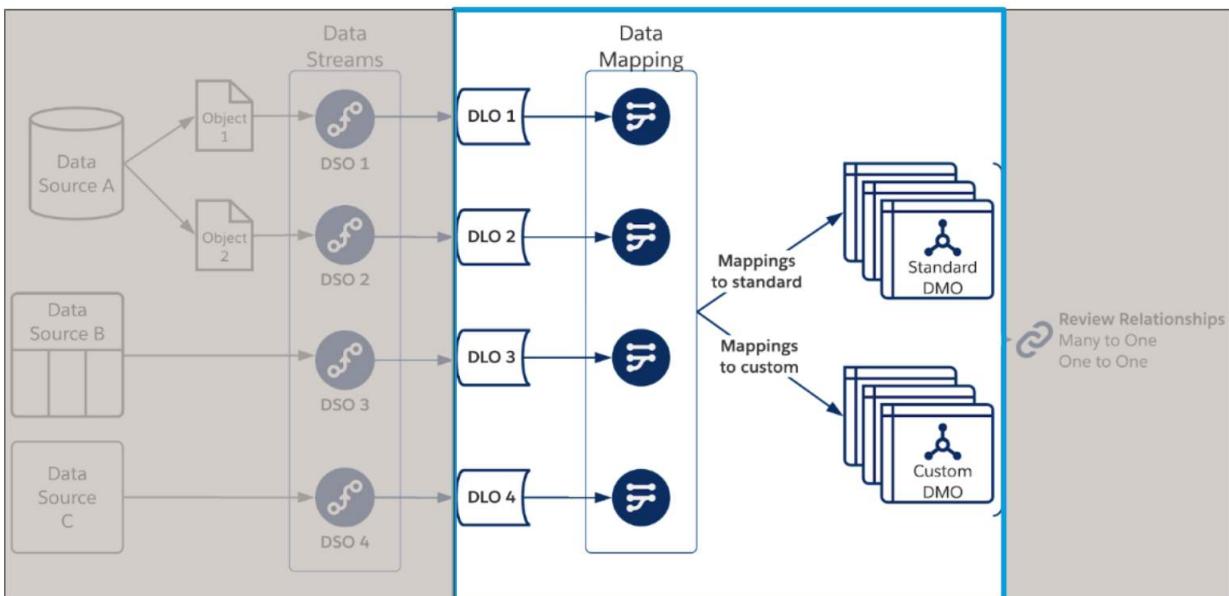
Step Two:

The resulting dataset is stored in data lake objects within Data Cloud.



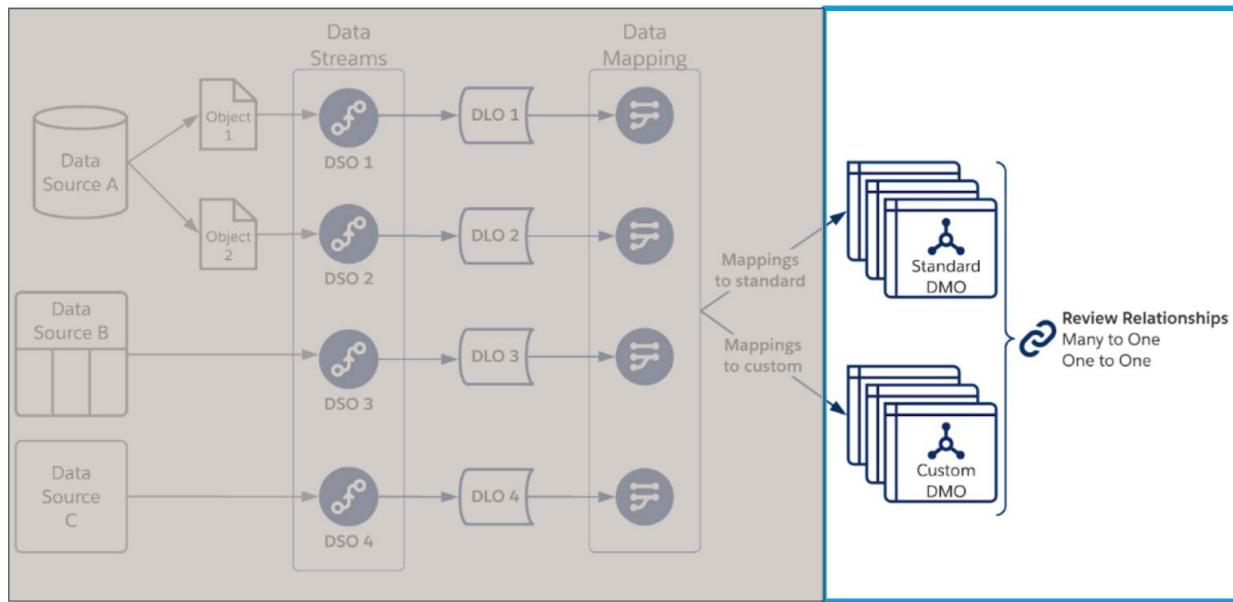
Step Three:

From there, we map each source individually to the standard or custom data model object, or a hybrid where custom attributes are added to our standard data model objects.



Step Four:

Finally, the relationships between the mapped data model objects are reviewed to validate the correctness and then adjusted for any additional requirements.



Knowledge Review

Correct order

1. Ingest data into streams
2. Store data streams in data lake object
3. Map to the data model object
4. Validate mapped data model objects

Data Explorer Overview

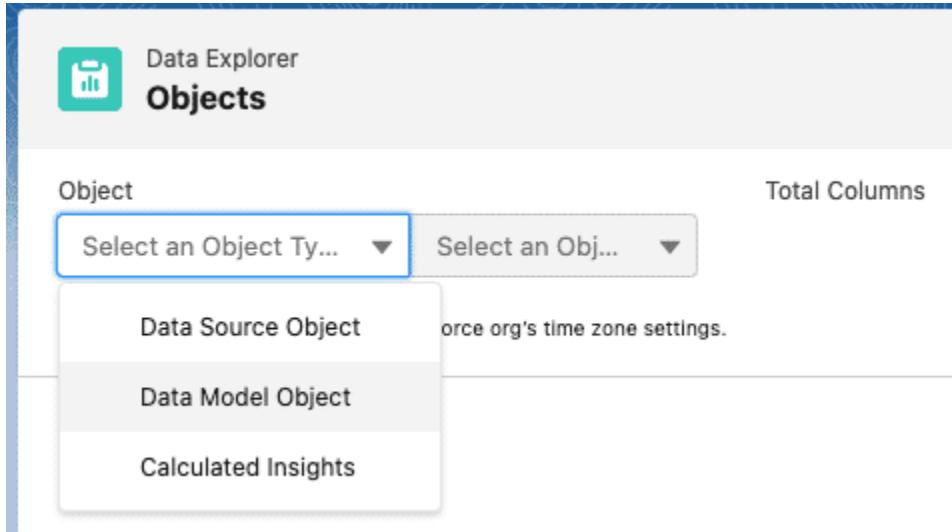
During the data ingestion and mapping processes, you operate with configurations of the objects and their relationships, but you aren't given a chance to preview actual data behind those configurations.

An administrator or specialist inspects the data in data source objects, data model objects, and calculated insights objects using Data Explorer to support the validation of the configured data objects.

The actions below demonstrate how to use Data Explorer to inspect the configurations.

Choose the Object Type

From the Data Explorer tab, choose the object type to inspect first, and then select the actual object.



Configure the Columns

Note that the UI only displays up to 100 records and at most ten attributes (columns). The columns displayed in the results can be configured via the Edit Columns button.

Choose the columns you want to see by rearranging them and removing or adding as needed.

Edit Columns for 'Sales Order Product'

Select Columns

Available Columns

- Total Line Amount
- Unit Price Amount

Selected Columns

- Data Source
- Data Source Object
- Internal Business Unit
- Internal Organization
- Loyalty Points
- Order Product Number

Cancel Done

The dialog box is titled 'Edit Columns for 'Sales Order Product''. It has two main sections: 'Available Columns' on the left and 'Selected Columns' on the right. In the 'Available Columns' section, 'Total Line Amount' is highlighted with a blue background. In the 'Selected Columns' section, several columns are listed: Data Source, Data Source Object, Internal Business Unit, Internal Organization, Loyalty Points, and Order Product Number. At the bottom right are 'Cancel' and 'Done' buttons. Navigation arrows between the sections allow for moving columns between them.

Filter the Records

The records can be filtered for display with the use of the Filter List control. This control lets you identify specific records or look at various combinations of attributes.

The screenshot shows a modal window titled "Filter List". At the top are buttons for "Copy SOQL", "Edit Columns", and a search/filter icon. Below these are "Cancel" and "Apply" buttons. The main area contains a section labeled "Show Me" with "All Records" selected. A message says "Matching all of these filters". Two filters are listed: "Total Line Amount*" greater than 100 and "Loyalty Points*" greater than or equal to 300. At the bottom are "Add Filter", "Remove All", and "Add Filter Logic" buttons.

Inspect the Records

For the data source objects, it's important to be able to inspect initial values and validate any formula fields that have been calculated during ingestion.

The screenshot shows the "Data Explorer Objects" view for the "Sales Order Prod..." object. It displays a table with 12 columns. The columns are: Sales Order, Order Product ID, Sales Order Product Name, Product, Ordered Quantity, Loyalty Points, Unit Price Amount, and Total Line Amount. The table contains 8 rows of data. A note at the top states: "Date and time values use your Salesforce org's time zone settings."

Sales Order	Order Product ID	Sales Order Product Name	Product	Ordered Quantity	Loyalty Points	Unit Price Amount	Total Line Amount
E0016348-0010002	1	E0016348-0010002_1	101152	3	25,350	120	360
E0016348-0010003	1	E0016348-0010003_1	101118	2	16,000	110	220
E0016348-0010004	1	E0016348-0010004_1	101147	2	15,500	90	180
E0016348-0010006	1	E0016348-0010006_1	101170	2	10,800	89	178
E0016348-0010007	4	E0016348-0010007_4	101160	3	17,400	60	180
E0016348-0010008	2	E0016348-0010008_2	101193	1	8,322	110	110

For data model objects, this feature enables validation of the configured mappings and lets you sample records using predefined IDs. Once you get to the calculated insights, you can also inspect calculated values to validate the accuracy of aggregated data and formulas.

Knowledge Review

- Identify the activities possible on the Data Explorer.
- Inspect multiple object types.
- Validate formula fields.

Activity: Data Model Configuration

<https://quip.com/83dbAfFjeJbb>

Purely for **educational purposes** let's "modify" one of the relationships, specifically between the **Individual** and **Loyalty Program Member** from standard **1:M** to **1:1**. To achieve that you will be configuring new relationship, not really modifying an existing one. And due to the fact that we did not map **Contact ID** to the standard **Party** field on the **Loyalty Program Member** DMO you will not actually see standard data relationship.

⚠ Do take a note, that change like this will require data relationship not being used in segments and activations. Therefore for real implementations if this approach is chosen and will need to be reverted in the future (e.g. new brands with loyalty programs added to the setup) **all segments and activations** that use that relationship will need to be deleted and re-created after modifications. This might be quite a significant undertaking, therefore don't take such a decision lightly. **⚠**

Additional Resources

- [Partner Pocket Guide: Salesforce Data Cloud](#)
- [Customer 360 Data Model Overview](#)
- [Data Model Subject Areas](#)
- [Data Model Object \(DMO\) Documentation](#)
- [Customer 360 Data Model Reference Diagram](#)
- [Data Mapping Requirements](#)
- [Customer 360 Data Model: Individual and Contact Points](#)

Knowledge Review

You need to integrate new data sources with custom attributes that will be added to a standard data model object.

- Hybrid

What do you do when datasets have fields that align to one DMO and another portion aligns to another DMO?

- Create formula fields

Data modeling occurs after which step when establishing the data model in the Data Cloud platform?

- Ingestion

Why should a cardinality setting of 1:M be set for objects such as Contact Point Phone, Email, or Party Identification?

- Allows a relationship to multiple records

What is the purpose of Data Explorer? (choose all that apply)

- To enable validation of the configured mappings for DMOs
- To inspect calculated insights
- To inspect initial values and validate formula fields for DSOs

Match the acronym to the proper definition.

- DLO - The target destination for records from the data streams
- DMO - Consolidates data from data sources through data lake objects
- DSO - The object that underpins the data stream
- MDM -The system that provides data stewardship and governance across the enterprise

Put the data modeling steps in the correct order.

- 1 Create an inventory of all data streams.
- 2 Assess how data should be normalized.
- 3 Map to the data model.
- 4 Configure the DMO relationships on the data model.

You have a short time to create a DMO and the requestor needs this Data Cloud data available for segmentation as soon as possible.

Which type of data model object would you build?

- Standard

Which objects must be mapped to the Individual DMO to enable the unification and activation process to work? (choose all that apply)

- Customer Profile
- Contact Point

How is the Individual Object referenced in other DMOs within a data model?

- Via Party Attribute

Data Cloud: Identity Resolution

Identity Resolution Recap

Once the data ingestion and mapping processes are complete, you're ready to advance to the unification process, known as Identity Resolution.

As you've already learned from the trails you completed, Identity Resolution consists of two parts: identity resolution rulesets and profile reconciliation rules.

Identity Resolution Rulesets & Profile Reconciliation Rules

Currently, Data Cloud supports up to two Identity Resolution configurations, allowing an element of A/B testing to be applied once an initial ruleset is established and configured. Note that each of the result sets will produce independent unified profiles, resulting in an increased count of total known profiles and therefore impacting allocated platform utilization for the org.

While it might not have been explicitly stated in the trails, it's vital to understand that the unification process recognizes and matches individual people, as expressed through the records mapped to Individual Data Model Objects (DMOs).



And once the profiles are matched, reconciliation rules tell Data Cloud how the various attributes need to be represented in the final unified profile.

Next, we'll discuss the steps needed to perform Identity Resolution and create a final unified profile.

Unified Profile

Identity Resolution is used to consolidate data from different sources into a comprehensive view of your customer, which is called a unified profile. What exactly is a unified profile, and why don't we call it a golden record, which is similarly used as a unified profile?

A golden record is when there's a single contact point for a customer, such as using the single "best" email or phone number. This occurs when there's a strong desire for simplicity. Unfortunately, this model doesn't fit the real world too well.

Golden records can cause problems because:

- Too many golden records can be created if unification is done on single contact points (email or phone).
- There may be a lack of history tracking and a risk of attributes mismatch between records.
- The complete view of the customer may not be achievable.



Data Cloud's unified profile preserves lineage to the original contact points, so that you can reach out to the individual's various emails or phone numbers depending on the targeted instance.

By creating unified profiles:

- All contact points associated with the individual and complete lineage are retained in Data Cloud.
- All metrics and all behavior associated with the individual records combined and independently available.

- Consent for all touch-points of the user is tracked and can be used depending on the channel.

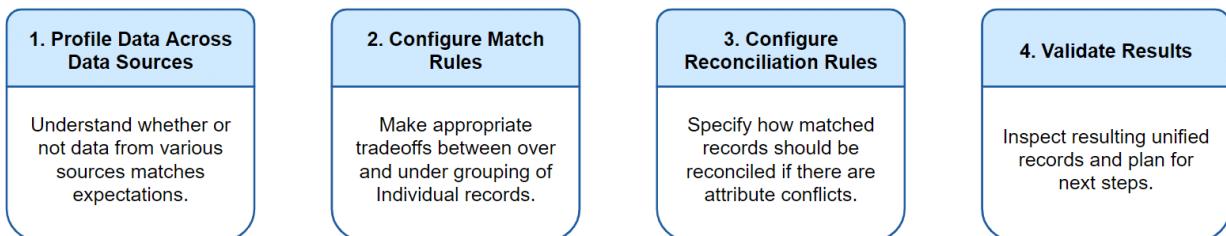
When does Data Cloud create a golden record?

During activation, with customer-provided context and selection criteria, Data Cloud picks the relevant record and data points for that activation. Additionally, all source individuals' data and lineage is retained in the Data Model Objects (DMOs) in Data Cloud.

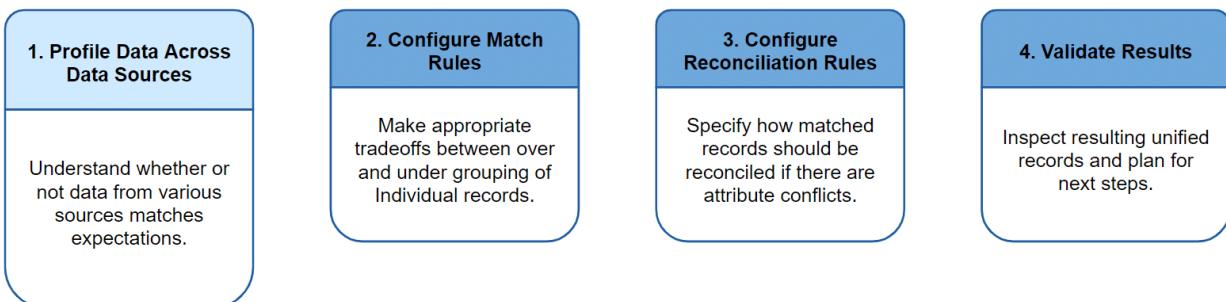
Data Cloud has a flexible identity resolution system that allows you to build and scale a unified data model with greater agility. It has more utility in its activation methods.

Identity Resolution Implementation Process

This diagram depicts the steps you would normally take to implement Identity Resolution:



1. Profile Data Across Data Sources



In the Data Modeling course, we discussed the use of Data Explorer as a means to inspect and validate both ingested and modeled data in Data Cloud. Combining that approach and adding some Calculated Insights (these will be discussed in another course), it's recommended to profile data across multiple data sources.

<input type="checkbox"/>	Calculated Insight Name ↓
1	<input type="checkbox"/> DQ Source - Summary
2	<input type="checkbox"/> DQ Source - Phone Contact Point
3	<input type="checkbox"/> DQ Source - Party Identifier
4	<input type="checkbox"/> DQ Source - Individual - CP Summary
5	<input type="checkbox"/> DQ Source - Email Contact Point
6	<input type="checkbox"/> DQ Source - Device
7	<input type="checkbox"/> DQ Source - Address Contact Point

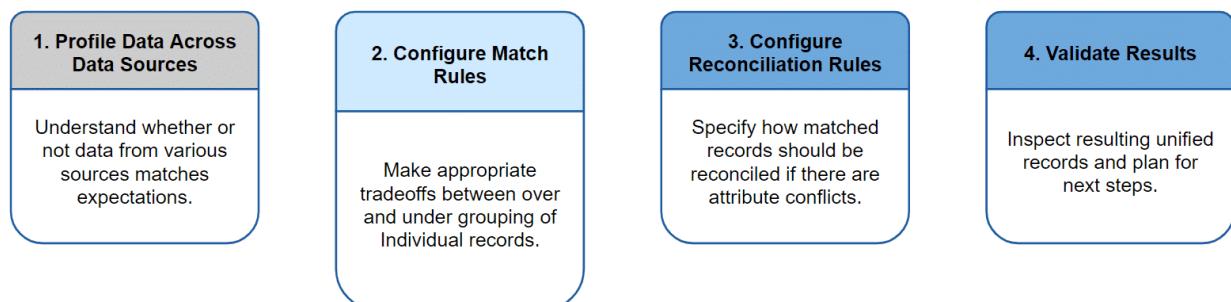
Example of the Calculated Insights used to do data profile and quality assessment

Use Calculated Insights to achieve the following outcomes:

- Summarize data.
- Attempt to establish uniqueness of the identifiers, whether or not contact points are shared across individuals.
- Identify how many contact points are coming from any given source.
- Inspect whether or not the address (if used as a contact point) was correctly imported.
- Verify any potential mapping or relationship issues that might lead to incorrect unification results.

The overall idea is to understand and design how best to configure matching rules for the individual profiles, and determine which rulesets to use to achieve potential best outcomes.

2. Configure Match Rules



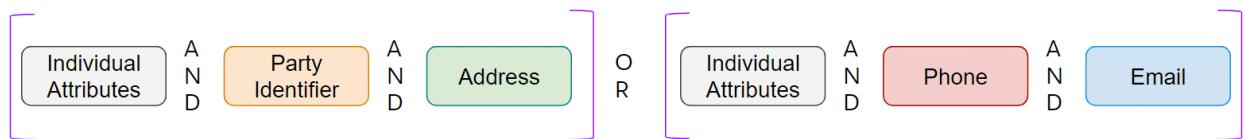
The match rules establish criteria for relating source Individual records to each other with the intent to produce a **Unified Individual** record. The rules can make use of standard and custom attributes mapped to the data model.

In general, adding more fields to the rules results in stricter match definition and keeping unique individuals separate, while removing or loosening match definitions improves match rates. Keep in mind that as long as at least one match rule is evaluated to **True**, two Individual records will be matched.

To assist with design of the match rules, consider the following guidelines.

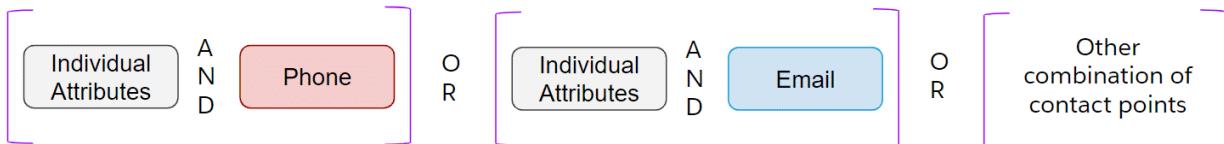
Rules with Individual Attributes, Contact Points, and Party Identifiers

Including too many attributes and contact points in match rules leads to fewer matched records (under grouping) and, at the same time, provides greater certainty in the Individual's uniqueness.



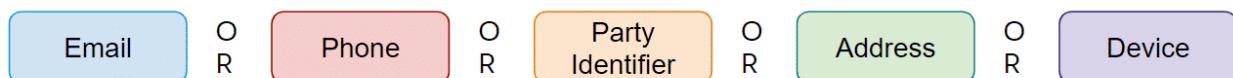
Rules with Individual Attributes and Contact Points

It's important to ensure that names are included in the rules to prevent combinations when the same contact point is used across several individuals. For example, consider a household where individuals are sharing an email address, or a business context where individuals use the same company address or phone number.

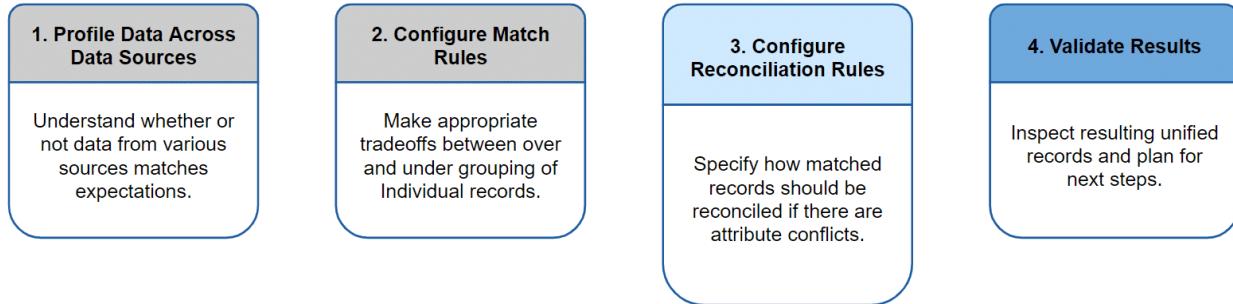


Rules with a Single Connected Contact Point

This is not a recommended practice. In terms of shared contacts across multiple individuals, using a single contact point has similar concerns as when using matching rules with Individual attributes and contact points. This configuration leads to over grouping of Individuals while most likely producing higher match rates.



3. Configure Reconciliation Rules



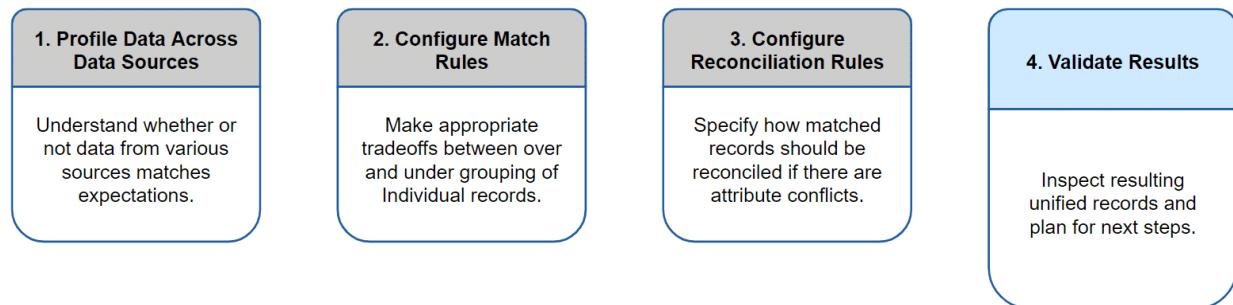
Reconciliation rules establish criteria for “picking up a winner” for the Unified Individual and **Unified Contact Point** records attributes when there’s a clash.

Think back to the Understand Identity Resolution Rulesets unit, where you learned there are three options that can be specified at the object or field level:

- **Most Frequent:** Is selected across matched records
- **Last Updated:** Requires the Last Modified Date attribute to be mapped in the data stream, selecting value from the record with the most recent date/time stamp
- **Source Sequence:** Follows the ranked order of the data streams

Choose the most appropriate value, and mix those settings if needed between object-level settings and at the attributes level where appropriate.

4. Validate Results



Once you publish the Identity Resolution and processing completes, validate the results. Start with the initial evaluation of the resolution summary; does the data look directionally correct?

The resolution summary provides a clear breakdown of the Identity Resolution ruleset outcome. From the example pictured here, the following narrative can be established:

We processed a total of 498,200 Source profiles. We identified matches between 126,400 of them and were able to form a total of 149,500 Known and 249,100 Anonymous Unified profiles. There was a consolidation rate of 20% from your input data."

Resolution Summary

Total Unified Profiles i

398.6 / 498.2 Source Profiles

Consolidation Rate

20%

The total number of unified profiles divided by the number of source profiles, and rounded to the nearest whole number

Matched Source Profiles

126.4K

The number of source profiles that match another source profile

Known Unified Profiles

149.5K

The number of unified profiles made up of at least one known source profile

Anonymous Unified Profiles

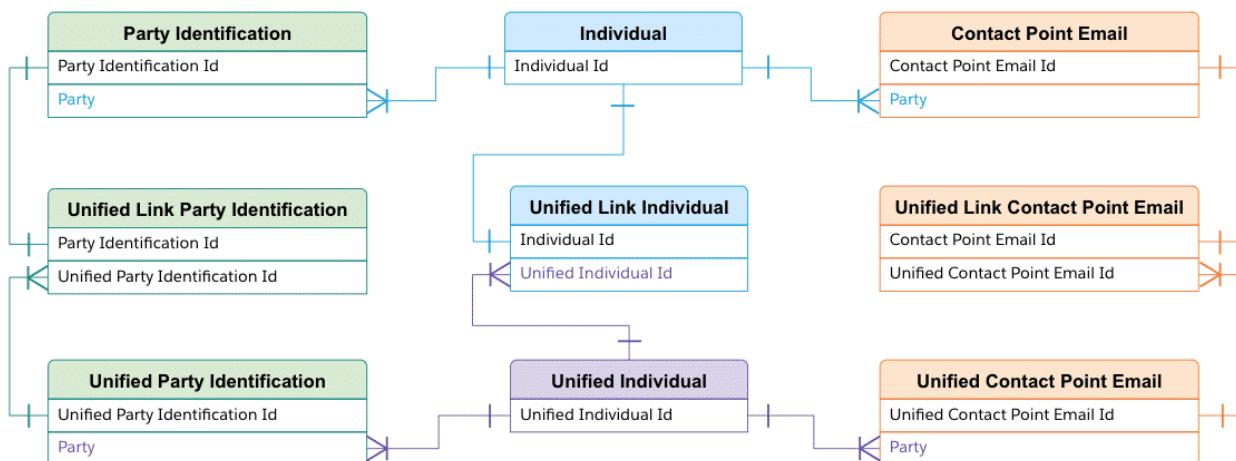
249.1K

The number of unified profiles made up of only anonymous source profiles

If that result looks acceptable, the next step is to inspect data a bit more thoroughly. Using a combination of the **Data Explorer**, **Profile Explorer**, and **Calculated Insights**, try to identify some “interesting” profiles that can represent outliers or anomalies.

 Tip: Keep an eye on the Known Unified Profiles figure as it's directly tied to the allocated utilization for the org. If there are two Identity Resolution rulesets configured, the combined total across both would be counted toward that allocation.

To assist with the validation efforts, make use of the additional DMOs and relationships that are automatically created to keep unified records and bridge tables that maintain links between original **Individual**, **Party Identification**, and **Contact Point Channel** records and their unified versions. The diagram below outlines these objects and relationships for the configuration, with Email being the only contact point mapped in the data model.



Note that for any **Contact Point Channel** object, you can expect to have respective **Unified Link** and **Unified** objects created that are similar to those in the above example for Email.

Be sure to follow the correct relationships when summarizing, aggregating, or simply exploring records during the validation process. And, similar to the initial data profile process, aim to summarize results of the Identity Resolution by data sources, analyzing distribution of contact points and party identifications. Expand your analysis through the unified records to assess linkage to the Engagement data against expected outcomes.

At the completion of the Identity Resolution process, once you’re happy with the results, plan to make a periodic re-evaluation of the data. Use the same Calculated Insights or add more to assist with ongoing review of the summarized and aggregated data, establish rules for inspection of the unified profiles, and potentially consider A/B testing to further improve the matching ruleset.

Knowledge Check

Match Rules rules can make use of _____ and _____ attributes mapped to the data model.

- standard and custom

Monitoring Identity Resolution

As an administrator, you're expected to be familiar with the lifecycle of the Identity Resolution process.

Ruleset Name	Entity	Ruleset Status	Last Job Status	Source Profiles	Matched Sou...	Total Unified ...	Consolidation...
1 Main	Individual	Published	In Progress	498,214	126,416	149,503	20%

The **Ruleset Status** indicates the status of a given Identity Resolution configuration record. The key status is Published as it indicates the currently active ruleset. The **Last Job Status** indicates the current (latest) run status, with **In Progress** indicating that Identity Resolution is being re-evaluated and **Success** indicating completed resolution without errors.

Tip: For a complete list of the values and their definitions, refer to the Identity Resolution Summary article you reviewed before this lesson.

Note that the Identity Resolution process runs periodically after initial publishing, and as a user you don't have control to define the specific time of day when this process starts.

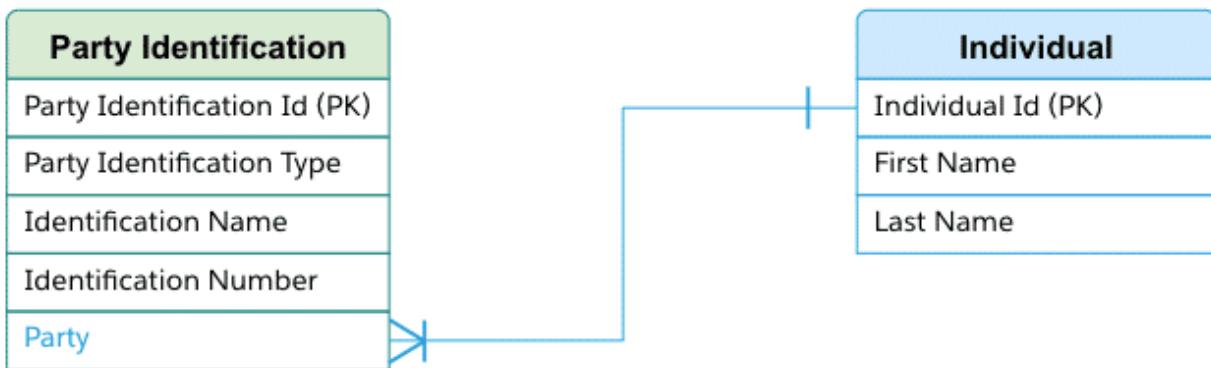
Refer to the Processing History tab on the Identity Resolution record details page to establish the cadence and average duration of the job when planning for the time of your segmentation and activation processes.

Knowledge Check

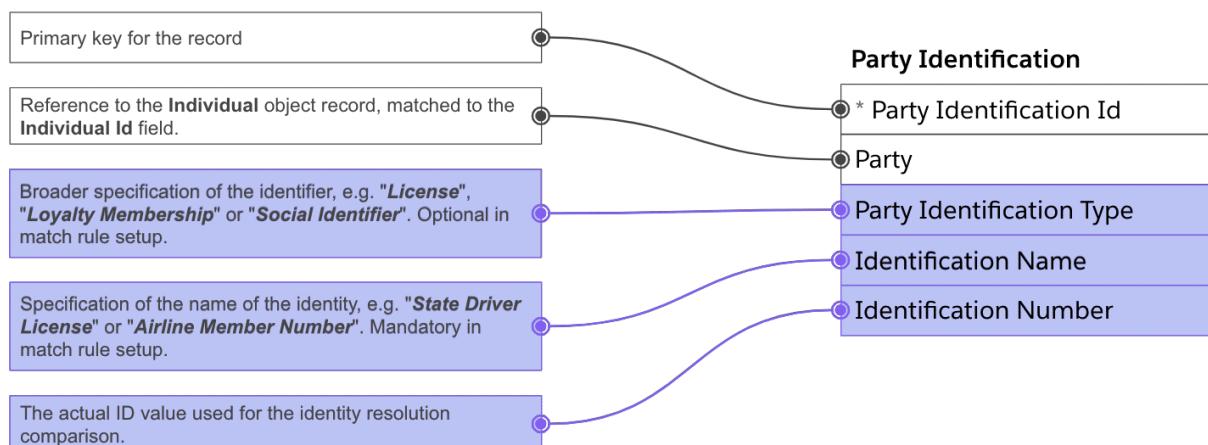
- Ruleset Status - Indicates the status of a given Identity Resolution configuration record
- Last Job Status - Indicates the current (latest) run status
- Published - Indicates the currently active ruleset
- In Progress - Indicates that Identity Resolution is being re-evaluated
- Success - Indicates completed resolution without errors

Party Identification Matching Overview

Party Identification attributes let you use external identity graphs, including but not limited to Master Data Management (MDM), license numbers, mobile identifiers, and anonymous profiles via first-party cookie ID.



As previously reviewed in the Data Modeling course, the **Party Identification** DMO requires mandatory mapping of five attributes. The **Party Identification Id** is merely a primary key for the record, and **Party** is a reference (foreign key) to the **Individual** record.



The key here is to understand that the identity resolution will match two records that for the same **Party Identification Type** and **Identification Name** share the **Identification Number value**.

Note that the relationship between those objects allows for multiple **Party Identification** records to be linked to a single **Individual** record.

The remaining three fields are the most significant, as they directly impact the matching during the unification process.

Edit Match Rules

Match Rule Criteria

Add criteria for your match rule. [Tell Me More](#)

* Object	* Field	* Match Method	
Party Identification	Identification Number	Exact	<input type="checkbox"/> Match on Blank
			
Provide additional information to add party identification criteria to the match rule.			
Party Identification Type		* Party Identification Name	
Device Identifier		Site Visitor	
Add Criteria			
* Match Rule Name <input type="text" value="Web Visitors Identification via devices"/>			

When configuring match rule criteria to use Party Identification, the Party Identification Name is used to specify the name of the identity source or space. The Party Identification Type is optional in this configuration, although using it provides an additional level of organizing the identity.

The way the match rule will work is as follows: ***It will unify all Individual records that are linked via the Party field, where for the same Party Identification Name and Party Identification Type the Identification Number values are an exact match.***

So, in the example pictured above, the following Individual records will be merged into the same Unified Individual:

Party Identification Id	Party Identification Type	Identification Name	Identification Number	Party
PI-38738ns983jK	Device Identifier	Site Visitor	VID-3571-0397	P001
PI-27693pk372mj	Device Identifier	Site Visitor	VID-3571-0397	P002

Knowledge Check

Which of these fields directly impact matching during the unification process? Choose three.

- Party Identification Type
- Identification Name
- Identification Number

*the ID (PK) is just an ID

Handling of Anonymous Profiles

It's worth mentioning that Data Cloud provides the means to ingest anonymous profiles in addition to known profiles. This allows for scenarios where initial data collection occurs for individuals who did not identify themselves with the brand in any way.

To categorize the **Individual** object record as anonymous, be sure to map the **Is Anonymous** field for the respective contributing data source.

The screenshot shows the 'Individual' object configuration screen. At the top, there are three icons: a pencil for edit, an eye for view, and a trash can for delete. Below the title, a section titled 'Is Mapped (10)' contains a list of fields. The fields are listed as follows:

- Birth Date
- Created Date
- First Name
- * Individual Id Primary Key
- Is Anonymous (highlighted with a red box)
- Last Modified Date
- Last Name

For anonymous profiles to be counted correctly, the value of the **Is Anonymous** field must be set to **1**. If it's either not mapped, empty, or contains any other value, the Individual record would be considered as known.

The benefit of anonymous records is that they're excluded from the known profile utilization consumption, even when they're included in the Identity Resolution.

Set up a match rule with Party Identification leveraging the first-party cookie or App-Registration-Id. Reconciliation rules are applied to these records automatically and are not configurable. The **Is Anonymous** field is added to the **Unified Profile**, and is available to be used in segmentation and included in Calculated Insights.

Once at least one known Individual profile is matched with an anonymous record, that record will be marked as known going forward.

Tip: Be sure to check out the examples of known and unknown unified profiles you reviewed in the Anonymous and Known Profiles in Identity Resolution help documentation you reviewed earlier.

*note from lesson - **BEST PRACTICE:** Therefore **when you are configuring matching rules in the customer implementation it is advisable to prepare a test dataset similar to how we've done it in this exercise and then verify that outcomes of the unification process are matching your customer requirements.**

Knowledge Check

For anonymous profiles to be counted correctly, set the value of the **Is Anonymous** field to_.

- 1

Activity: Configure Identity Resolution

<https://quip.com/pdc2AHHK33GC>

Knowledge Check: Data Cloud - Identity Resolution

Which of the following represents the correct order of the steps of the Identity Resolution process?

- Profile data across data sources, configure match rules, configure reconciliation rules, validate results

When using match rules with Individual Attributes and contact points, you risk creating combinations of records when the same contact point (such as a shared business phone number) is used across several individuals.

What should you do to prevent this from happening?

- Ensure names are included into the rules.

The unification process recognizes and matches data belonging to individual humans. Which of the following is the end result of this process?

- The matched data appears as records mapped to Individual Data Model Objects (DMO).

A benefit of a unified profile is that all contact points associated with the individual and complete lineage is retained within Data Cloud.

- True

What reconciliation rule is defined by default when selecting profile attributes in the Unified Individual?

- Last updated

After the Identity Resolution process completes, what should you examine to validate the Identity Resolution ruleset outcome?

- Resolution Summary

Which of the following are true of match rules? Choose three.

- They establish criteria for relating source Individual records to each other.
- They produce a record called Unified Individual.
- They make use of most standard and custom attributes mapped to the data model.

Which three match rules are available to link multiple records into a unified customer profile?

- Exact email
- Exact name and email
- Exact phone number

Which match rule allows you to unify records based on an external loyalty ID?

- Exact party ID

Which of the following are true of anonymous profiles? Choose two.

- Once at least one known individual profile is matched with an anonymous record, that record will be marked as known going forward.
- They're excluded from the known profile utilization consumption.

Additional Resources

[Identity Resolution Summary](#)

[Anonymous and Known Profiles in Identity Resolution](#)

[Party Model Overview](#)

[Party Data Model Subject Area](#)

[Identity Resolution Data Modeling Requirements](#)

[Optimize Identity Resolution](#)

[Identity Resolution Match Rules](#)

Data Cloud: Insights

Data Cloud Insights (Trailhead Module)

Trailhead Challenge: there are times when segmentation operators don't fully meet your needs. Let's say you want to find customers who have an average order spend of \$50 or more. For max, min, and sum operators, you need to use calculated insights.
Streaming insights are real time

Where can a user spot check the data in a created insight?

- Data Explorer

True or false: Only Webhook and Marketing Cloud are supported as data action targets.

- False

Insights Overview

- Introduction
 - The Insights feature within Data Cloud lets you define and calculate multi-dimensional metrics from your entire digital data state in Data Cloud.
 - Metrics are quantitative measurements of aggregated data from Data Cloud that are used to evaluate something.
 - These metrics can include factors such as Customer Lifetime Value (LTV), Recency Frequency Monetary (RFM), Most Viewed Categories, and Customer Satisfaction Score (CSAT).
 - There are two types of Insights:
 - **Calculated Insights: Define and calculate multidimensional metrics from your entire digital state stored in Data Cloud.**
 - **Streaming Insights: Create metrics on streaming data coming from real-time data sources to use real-time insights. Drive more value with insights by enabling cross-functional orchestration**

Once you create an insight, you can use it for segmentation, which we discuss in the Segmentation course.

Knowledge Check

Which two statements best describe the function of Insights?

- Calculated Insights extract data from stored data, and Streaming Insights extract streaming data.
- Both types of Insights define metrics from Data Cloud data.

Calculated Insights

Calculated Insights lets you enhance your data by extracting additional insights about your customers.

Calculated Insights allows you to:

- Build multi-dimensional metrics: Define multi-dimensional metrics—such as LTV, CSAT, RFM, and others—on the entire digital state stored in Data Cloud.
- Supercharge your segmentation: Use these insights within Segment Builder to gain a deeper understanding of your customer.
- Activate for personalization: Personalize your marketing activations.

New Calculated Insight

Fields

Q Search Fields

- > Party Identification
- > Message Engagement
- ✓ SALESORDER
 - # LIST_PRICE
 - A₃ Data Source Object
 - # TOTAL_PRODUCT_AMOUNT
 - # TOTAL_ADJUSTMENT_TAX_AMOUNT
 - A₃ Internal Organization
 - # ORDERID
 - ✓ CHECKOUT_DATE
 - A₃ PROMISE_FULFILLMENT_DATE
 - ✓ PURCHASE_CODED_ATTRIBUTES

***Expression**

Calculated Insight can affect Data Protection and Privacy compliance. [Tell Me More](#)

```
SELECT
SUM(SALESORDER__dim.grand_total_amount__c) as LTV__c,
Individual__dim.Id__c as CustomerId__c,
MONTH(SALESORDER__dim.checkout_date__c) as PurchaseMonth__c,
PRODUCT__dim.product_category__c as ProductCategory__c
FROM SALESORDER__dim
LEFT JOIN Individual__dim ON SALESORDER__dim.partyid__c = Individual__dim.Id__c
LEFT JOIN SALESORDERPRODUCT__dim on SALESORDER__dim.orderid__c = SALESORDERPRODUCT__dim.orderid__c
LEFT Join PRODUCT__dim on SALESORDERPRODUCT__dim.productid__c = PRODUCT__dim.productid__c
GROUP BY PurchaseMonth__c, ProductCategory__c, CustomerId__c
```

✓ Valid Syntax

[Check Syntax](#)

Insert >

Your metrics can include things like LTV, Most Viewed Categories, and CSAT at the profile, segment, or population level.

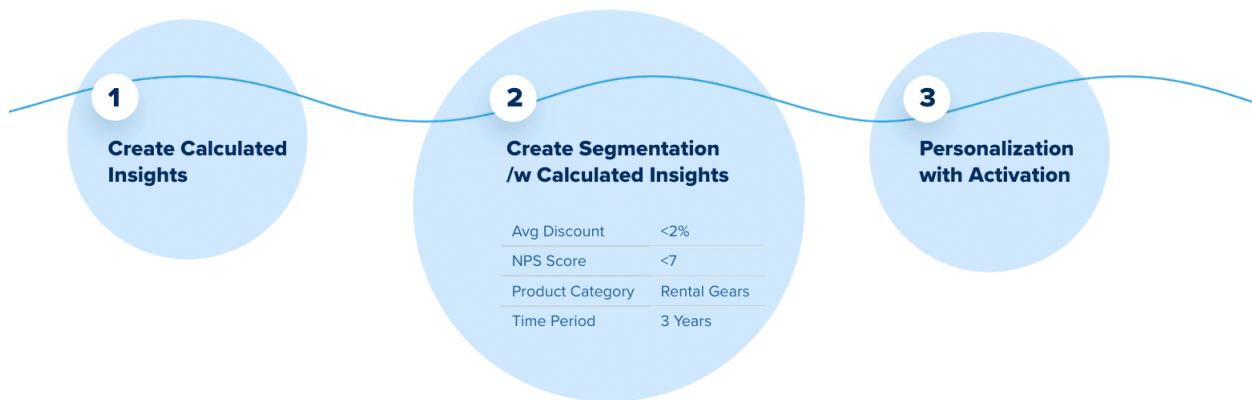
How Are Calculated Insights Used?

Marketers use Calculated Insights to define segment criteria and personalization attributes for activation using metrics, dimensions, and filters. This feature is natively available for profile-level insights.

How Are Calculated Insights Beneficial?

Northern Trail Outfitters - Customer Churn Problem

"Rental Gears Customers with lower satisfaction score and using no discount coupons are churning at a higher rate."



The benefit of Calculated Insights is the ability to:

- Compute a complex attribute.
- Supercharge segmentation, such as RFM or LTV scores across different objects.
- Compute outside of segmentation, which abstracts away the aggregations and calculations.
- Use that in segmentation.

The marketer simply plugs the insight within the segmentation canvas to specify the aggregate value.

Calculated Insights Summary

What They Are	Feature for defining and calculating multi-dimensional metrics
Where They're Accessed	In the Segmentation UI, as a personalization attribute in Activations, via API
Why They're Useful	Aggregates data, supports more complex use cases, promotes reusability and consistency, and is accessible by external systems

Knowledge Check

Why would a marketer use Calculated Insights? Choose two.

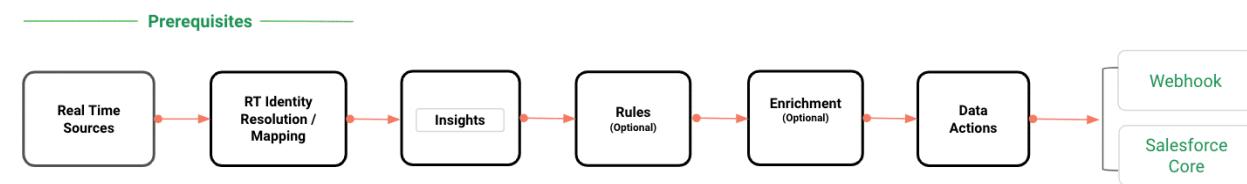
- To define and calculate multi-dimensional metrics
- To enhance data by extracting additional insights

Streaming Insights

Streaming Insights lets you create metrics on streaming data coming from real-time data sources to use real-time insights. Drive more value with insights by enabling cross-functional orchestration.

How Do Streaming Insights Work?

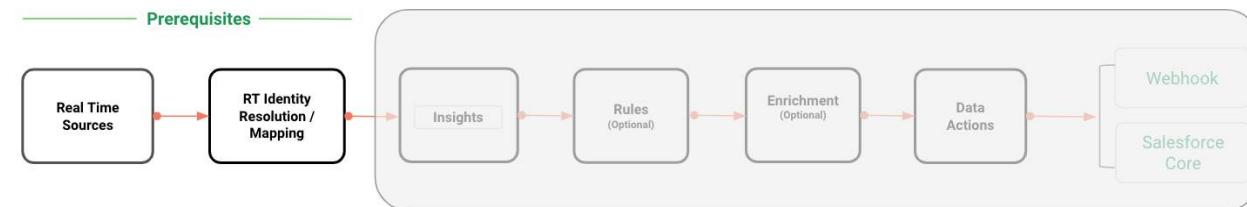
The way to use a Streaming Insight is through a Data Action. When an Insight is obtained, a Data Action is created that you can act upon. Data Actions make your Streaming Insights usable and actionable.



Collect the Insights

Streaming Insights can continuously produce sophisticated insights on events collected from streaming sources such as:

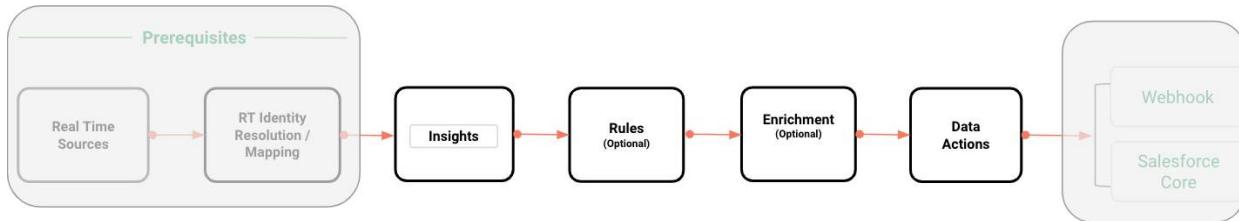
- Website or mobile clickstreams
- Internet of Things (IoT) signals
- Database event streams
- Financial transactions
- Social media feeds
- Customer profile updates
- Location-tracking events



Analyze the Insights

In Data Cloud, streaming data and insights are collected in real-time at high volume. Data Action rules ensure customers get highly curated and useful output and outstream to use in other applications, which drives meaningful outcomes such as:

- Generating time-series analytics on continuously moving data.
- Leading users to find useful patterns and share the insights with other apps with Data Actions.



Send Data Actions

A Data Action rule triggers an action with an appropriate payload when certain conditions are met.

The current Data Action Targets supported in Data Cloud are:

- Webhook: Send Data Actions to any webhook target and protect the message integrity with the Salesforce-generated secret key.
- Salesforce Platform Event: Send Data Actions to the core event bus, which enables building flow applications based on near real-time insights generated in Data Cloud.
- Marketing Cloud: Manage event and insight-driven scenarios with Marketing Cloud messaging and journey capabilities.

What Are the Benefits of Streaming Insights?

Streaming Insights and Data Actions:

- Process Event Streams: Build Insights on near real-time data streams, such as web and mobile SDK
- Define Data Actions: Create business rules and trigger useful actions
- Drive Automation (Flow and Webhook): Build Deep integration with Salesforce Platform (Platform Event Bus Flow). Webhook support enables first-party and third-party ecosystems to enable automations

Use Case Enablement

The data collected is analyzed and available to enable near real-time analytics use cases such as:

- Real-time anomaly detection
- Real-time calculations

- Business process orchestration
- Real-time alerts

Data Actions Make Insights Actionable

Consider this Use Case:

If a customer has visited a troubleshooting page before calling support, let support know to skip unnecessary troubleshooting steps.

This Streaming Insights scenario, where operations are performed on the data contained in temporal windows (a period of time), is a common pattern

In this example, the streaming data is fed into Data Cloud. Using this information, a streaming insight is created.

Along the timeline, events are captured from 12:00 to 12:05, then streaming insights are aggregated and sent to a system through the Data Action capability.



Tips:

- Streaming Insights act on streaming data, which is currently supported via the following connectors (Web SDK, Mobile SDK, and Interaction Studio).
- The aggregation time window for a streaming insight can be a minimum of five minutes and a maximum of 24 hours.

Knowledge Check:

Put the Streaming Insights process in the correct order.

1. Streaming sources collect Streaming Insights in real-time at high volume.
2. Data Action rules are applied to ensure useful output and outstream.
3. Data Actions are sent to Webhook or a Salesforce Platform Event.

Streaming Insights vs. Calculated Insights

You can use both Calculated and Streaming Insights in different ways to make the most of your data. Use the comparison table to decide which one is best for you.

Calculated Insights	Streaming Insights
Completes high-volume data processing and metrics generation.	Processes continuous stream as data is received.
Collects data in batches as sets of records and processes them as a unit.	Works on events happening in real-time.
Performs complex calculations usually needing large historic data.	Handles micro-batches of few records.
Example: Customer rank by spend	Example: Clickstream analysis, ecommerce, transactions

Insights vs. Formulas vs. Segmentation Operators

Calculating Insights is one way of organizing your data, but there are multiple ways of organizing or manipulating your data in Salesforce Data Cloud. Some basic ways to manipulate data include formulas, operators, and Calculated Insights.

Create audiences in different ways and at different stages of your workflow.

- At ingestion time, use formulas to perform operations on row-based data used downstream.
- At segmentation time, audiences are created with segment operators.
- With Calculated Insights, use views to make sense of large-scale behavioral data, and reuse views to enhance segmentation.

You have many options to choose from to perform your data transformations. Choosing the right one depends on what you're doing and the shape of the data.

Formulas

Formulas are great for calculations and operations on different data types and are ideal to use when you can use a simple, row-based operation to abstract logic that the user can consume and use at segmentation time.

Calculated Insights (CIs)

Calculated Insights make it easy for users to define segment criteria and personalization attributes for activation using metrics, dimensions, and filters. Calculated Insights are best used for:

- Non-trivial calculations—for example, calculating NPS as a percentage.
- Complex queries across multiple objects.
- Reusability purposes—for example, when you expect to use a view multiple times across different values, or when you're combining related attributes in the same view.

Purchases - In Store				Purchases - Online			
Transaction ID	Client ID	Transaction Date	Amount	Transaction ID	Client ID	Transaction Date	Amount
123	1	6/2/21	\$250	E416	4	6/2/21	\$350
456	2	6/7/21	\$1,000	E519	2	6/7/21	\$135
519	1	6/8/21	\$1,500	E647	1	6/8/21	\$599
789	3	6/8/21	\$180	E905	5	6/8/21	\$190

Consider these use cases:

1. If an individual purchase is greater than \$500, flag it as high-value.
2. If total lifetime purchases are greater than \$2,000, flag the customer as high-value.

Identify which lines of data would be ideal for these use cases.

Use Case #1: If an individual purchase is greater than \$500, flag it as high-value.

This would be best solved using a formula field.

The purchases table highlights the data that supports this use case. The formula identifies each individual record greater than \$500.

New Calculated Insight

Fields

Calculated Insight can affect Data Protection and Privacy compliance. [Tell Me More](#)

* Expression

```
SELECT
SUM(SALESORDER__dim.grand_total_amount__c) as LTV__c,
Individual__dim.Id__c as CustomerId__c,
MONTH(SALESORDER__dim.checkout_date__c) as PurchaseMonth__c,
PRODUCT__dim.product_category__c as ProductCategory__c
FROM SALESORDER__dim
LEFT JOIN Individual__dim ON SALESORDER__dim.partyid__c = Individual__dim.Id__c
LEFT JOIN SALESORDERPRODUCT__dim on SALESORDER__dim.orderid__c = SALESORDERPRODUCT__dim.orderid__c
LEFT Join PRODUCT__dim on SALESORDERPRODUCT__dim.productid__c = PRODUCT__dim.productid__c
GROUP BY PurchaseMonth__c, ProductCategory__c, CustomerId__c
```

Purchases - In Store

Transaction ID	Client ID	Transaction Date	Amount
123	1	6/2/21	\$250
456	2	6/7/21	\$1,000
519	1	6/8/21	\$1,500
789	3	6/8/21	\$180

Purchases - Online

Transaction ID	Client ID	Transaction Date	Amount
E416	4	6/2/21	\$350
E519	2	6/7/21	\$135
E647	1	6/8/21	\$599
E905	5	6/8/21	\$190

Use Case #2: If total lifetime purchases are greater than \$2,000, flag the customer as high-value.

This would be best solved via a Calculated Insight.

The purchases table highlights the data that supports this use case. All transactions from Client ID 1 are identified where the total purchases are greater than \$2,000.

In Summary

Formula Fields: Does stuff well on a single record.

Calculated Insights: Does stuff well across multiple records and objects.

Segmentation Operators

Use operators to complete self-service filtering use cases without the help of a data analyst.

Segmentation operators are a good choice for:

- Simple aggregations, like count, on one object.
- Maximum, minimum, average, and sum aggregations on numbers when the conditions are simple and unlikely to be reused often.
- Filter on two years or less of aggregation data.

When segmentation operators don't fully support your use case, use Calculated Insights.

For example, since the max operator on dates is available only in Calculated Insights, use Calculated Insights to find the last purchase date of shoes.

Use Calculated Insights for maximum, minimum, average, and sum aggregations on numbers reused among segments or have a long list of other attributes as part of the filter container.

Use this table to determine which operation to use in support of your use case.

Use Case	Formulas	Segmentation Operators	Calculated Insights
Simple logic on a row-based operation	✓	✗	✗
Ease of use, self-service	✗	✓	✗
Highly reusable content	✓	✗	✓
Attribute updated regularly	✗	✓	✓

Knowledge Check

- Segmentation Operator
 - Identify customers who have opened three support cases in the last quarter.
- Calculated Insights
 - Identify the top three customers who have purchased the most athletic shoes.
- Formula
 - Generate a field to identify customers who live in New York

Metrics on Metrics

The Metrics on Metrics feature lets you create Calculated Insights on Calculated Insights. Organize complex Calculated Insights SQL data into logical steps and stitch powerful workflows. Metrics on Metrics also allows you to improve metrics and reuse them for multiple use case scenarios.

Create Insight #2 and reference results from Insight #1 to orchestrate a more complex solution.
Outcome:

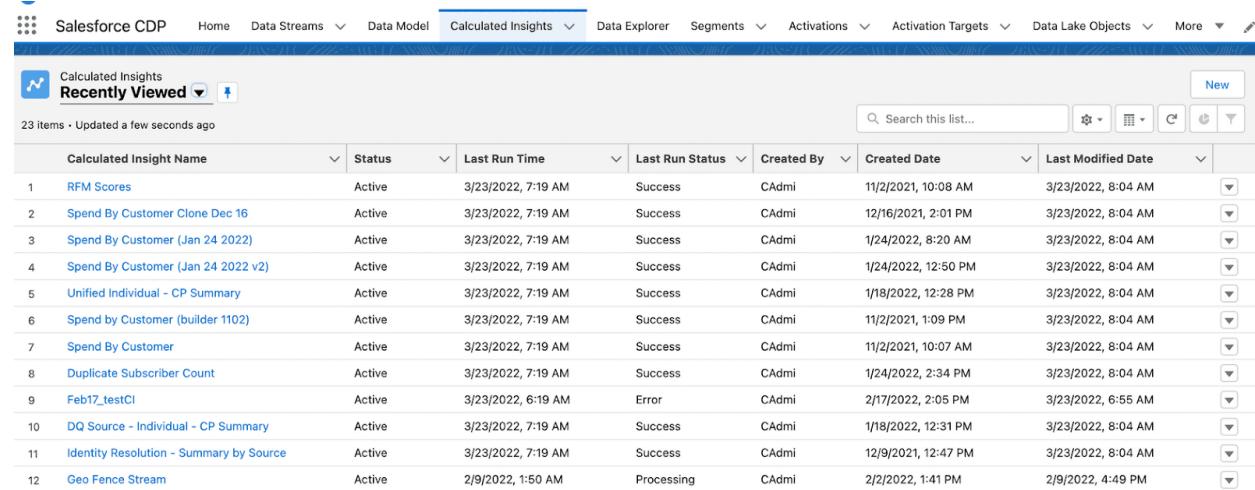
- It allows an output of one Calculated Insight to be the input of another Calculated Insight.
- Use any previous Calculated Insight in Metrics on Metrics.
- Organize complex Calculated Insights SQL data into logical steps and stitch powerful workflows and improve reuse.

- Build comprehensive insights, such as engagement scores, customer health scores, and customer attribution scores.
- Metrics on Metrics supports three levels of hierarchy.

Tip: Metrics on Metrics can be used to build higher-level scores and improve the reuse of the metrics. For example, you can create a Calculated Insight to calculate the email open count per customer. This metric can now be used to create another Calculated Insight to group customers.

Managing Insights

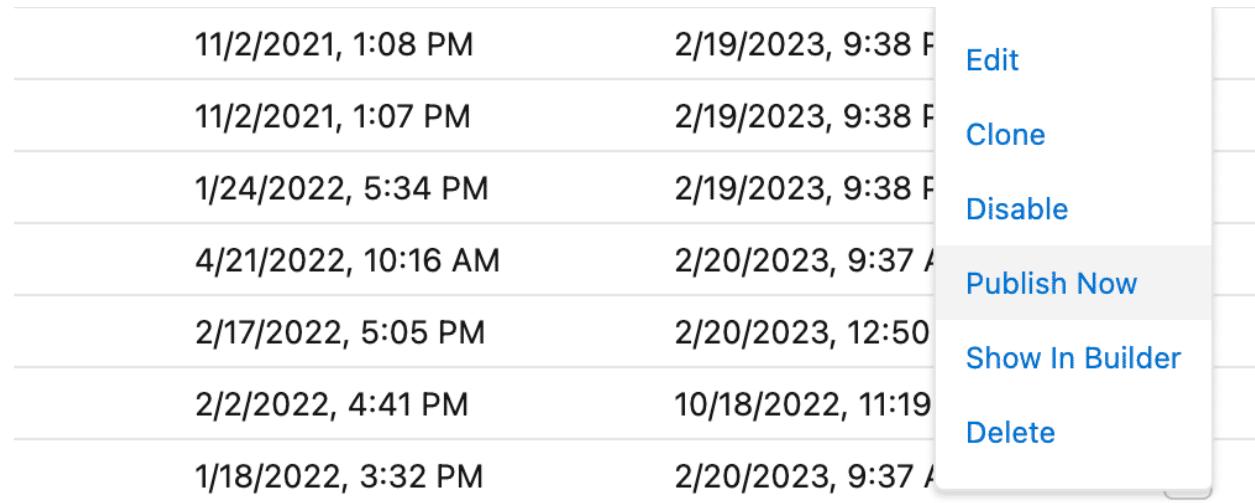
The Insights home page tab lets you view the details and expression of all created insights. Your status, last run time, and last run status fields all update in real-time.



The screenshot shows the Salesforce CDP interface with the 'Calculated Insights' tab selected. The page displays a table of insights, each with columns for Name, Status, Last Run Time, Last Run Status, Created By, Created Date, and Last Modified Date. A dropdown menu on the right side of the table provides options for Edit, Clone, Disable, Publish Now, Show In Builder, and Delete.

Calculated Insight Name	Status	Last Run Time	Last Run Status	Created By	Created Date	Last Modified Date
1 RFM Scores	Active	3/23/2022, 7:19 AM	Success	CAdmi	11/2/2021, 10:08 AM	3/23/2022, 8:04 AM
2 Spend By Customer Clone Dec 16	Active	3/23/2022, 7:19 AM	Success	CAdmi	12/16/2021, 2:01 PM	3/23/2022, 8:04 AM
3 Spend By Customer (Jan 24 2022)	Active	3/23/2022, 7:19 AM	Success	CAdmi	1/24/2022, 8:20 AM	3/23/2022, 8:04 AM
4 Spend By Customer (Jan 24 2022 v2)	Active	3/23/2022, 7:19 AM	Success	CAdmi	1/24/2022, 12:50 PM	3/23/2022, 8:04 AM
5 Unified Individual - CP Summary	Active	3/23/2022, 7:19 AM	Success	CAdmi	1/18/2022, 12:28 PM	3/23/2022, 8:04 AM
6 Spend by Customer (builder 1102)	Active	3/23/2022, 7:19 AM	Success	CAdmi	11/2/2021, 1:09 PM	3/23/2022, 8:04 AM
7 Spend By Customer	Active	3/23/2022, 7:19 AM	Success	CAdmi	11/2/2021, 10:07 AM	3/23/2022, 8:04 AM
8 Duplicate Subscriber Count	Active	3/23/2022, 7:19 AM	Success	CAdmi	1/24/2022, 2:34 PM	3/23/2022, 8:04 AM
9 Feb17_testCI	Active	3/23/2022, 6:19 AM	Error	CAdmi	2/17/2022, 2:05 PM	3/23/2022, 6:55 AM
10 DQ Source - Individual - CP Summary	Active	3/23/2022, 7:19 AM	Success	CAdmi	1/18/2022, 12:31 PM	3/23/2022, 8:04 AM
11 Identity Resolution - Summary by Source	Active	3/23/2022, 7:19 AM	Success	CAdmi	12/9/2021, 12:47 PM	3/23/2022, 8:04 AM
12 Geo Fence Stream	Active	2/9/2022, 1:50 AM	Processing	CAdmi	2/2/2022, 1:41 PM	2/9/2022, 4:49 PM

Use the dropdown error next to your Calculated Insight to make various changes to its content or status. You can also complete these actions from the desired Insights record page.



The screenshot shows the details of a specific insight. The page displays two columns of information: Last Run Time and Last Run Status. A context menu is open on the right side of the page, listing options: Edit, Clone, Disable, Publish Now, Show In Builder, and Delete.

11/2/2021, 1:08 PM	2/19/2023, 9:38 F
11/2/2021, 1:07 PM	2/19/2023, 9:38 F
1/24/2022, 5:34 PM	2/19/2023, 9:38 F
4/21/2022, 10:16 AM	2/20/2023, 9:37 A
2/17/2022, 5:05 PM	2/20/2023, 12:50
2/2/2022, 4:41 PM	10/18/2022, 11:19
1/18/2022, 3:32 PM	2/20/2023, 9:37 A

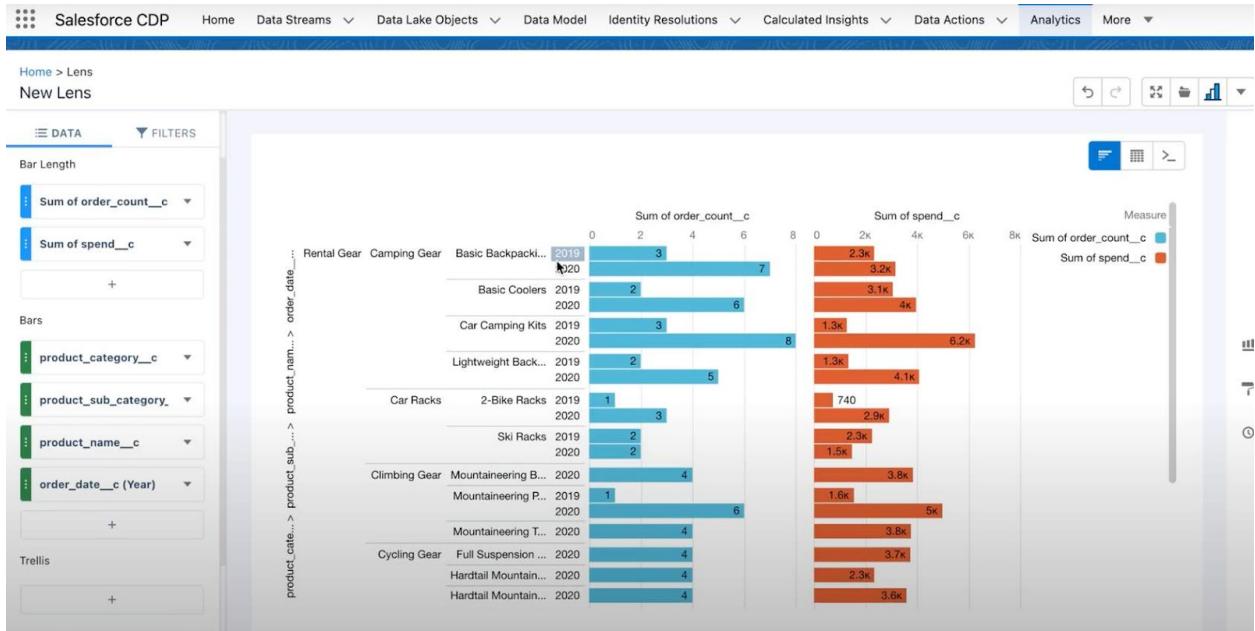
Tip: The tab within Data Cloud is called Calculated Insights, but you can see both types of Insights here.

Insight Record Capabilities

- Edit: Use the Edit function when you want to update the logic and attributes of an existing Calculated Insight.
Note: There are some guidelines in terms of what can be done when editing an existing Insight. For example, you can add measures, filters to an existing CI but you cannot add or remove a dimension. Please refer to this [help documentation](#)
- [\(opens in a new tab\)](#)
- for the latest guidelines and limits.
- Clone: Use the Clone feature to duplicate and edit the SQL function from this record.
- Enable or Disable - Use the Disable feature to turn off processing for a calculated insight. Use the Enable feature to reverse this action.
- Publish Now: Execute a Calculated Insight immediately in Data Cloud. Validate the results of a Calculated Insight as needed instead of processing it as a batch schedule and waiting hours for it to execute. You can submit three executions per day.
- Show in Builder: This opens up the Insight in the Visual Builder (only for Insights created via the Visual Insights Builder).
- Delete: Use the delete feature to permanently remove a Calculated Insight and its connections.

For customers who have both Data Cloud and CRM Analytics, view your Insights data in Analytics right from the Calculated Insight screen.

Field Name	Field API Name	Data Type	Field Type
1 order count	order_count__c	# Number	Metric(Aggregatable)
2 spend	spend__c	# Number	Metric(Aggregatable)
3 product name	product_name__c	A Text	Dimension
4 product sub category	product_sub_cate... gory__c	A Text	Dimension
5 order date	order_date__c	DateTime	Dimension
6 product category	product_category__c	A Text	Dimension
7 product id	product_id__c	# Number	Dimension



This lets you analyze, explore, visualize, and create dashboards with one-click exploration in CRM Analytics.

Lesson: Data Cloud: Insights Use Cases

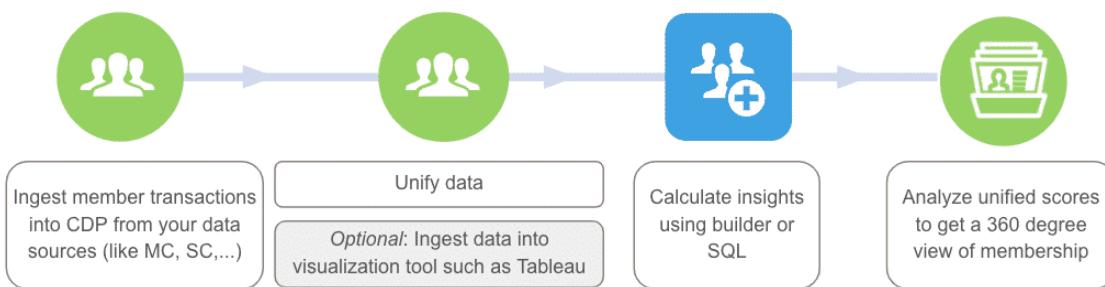
Calculated Insights Use Cases

Customer Lifetime Value

Let's delve into LTV a little deeper. This metric answers questions such as:

- How much has a customer spent with us from day one? (Either by the customer as a whole or by individual products or categories)
- How can we bucket customers based on spend?

Measure LTV



Description: Build custom-calculated metrics to establish lifetime value or order summaries for fine-tuned and reusable segmentation rules.

Sample Applications:

- Aggregate transactional orders against a customer to understand lifetime value.
- Feed purchase frequency through to Tableau using a connector.
- Assign scoring to customers to establish potential tier allocation.

Tabulate Total Overall Spend

<u>Purchases - In Store</u>				<u>Purchases - Online</u>			
Transaction ID	Client ID	Transaction Date	Amount	Transaction ID	Client ID	Transaction Date	Amount
123	1	6/2/21	\$250	E416	4	6/2/21	\$350
456	2	6/7/21	\$1,000	E519	2	6/7/21	\$135
519	1	6/8/21	\$1,500	E647	1	6/8/21	\$599
789	3	6/8/21	\$180	E905	5	6/8/21	\$190

This table shows purchases from in-store and online transactions for different customers. Since you want to bucket customers based on their total overall spend (so, total lifetime purchases are greater than \$2,000) flag the customer as high-value. To do that, tabulate all of their purchases over time to bucket your customers.

Group Based on Product Category

Object	Total Columns		
Calculated Insights	4		
custid	product	/x spend	/x spend_bucket
0034V000022UoiaQAD	2-Bike Racks	1,480	High Spender
0034V000022e2t5QAB	2-Bike Racks	960	High Spender
0034V000022e2tLQAR	2-Bike Racks	480	Medium Spender
0034V000022e2tVQAR	2-Bike Racks	740	High Spender
0034V000022UoiaQAD	Basic Backpacking Kits	1,620	High Spender
0034V000022e2shQAB	Basic Backpacking Kits	240	Medium Spender
0034V000022e2sIQAB	Basic Backpacking Kits	260	Medium Spender
0034V000022UoiaQAD	Basic Backpacking Kits	3,380	High Spender
0034V000022e2t1QAB	Basic Coolers	5,763	High Spender
0034V000022e2sIQAB	Basic Coolers	220	Medium Spender
0034V000022e2spQAB	Basic Coolers	220	Medium Spender
0034V000022e2t1QAB	Basic Coolers	820	High Spender
0034V000022ZUoiaQAD	Canoes	1,360	High Spender
0034V000022Uom0QAD	Canoes	1,820	High Spender
0034V000022e2t1EQAR	Canoes	360	Medium Spender
0034V000022e2tLQAR	Canoes	620	High Spender
0034V000022UoiaQAD	Car Camping Kits	1,660	High Spender
0034V000022e2shQAB	Car Camping Kits	140	Medium Spender
0034V000022e2s1QAB	Car Camping Kits	160	Medium Spender

You can also bucket your customers based on a product category. This sample screenshot shows an output of a Calculated Insight that buckets your customers based on a product line.

RFM Scores

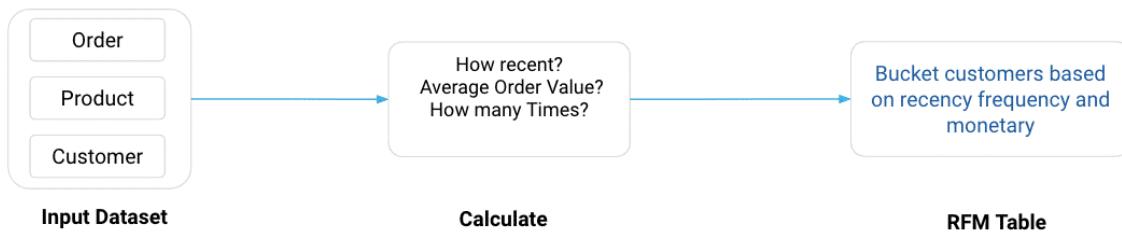
Engage customers by calculating their RFM scores. Imagine a customer scenario where you're getting all order transactions and you want to find the RFM scores based on their transaction count (how many), order value (amount), and recency of transaction.

R - Recency

F - Frequency

M - Monetary value

RFM Metrics with Calculated Insights



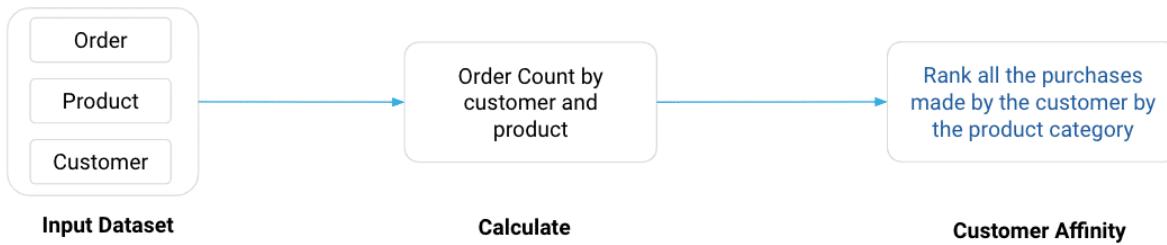
You can use a Calculated Insight to calculate this based on your RFM rules.

A screenshot of the Data Explorer interface showing a 'Calculated Insights' table for 'RFM'. The table has columns for 'id', 'Combined RFM Score', 'Recency', 'Frequency', and 'Monetary'. The data shows various customer IDs and their corresponding RFM scores across five categories.

id	Combined RFM Score	Recency	Frequency	Monetary
002c8f5-7af5-3942-96d9-72e0ad6c1a6f	243	2	4	3
00f8a3a3-b047-3ea1-8016-15c4a83e8cb1	114	1	1	4
0124976-aac4-399d-9e72-f87d7ca781fa	211	2	1	1
01e47ac1-e9ad-352b-b2e6-08943c5397a	124	1	2	4
0317d067-e915-3852-b655-eb8fe29bd306	441	4	4	1
037abb53-d807-3914-aa38-aa8999b0b5d5	143	1	4	3
036a618f-fe2f-3478-91b6-e652357abeb7	114	1	1	4
03d0defdc-3f90-39fb-9535-bafaf2c4e987	412	4	1	2
041716b1-c787-38ed-b4cd-c2c8e0cabbb5	112	1	1	2
046cb4f2-1552-3073-9f15-1b99816be882	322	3	2	2
0504716f-d00e-375c-b33c-00ae06fb2d4	244	2	4	4
064036b2-1e56-314d-8134-6f429cf092f5	344	3	4	4
066c024a-3ac5-362d-8d4b-125826362ca8	314	3	1	4
070e10bc-19c6-399c-a361-968141e47dc	423	4	2	3
073ab7c1-8a17-3651-a0f4-45e3b1529f3	314	3	1	4
07b3def-4c4f-3c7f-bce1-5fd20fcdb43	442	4	4	2
084e2789-0980-3adc-8664-7580ddcdefbe3	344	3	4	4
09a3cc1e-7b9a-398d-b665-9f461d80380d	311	3	1	1
0a5b21cb-d4fe-35cb-a23c-9411da11d0ff	121	1	2	1

Affinity Scores with Calculated Insights

Find the buying affinity by product category for each customer based on past product purchases.



Knowledge Check

- LTV: How much a customer spent from day one
- RFM: Specific score based on transaction count, amount, last purchase
- Affinity Scores: Shows that the product fits the wants of a customer

Streaming Insights Use Cases

Use Streaming Insights and Data Actions in many ways to support different use cases. Look at these use case examples and make the functionality work for you.

Use Case #1: Financial Services

Detect fraudulent or suspicious transactions such as if someone receives 100 transactions of exactly \$100 each from 50 different accounts within six hours.

Send the account and related information to the fraud department database hosted in AWS Redshift.

Use Case #2: Action-Informed Engagement

Send customers a product installation video based on products purchased in near real-time.

Use Case #3: Service and Support

Automatically log a case if a customer visits multiple troubleshooting pages in a specific time window.

Here are some other possible scenarios on how to use Streaming Insights in Data Cloud.

- Service and Support
 - Which knowledge articles has a user engaged with before calling support? Having this information can tell an agent what won't be helpful to the customer, as they've already been exposed to these resources.
- Intelligent Routing

- When used with Service Cloud, send a notification to PagerDuty if a customer escalates a case.
- Employee Engagement
 - If an employee scores less than a requirement in corporate training, send them refresher content via Slack message.
- Customer Feedback
 - Intercept near real-time customer reviews and drive satisfaction improvement actions, like creating a case.
- Account Engagement
 - Intercept inactive accounts for engagement signals in near real-time to drive reengagement.
- Location-Based Engagement
 - Initiate a workflow if the user enters a geofence
- Points Balance
 - Update the point balance in Salesforce CRM based on order transactions and social share.
- Action-Informed Engagement
 - Send customers a product installation video based on products purchased in near real-time.
- Lead Scoring
 - Perform lead scoring based on near real-time user actions like a user asking for a product feature in a forum.
- Financial Services
 - Detect fraudulent or suspicious transactions and send the account and related information to the fraud department database hosted in AWS Redshift.
- Smart Meter Leak Detection
 - Read the usage from commercial buildings and evaluate the reading based on the range specified for the building type. If the range is about to cross a threshold, send an alert to the leak analysis application to drive further actions.
- Log Scanning
 - Filter streaming device log data from a vending machine based on error codes to find the most frequent errors to determine if the device is in SLA (Service Level Agreement) or needs servicing.

 **Tip:** Keep in mind the latency considerations as you design your solution. For example, in Streaming Insights, the minimum aggregation window is five minutes, so the latency for a Data Action initiated by a streaming insight could be five minutes or more.

Knowledge Check

- Calculated Insights
 - Product category buying infinity for each customer
 - Spend by Customer
 - Spend by the Customer and Product

- Emails opened by each individual
- Streaming Insights
 - Fraudulent Transaction Detection
 - Real-time stock trades
 - Rideshare Matching
 - Customer or User Activity

Lesson: Data Cloud: Creating and Authoring Insights

Introduction

There are two main ways to create an Insight in Data Cloud:

- Visual Insights Builder
- SQL Builder

Visual Insights Builder

Visual Insight Builder is a no-code user-friendly insight authoring tool. There's no need to use SQL. Using Visual Insights Builder, you can generate required metrics and insights similar to those generated with SQL.

Visual Insights Builder lets you build both Calculated Insights and Streaming Insights.

Using Visual Insights Builder lets you use these types of nodes to build your insight:



1. **Join:** Lets you combine datasets in different ways
2. **Filters:** Allows you to filter the original dataset by applying conditions such as N days, or greater than value.
3. **Transform:** Lets you apply transformation functions to your data ; for example, transform timestamp, date addition or subtraction, substrings, or string manipulation.
4. **Aggregate:** Calculates on multiple values to return a single value; for example, count, sum, first value, dense rank, or NTILE. A sample use case might be to sum all transactions and give an LTV value.

5. Case: Goes through conditions and returns a value when the first condition is met. A sample use case might be to categorize based on aggregation. So, if LTV is greater than 100, categorize as high spender.
6. Arithmetic Expression: Allows freeform arithmetic expression, such as add, subtract, or multiply. A sample use case might be to calculate LTV minus Sum of Returns.
7. Aggregate Filter: Filters out aggregations; that is, if value is greater than N.

 Tips:

- You can save the Insight as a Draft or 'Save and Run' it instantaneously.
- Insights created with the Builder can be viewed either in Builder or as SQL.
- Insights can be edited to add additional items, but there are certain guidelines in terms of what's allowed. For example, you can add measures and filters, but you can't add or remove dimensions to an existing insight. Refer to the [help documentation](#)
- [\(opens in a new tab\)](#) for the latest guidelines and limits.

Knowledge Check

Match the Node Type to its description.

- Join
 - Lets you combine datasets in different ways
- Filters
 - Allows you to filter the original dataset by applying conditions
- Transform
 - Lets you apply transformation functions to your data
- Aggregate
 - Calculates on multiple values to return a single value
- Case
 - Goes through conditions and returns a value when the first condition is met
- Arithmetic Expression
 - Allows freeform arithmetic expression
- Aggregate Filter
 - Filters out aggregations

SQL Builder — Authoring Calculated Insight via SQL

Calculated Insight SQL Builder lets you use the full power of SQL to create your insights. You can create both Calculated Insights and Streaming Insights via SQL.

Here's the basic syntax of a Calculated Insight:

```

SELECT <Attributes>, <Aggregation[Measures]>
FROM <Data Model Object>
JOIN [Inner | Left | Right | Full] <Data Model Object> [Optional]
WHERE <predicate on rows> [Optional]
GROUP BY <columns[Dimensions]>

```

Tips for Creating Calculated Insights using SQL

- Measures and Dimensions must end with __c. (see example in image below)
- Measure must be an aggregate function.
- There must be at least one Measure.
- Only numeric Measures are supported. Non-numeric Measures like Max(Date) won't work.
- In Data Cloud, timestamps are stored in Coordinated Universal Time (UTC), which includes CI Insights.
- Insights are refreshed one time a day to multiple times a day, depending on the volume of data and complexity of queries.
- You can execute a Calculated Insight Immediately, so that you can validate the results of a calculated insight as needed instead of processing it as a batch schedule.

Note: You can submit three executions per day per Calculated Insight.

```

SELECT
  SUM(SalesOrder__dlm.GrandTotalAmount__c) as TotalOrderAmount__c,
  Individual__dlm.Id__c as CustomerId__c
FROM SalesOrder__dlm
LEFT JOIN Individual__dlm
  ON SalesOrder__dlm.SoldToCustomerId__c = Individual__dlm.Id__c
GROUP BY CustomerId__c

```



Measure	Dimension
TotalOrderAmount__c	CustomerId__c

Knowledge Check

Identify three accurate tips for creating Calculated Insights using SQL.

- Measures and Dimensions must end with __c.
- In Data Cloud, timestamps are stored in UTC.
- CIs can be executed immediately.

SQL Builder — Authoring Streaming Insights via SQL

Streaming Insights requires you to take several steps before setting up the Insights.

Step 1	Real-Time Sources	Map to different objects from Web and Mobile SDK and Marketing Cloud Personalization data streams.
Step 2	Identity Resolution and Data Mapping	Ingest your data into Salesforce Data Cloud and create unified individuals with Identity Resolution.
Step 3	Insights	Streaming Insights are similar to Calculated Insights but have specialized functions to deal with streaming data.
Step 4	Match Rules	(Optional) Define how duplicate records are identified.
Step 5	Enrichment	(Optional) Enrich with unified individual data from customers.
Step 6	Data Actions	Use Data Actions on your created Streaming Insights and evaluate if an action is necessary or an enrichment to enhance Data Actions with profile-related attributes.

The image below shows the basic syntax of a Streaming Insight.

```

SELECT COUNT( RealTimeMobileEvents__dlm.pageviews__c ) as page_views__c,
ssot__Individual__dlm.ssot__Id__c as customer_id__c,
RealTimeMobileEvents__dlm.product__c as product__c,
WINDOW.START as start__c,
WINDOW.END as end__c
FROM
RealTimeMobileEvents__dlm
JOIN
ssot__Individual__dlm
ON
ssot__Individual__dlm.ssot__Id__c = RealTimeMobileEvents__dlm.deviceId__c
GROUP BY
window( RealTimeMobileEvents__dlm.dateTime__c , '5 MINUTE'),
customer_id__c

```

The image below offers tips for creating Calculated Insights using SQL.

The image shows the same SQL code as above, with several red annotations:

- A red arrow points to the word "COUNT" in the first line, with the text "Aggregation can be only SUM or COUNT with Streaming Insights".
- A red arrow points to the "start__c" and "end__c" parameters in the "WINDOW" clause, with the text "Window definition is a required aspect of Streaming Insights!".
- A red arrow points to the "dateTime__c" parameter in the "window" function, with the text "Here we're defining the length of the window. Can be 5 minutes up to 24 hours."

```

SELECT COUNT( RealTimeMobileEvents__dlm.pageviews__c ) as page_views__c,
ssot__Individual__dlm.ssot__Id__c as customer_id__c,
RealTimeMobileEvents__dlm.product__c as product__c,
WINDOW.START as start__c,
WINDOW.END as end__c ← Window definition is a required aspect of Streaming Insights!
FROM
RealTimeMobileEvents__dlm
JOIN
ssot__Individual__dlm
ON
ssot__Individual__dlm.ssot__Id__c = RealTimeMobileEvents__dlm.deviceId__c
GROUP BY
window( RealTimeMobileEvents__dlm.dateTime__c , '5 MINUTE'),
customer_id__c

```

Knowledge Check

Which two steps in the Streaming Insights Flow are optional?

- Match Rules
- Enrichment

Deploy Insights from a Package

As a Data Cloud admin, it's possible to package metadata (including Insights) and deploy it from one Data Cloud org to another via a package.

A Data Cloud developer creates the insight which an admin packages to deploy in other Data Cloud orgs.

Packaging the Calculated Insight provides an opportunity for the user to reuse these best practices and quickly deploy them in a customer instance.

Knowledge Check

A Data Cloud admin can package metadata and deploy it from one Data Cloud org to another via what?

- A package

Insights Tips

Calculated Insight in Segmentation

In order to use Calculated Insights in your Segment Criteria, keep the following in mind:

- The Segment On entity must be a profile when using Calculated Insights in Segments.
- In order for Insights to appear in Segments, the table that you segment on must be added to the query as a JOIN. The primary key of the segmented table must also be a dimension in your created Insight.

Calculated Insight in Activation

You can only activate Calculated Insights metrics (not dimensions). A workaround option that could be used to activate dimension data is by using ‘FIRST,’ ‘MAX,’ or a similar function which makes that column a metric.

Note that when using this method, the Calculated Insight should be coded in a way so that the value returned as a measure aligns to the logic being used in the Group By or Where clause.

Additional Resources

[Partner Pocket Guide: Salesforce Data Cloud](#)

[Enhance Data With Insights](#)

[GitHub Repository: Calculated Insights SQL Examples](#)

[Perform In-Depth Analyses with CDP Calculated Insights](#)

[Explore Product Data with CDP Calculated Insights](#)

[Building Insights in Salesforce Data Cloud](#)

Knowledge Check: Data Cloud Insights

Which three types of usages are Calculated Insights best suited for?

- Non-trivial calculation
- Complex queries across multiple objects
- Reusability purposes

Which type of insight is best suited to analyze clickstream data every five minutes?

- Streaming Insights

True or False: Once you save an Insight from Visual Insights Builder, you can no longer edit it using the Visual Builder.

- False

Match each data manipulation tool with when you should use it.

- **Formula:** Use this at ingestion time to perform operations on row-based data.
- **Operator:** Use this to create audiences at segmentation time.
- **Calculated Insights:** Use this to make sense of large-scale behavioral data.

Which are the supported Data Action targets for Salesforce Data Cloud Streaming Insights?

Choose two.

- Webhook
- Salesforce Platform Event

Which Data Cloud feature helps calculate reusable attributes like Customer Lifetime Value and Customer Satisfaction Score?

- Calculated Insights

Which activity is not performed with authoring Streaming Insights via SQL?

- Creating timestamps in Data Cloud

Match the function with its definition.

- **Data Action:** Created when a Streaming Insight is obtained, making Streaming Insights usable
- **Calculated Insights:** Lets you define and calculate multidimensional metrics from Data Cloud
- **Streaming Insights:** Creates metrics on streaming data coming from real-time data sources
- **Visual Insights Builder:** A no code user-friendly insight authoring tool for Calculated and Streaming Insights
- **Calculated Insights SQL:** Creates both Calculated Insights and Streaming Insights using the power of SQL

Which options can you use to create a Calculated Insight? Choose four.

- Create with Builder
- Create with SQL
- Create from a package
- Create Streaming Insights

Identify the three use cases best suited for Calculated Insights.

- Customer Lifetime Value
- Recency Frequency Monetary
- Affinity Scores

Data Cloud: Segmentation

Lesson: Data Cloud Segmentation

SEGMENTATION INTRODUCTION

Overview

At the heart of Salesforce Data Cloud is the segmentation engine, which lets business users:

- Query all the data in the system.
- Create granular segments of customers.
- Understand the data composition.

Knowledge Check

- Publishing the segments can only be performed on a schedule.
 - FALSE
- Segments are non-critical when using data cloud.
 - FALSE
- Users use Einstein-calculated attributes to add modeled data.
 - TRUE
- Activation requires SQL coding to send segment data.
 - FALSE
- Segmentation creates segments to understand, target, and analyze customers.
 - TRUE
- The Segmentation engine lets users query data in the system.
 - TRUE

Use Cases

Knowledge check

Imagine you've decided to leverage the Data Lineage—Point of Sale Purchases use case showcased earlier, "Look for customers with \$500 purchases last year from Point of Sale (not online)."

Which operator and value would you choose for the Data Source attribute?

- Operator = "Equal to" and Value = "Point of Sale"

Features

Definitions

- **Segment Canvas Interface:** The segment canvas interface lets you use direct and related attributes (Attribute Library) to narrow down a created segment to your target audience.
- **Attribute Library:** The direct and related attributes contained in the library are based on the objects and relationships mapped during data ingestion.
- **Rule Builder:** Use segmentation rules to create a list of prospects and apply a segmentation action based on specific criteria.
- **Container:** Containers provide a way to create relationships between your related attributes.
 - If you place "yellow" and "scarf" in the same Order Product container using AND, the query engine looks for a customer who purchased a "yellow scarf" as a single product on the purchase.
 - If you place "yellow" and "scarf" in separate containers, the query engine looks for customers who purchased any yellow product and also purchased a scarf of any color.
 - An order for a used car has a buyer ID and seller ID relating back to an individual.
 - When using order attributes such as filter criteria, choosing a path lets the user decide which group of individuals is used to build their segment—Car Buyers or Car Sellers.
 -
- **Count Segment:** Request a count of the individuals in your segment based on your current data ingested and defined segment filters.
 - Upon creation, a segment displays the entire Data Cloud segment targets in this tenant as the count.
 - As filters are added, updated, or removed, the marketer can request the count again.
 - Frequent and easy validation of the count gives the marketer confidence that the segment reflects the target audience they're trying to create. A count that's greatly off could be an indication of a problem with the mapped data model, data loaded, or the filter definition.
 - Counts are also used as a budgeting or planning exercise by the group responsible for messaging, such as, "I need to plan for a campaign that will message around 200,000 individuals."
- **Publish Segment:** Publish your segment, either ad hoc or on schedule, to be used in activation targets like AWS S3, Marketing Cloud, and Marketing Cloud Personalization.
 - To use the segment for messaging, it needs to be published to one or more activation targets.
 - Publish reruns the count first and then creates a materialized segment. Activation targets are notified that a new segment exists to use.
 - Segment publishes can be:

- Ad hoc—Customers who have an unscheduled immediate campaign, one-time campaign, or want to manually decide when to use the segment. You would select the "Don't refresh" Publish option.
- Scheduled—Customers who want to "Set it and forget it" for ongoing campaigns. The Publish schedule available currently is every 12 hours or 24 hours.

 TIPS:

- Each segment can have up to 50 attributes, and each attribute can have up to 10 nested operators.
- The maximum number of segments for a Salesforce org is 9,950.

TIP: The Segment Count shows the overall count of members who fall in a specific segment. To see the individual-level details on the records within a specific segment, it needs to be published and activated.

Knowledge Check

Identify the two correct statements.

- Segments do not publish by default.
- The Attribute Library contains data that has been mapped and marked for segmentation.

Managing Segments

 TIPS:

- If you delete or deactivate a segment, there's no functionality to re-enable it.
- If you deleted (or deactivated) in error, you must recreate the segment.
- If you plan to use the segment again, stop the publish schedule instead of deleting the segment.

Knowledge Check

True or false: When you copy an existing segment, filters and customizations aren't included in the new segment.

- False

ENHANCED CAPABILITIES

Segment Exclusions

Apart from including members in your segment, you can also set up exclusions that allow you to explicitly exclude members from being in your segments. The segmentation canvas lets you intuitively access and create exclusion filters within the same interface.

Calculated Insights in Segments

Segmentation also lets you use Calculated Insights that have been created in your segmentation criteria.

TIPS:

- The Segment On entity must be a profile when using Calculated Insights in segments.
- For insights to appear in segments, the table that you segment on must be added to the query as a JOIN.
 - The primary key of the segmented table must also be a dimension in your created insight.
- The Segment Container can only include one metric.
- The Segment Container can include multiple dimensions as filter criteria for a metric.
- Streaming insights aren't currently supported in segments.

Identity Resolution in Segmentation

Segmenting population counts let you to compare the impact of different Identity Resolution rulesets for the same entity.

After using Identity Resolution to create different rulesets for the same entity, entities and attributes created by both rulesets are available in segmentation.

TIP:

You can use attributes from both rulesets to validate and test different population counts.

After using Identity Resolution to create different rulesets for the same entity, entities and attributes created by both rulesets are available in segmentation.

Use Identity Resolution to create two different rulesets for the individual entity.

- After using Identity Resolution to create different rulesets for the same entity, entities and attributes created by both rulesets are available in segmentation.
- For the first ruleset, use stricter match rules, and for the second ruleset, use more general match rules and add Ruleset ID fuzzy.
- To build a new segment based on the fuzzy ruleset, use Unified Individual fuzzy in the Segment On field.
- This allows you to test different population counts based on the different Identity Resolution rulesets.

Enable Value Suggestion for mapped text attributes. Attributes that have been enabled with Enable Value Suggestion in the Data Model allow you to search data values along with type ahead functionality to surface ingested values for your attributes.

TIPS:

- Only text attributes can be enabled for value suggestions.
- Value suggestion can be enabled for up to 500 attributes in your entire org.
- It can take up to 24 hours for suggested values to be visible after being enabled.

- For attributes with more than 1,000 values, the most frequently occurring 1,000 values in the dataset are displayed alphabetically. Some operators allow you to select multiple values for an attribute.
- Values with more than 255 characters aren't available as suggested values, but you can still type them in to filter on them.

Segment Time Zone

The Data Cloud org sets the publish time zones on the initial segment save and segment canvas. Updates made to your Salesforce org's time zone aren't reflected in existing segments.

TIPS:

- Newly created segments follow the updated time zone.
- To update the time zone of existing segments, resave your segments.

Knowledge Check

Match the feature with the appropriate definition.

- Opens up more complex and targeted use cases
 - Calculated Insights in Segmentation
- Allows you to compare the impact of rulesets on segment population counts
 - Identity Resolution in Segmentation
- When enabled, auto-populates a list of distinct value options
 - Value Suggestion in Segmentation

Nested Segments

This lets you use another, existing segment when building a segment to build upon the existing rules, rather than having to recreate them.

This lets you:

- Simplify segment creation for common elements.
- Encapsulate the segment for reuse, which is efficient and allows for organizational consistency.

Viewing Segment Membership Data

When publishing your segment, a segment membership data model object (DMO) is automatically created to store information about the members of the segment.

This allows the user to check membership data on their segment. You can:

- Check test data in the segment that you created to ensure the membership is correct.
- Obtain deeper insights on the member composition of your segments.
- Identify which profiles have entered and exited a segment over specific periods of time.
- See segment membership as a related attribute when querying one or more specific profiles.

You can interact with membership data in three ways.

- View the data in Data Explorer to verify the segmentation results.

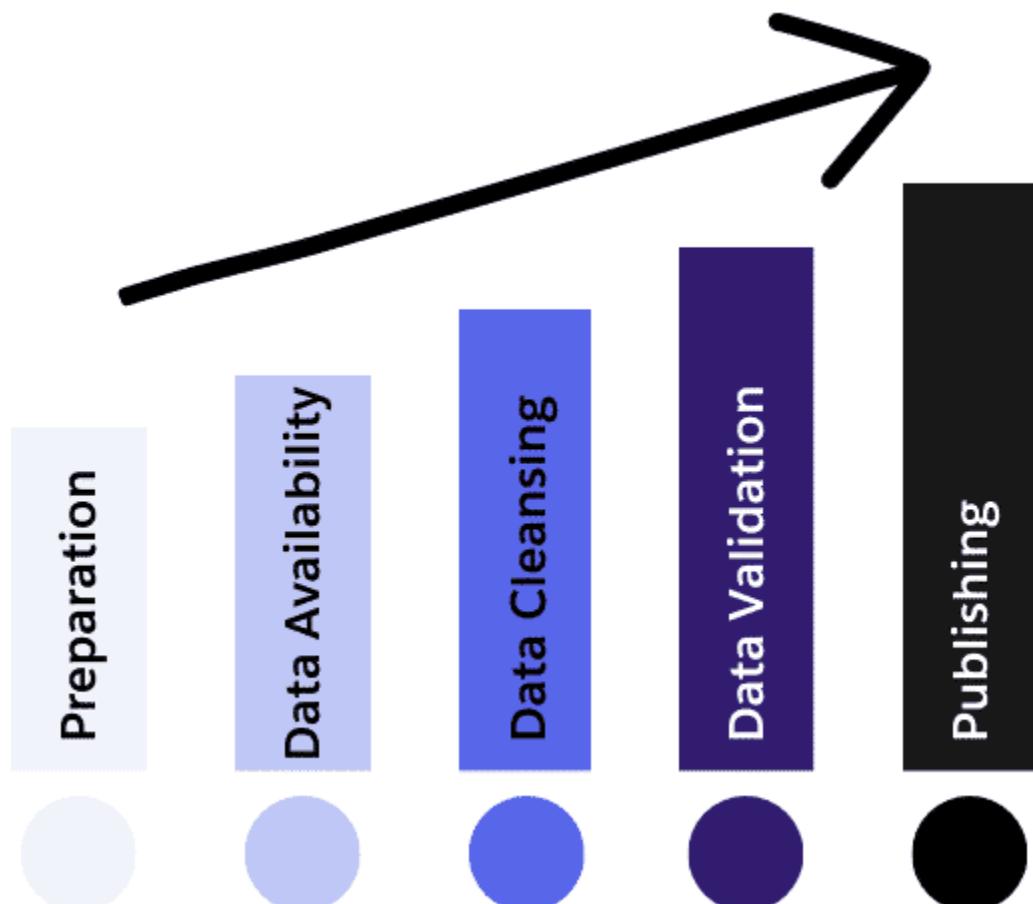
- Interact with the data in Tableau to find insights in a business dashboard.
- Query the segment membership DMO using SOQL.

Segment Membership DMO names.

Entity Name	API Name	Table Name
Latest segment membership data	Entityname_SM (for example: Individual_SM)	Entityname Segment Membership - Latest
Historical segment membership data	Entityname_SMH (for example: Individual_SMH)	Entityname Segment Membership - History

SEGMENTATION BEST PRACTICES

These best practices are accepted guidelines that produce superior results when segmenting Data Cloud data.



- Preparation
 - Plan your use case

- Remember-Planning is everything!
- Data Availability
 - Ensure the data you need is available.
 - Work with your data-aware specialists.
 - Understand the data model.
 - Make sure that the data modeler works with the marketing or segmenter ahead of time.
- Data Cleansing
 - Cleanse and prepare your data for segmentation before you use that data in an audience segment or for personalizing content.
 - Use customer Identity Resolution to help mitigate any duplicate contacts in your data.
- Data Validation
 - Take a step by step approach.
 - Request counts for every filter.
 - Use Data Explorer to explore and validate your input data to segment on.
- Publishing
 - Find the best time to publish in relation to other segment publishes.
 - Review helpful fields such as Last Published End, Last Publish Status Date Time, Next Publish Date Time, and Publish Schedule.

 TIPS:

- If you find that the segment logic is too complex or references too many Data Cloud objects, explore using a Calculated Insight to reduce the number of Data Cloud objects referenced by your segment.
- Use a Calculated Insight instead of many attributes and nested operators within your segment.

Knowledge Check

Match each best practice with its key takeaway.

- To mitigate duplicate contacts, apply identity resolution.
 - Data Cleansing
- Use Data Explorer to explore and validate your input data to segment on.
 - Data validation
- Find the best time for this by reviewing helpful fields.
 - Publishing

Activity: Configure and Validate Segments

Some of the counts didn't match when building.

Knowledge Check: Data Cloud - Segmentation

Knowledge Check

Which type of Insight can be used in Segmentation?

- Calculated Insight

Which step in a segment configuration determines the attributes that show up in the Attribute Library?

- Segment On

For customers who want to "set it and forget it" for ongoing campaigns, what are the two automated publish schedule options on a segment?

- Every 12 hours
- Every 24 hours

Which attributes in the Attribute Library have a 1:Many relationship with the segment target?

- Related attributes

If you want to use the same criteria in multiple segments, which feature would you recommend?

- Nested Segments

Which of these two statements are true for Value Suggestions?

- "Enable Value Suggestion" needs to be turned on for the attribute.
- Only text attributes can be enabled.

How many attributes can be enabled for Value Suggestion?

- 500

Attributes with which data type support Value Suggestion?

- Text

Which one of these options would likely be an attribute?

- Purchase Order Date

How can you view details on Segment Membership and who all are in a specific Segment?

- View the Segment Membership DMO data via Data Explorer.

Match the segmentation feature with its definition.

- Contains the basic properties where a query is built.
 - Segment
- Contains select data that has been mapped and ingested.
 - Attribute Library
- Defines the target audience using criteria.
 - Rule Builder
- Identifies the number of targets in a segment.
 - Count Segment
- Makes a segment available to an activation target.
 - Publish

Which entity type(s) can be used to "Segment On" in Segmentation?

- Profile

Additional Resources

[Create and Activate Segments](#)

[Segmentation Filter Examples](#)

Data Cloud: Activation

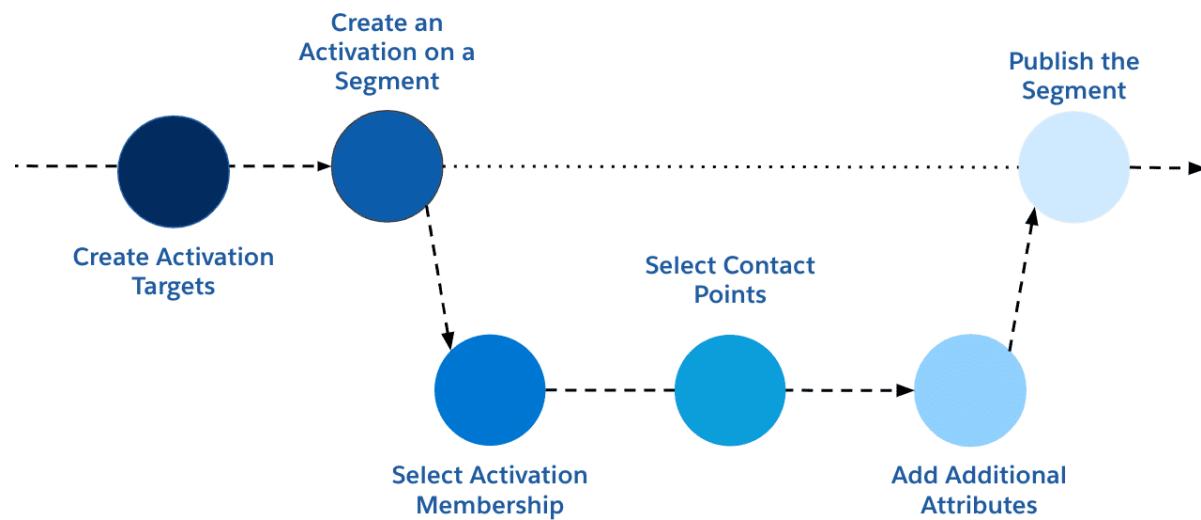
ACTIVATION INTRODUCTION

Activation Overview

- You can act on data to create a rich experience with:
 - Segment Activation, which materializes and publishes your segment to activation platforms.
 - Data Actions, which act on your streaming data and insights to trigger actions based on certain conditions, which can enable downstream systems to drive an action or orchestration.

Activation of Segments

- Activation is the process that materializes and publishes your segment to activation platforms.



Knowledge Check

- Step One
 - Create Activation Targets
- Step Two
 - Create an Activation on a Segment
- Step Three
 - Select Activation Membership
- Step Four

- Select Contact Points
- Step Five
 - Add Additional Attributes
- Step Six
 - Publish the Segment

Activation Targets

An activation target stores authentication and authorization information for a given activation platform. Publish your segments and include contact points and additional attributes to the activation target platforms.

Create an activation target to these platforms:

- Cloud File Storage Activation Target
- Marketing Cloud Activation Target
- Data Cloud Activation Target
- External Activation Platform Activation Target



Tip:

An activation target is automatically created for each Marketing Cloud Personalization account and B2C Commerce instance connected to Data Cloud. It doesn't need to be created separately.

Cloud File Storage Activation Target

The Cloud Storage Activation Target lets you publish segments from Data Cloud to AWS S3. Before creating an S3 activation target, please determine your S3 access key and secret key

- Activation to S3 can be made without mapping contact points.
- Data Cloud supports Amazon S3-managed keys (SSE-S3).
- After you create and activate segments to Cloud File Storage, a subfolder called Salesforce-c360-Segments is automatically created.



Tip:

Segments in S3 are created in YYYY/MM/DD/HH/{first 100 characters of segment name}/{20 characters of activation name}_{timestamp in yyyyMMddHHmmsssssSSS format}.

Marketing Cloud Activation Target

Publish your segments directly from Data Cloud to Marketing Cloud business units. Marketing Cloud Activations let you activate across your messaging channels, including email, SMS, and Mobile Push.

After you create and activate segments to Marketing Cloud, they show up in Contact Builder as a Shared Sendable Data Extension. A Data Cloud Segments subfolder is automatically created when you publish your first activation.

- Segments are created as a shared data extension with this naming format: {first 52 characters of segment name}_{16 characters of activation_name}_{32 characters of Alphanumeric Random number}.
- Activated segments shared by more than one Business Unit (BU) are created as a shared data extension in the Data Cloud subfolder.
- The shared data extension for the activation target is based on the selected BUs.

The audience refreshes can be based on a marketer-controlled publish schedule on the segment.

Tips:

- As part of the setup, you can select any number or combination of Marketing Cloud business units for activation independent of the BUs selected for ingestion.
- Business Unit (BU) Aware Activation: Data Cloud also supports Marketing Cloud BU Aware activations. More content is coming in the future. Monitor the Partner Community updates in Slack and Chatter.

Data Cloud Activation Target

Activate segments to the Data Cloud so that Salesforce core apps and non-core apps can query for segment membership, Calculated Insights, and attributes through connect API or Query API. Data Cloud activation creates a Data Model Object (also called a curated DMO), which is then available in Data Cloud (both in the UI and the API).

The apps can query for segment membership and use that in a variety of use cases, such as loyalty, using segment membership for loyalty points accrual.

Examples

Can I find all segments that Unified Individual XYZ is a member of?

Does the Loyalty Program Member (with member ID ABC) belong to the platinum tier with unused vouchers segment?

 Tips:

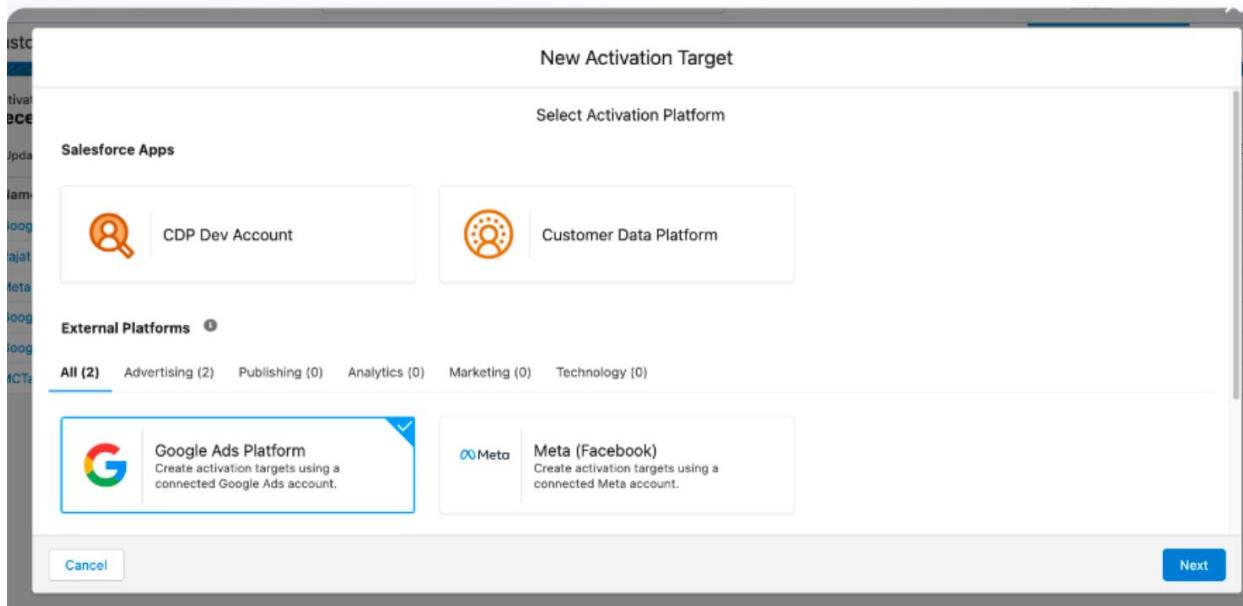
- One Data Cloud activation target is created for your org.
- Segments are found in Data Cloud via the Query API or directly via Data Explorer.
- For Data Cloud, three attributes are persisted into the curated DMO by Default - {Segment ID}, {Segment ID Name}, and {Segment ID Last Processed}.

External Activation Platform Target

The External Activation Platform lets you create and define activation platform metadata that can be packaged and listed on AppExchange.

In addition, you can directly activate to Google and Meta, which lets you activate personalized advertising at scale using native integrations.

This allows you to securely join first-party data in Data Cloud together with premium advertising partners to extend reach to new channels and engage audiences using data from across the full customer relationship, all while protecting consumer privacy.



Partners can now create Data Cloud activation connectors via AppExchange or combine capabilities to create innovative solutions.



External Activation Platform creation or packaging is only supported in Namespaced Developer Editions.

Knowledge Check

Match the four Activation Targets with their corresponding platform.

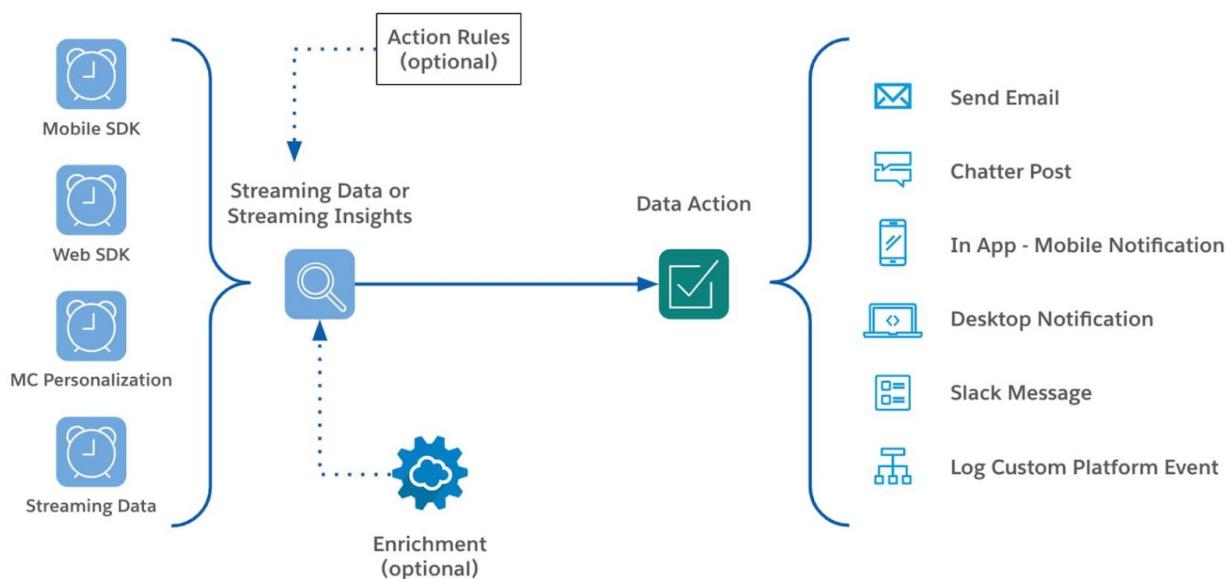
- Amazon S3
 - Cloud File Storage Activation Target
- Marketing Cloud Business Units
 - Marketing Cloud Activation Target
- Salesforce core and non-core apps
 - Data Cloud Activation Target
- AppExchange
 - External Activation Platform Activation Target

Data Actions

Data Actions allow you to act on your streaming data and streaming insights. Streaming data could include data from your web and Mobile SDK connector or Marketing Cloud Personalization Connector.

Data Actions 'Activate' your streaming data in real time.

This creates insights and drives real-time actions on your streaming data.



A Data Action containing a rich payload can be triggered based on certain conditions and can enable downstream systems to drive an action or orchestration. You can use a Data Action to focus on near real-time events and insights at different levels; for example, at the channel, product, account, service, sell, fulfillment, engagement, payment, and individual level. To use a data action, you must first create a Data Action target or location to send your results.

💡 Tip: The supported data action targets are Salesforce Platform Event, Webhook, and Marketing Cloud.

Some of the use cases on how Data Actions can enable different types of event-driven integrations and orchestrations include:

1. Orchestrate Salesforce CRM workflows with insights and data events from Data Cloud.
2. Integrate data actions in Mulesoft Anypoint by sharing real-time aggregated event data with external partners based on criteria.
3. Integrate with SaaS applications with real-time signals from Data Cloud.
4. Trigger serverless functions that work with a webhook based on insights in Data Cloud.
5. Connect multicloud workflows or services when useful events happen in Data Cloud.
6. Push unfiltered insights and engagements to your data lake for near real-time analysis and storage.

Data Cloud Data Actions can also send streaming events and insights to Salesforce Flow to drive an orchestration. An orchestration uses stages, steps, and decisions to organize complex business processes. This now allows you to use Data Cloud across the entire Salesforce Platform.

The image below shows how you can use Data Actions along with the Salesforce Platform to orchestrate powerful use cases.



An end-end walkthrough of using Data Actions along with Streaming Insights is covered in the Data Cloud: Insights Lesson.

Data Cloud: Activation Creation

Creation Overview

Activation is the process that materializes and publishes a segment to activation platforms. The following three steps, showcased in the “Overview” section of the course, identify the activities for creating an activation on a segment.

Tip: Set up Activation Targets before you set up an activation.

Activation Membership

When creating the activation for a segment, select an entity from the Activation Membership line.

New Activation

Select a segment, activation membership, and activation target.

* Segment i
High Value Churn Risk

* Activation Target i

🔍

- 🔗 Arvind Raman 523010258_Arvind Raman
SalesforceInteractionStudio • Interaction Studio Dataset 3kh5f000000fxY4AAI
- 🔗 Audiences_523010258
AmazonS3 • Bucket Name: arcdp01-dev
- 🔗 CDP_Org_523010258
Salesforce CDP
- 🔗 MC_523010258
SalesforceMarketingCloud • Business Units LA Arvind Raman_523010258

Activation Summary

🕒 High Value Churn Risk i

Segment On:	Unified Individual
Publish Schedule:	⚠ Don't refresh

Activation Membership expands the possibility of activating the profile entities that have a 1:Many relationship with the segment entity.

Activation membership can be either the Segmented On entity or the entities with a 1:Many relationship with the Segmented On entity. In essence, you can specify a different object for your Activation Membership other than what it's segmented on.

Select a segment, activation membership, and activation target.

* Segment i
arv individuals v2

* Activation Target i

🔗 Audiences_523010258 ×

* Activation Membership i

Individual (default, based on selected segment) ▼

- ✓ Individual (default, based on selected segment)
- Account
- Loyalty Program Member

Activation Summary

🕒 arv individuals v2 i

Segment On:	Individual
Publish Schedule:	⚠ Don't refresh

🔗 Audiences_523010258 i

Platform:	Amazon S3
Bucket Name:	arcdp01-dev

Attributes Included (1)

1. Individual Id

💡 Tip: Use Activation Membership to add fields from different Data Model Objects (DMOs) than those your segment is built on to send to your activation target.

Knowledge Check

True or False

By selecting an Activation Membership, you can specify an additional object including what was originally segmented on.

- False

Unified Individual vs. Individual (in Activation)

To take advantage of Identity Resolution, use the Unified Individual as your Activation Membership.

Identity Resolution allows you to combine data from disparate data sources to create one Unified Individual.

If you have data from multiple data sources in Data Cloud, we recommend using segments created on Unified Individual as your Activation Membership. Selecting Individual instead of Unified Individual as your Activation Membership can result in duplicate entries in your count.

 Tip: Data Cloud activates one row for a Unified Individual. Each Unified Individual includes an email subscriber key, one contact email address, one contact phone number, one phone country code, and the additional attributes selected when creating the activation.

Knowledge Check

True or False

Selecting Individual instead of Unified Individual as your Activation Membership will always result in a single entry in your count.

- False

Contact Points and Source Priority Order

- Map the Contact Point
 - The Contact Point selection determines which objects and fields are included in an activation and sent to an activation target.
- Update the Source Priority Order
 - The Source Priority Order determines which contact point value is selected for an activation when multiple values are available.
 - For example, the Source Priority Order determines which email or phone is used in activation for segment members with data from multiple sources.
 - Use the Source Priority Order to reorder which contact point value is selected for segment members with data from multiple sources.
- Reorder the Source Priority
 - The Source Priority order can be changed by editing. Use the Reorder function to reprioritize the source.

Contact Point Selection by Source

Data Cloud enables clients to control and select the contact points used for activation.

Marketing Cloud Activation

- Contact points from source: MC instance(EID) are selected by default.
- When multiple email contact points are available from Marketing Cloud for a Unified Individual, Einstein click scores are used to prioritize and pick the email contact point.
- Clients can prioritize contact points by source.

- The primary email address with the highest click score is selected. This is true when multiple email contact points are available.

Marketing Cloud Personalization Activations

- Contact points from the source (Marketing Cloud Personalization) are selected by default.
- Clients can prioritize contact points by source.

AWS S3 Activations

- Contact points from source: ANY is selected by default.
- Clients can override source: ANY and prioritize contact points by source.

B2C Commerce

The default Source Priority order is always the same and can't be changed.



Tip:

Delete Any Source and Any Type from the Source Priority order to only use values from specific sources in your activation.

However, expect the population count of your activation to be lower since you're selecting values from fewer data sources.

For Example:

1. A user creates an activation for a segment with source data from Marketing Cloud and Amazon S3 and adds the email address contact point to the activation.
 2. With the default Source Priority order, the activation selects an email address from Marketing Cloud for each individual who has one.
 - If they don't, an email address is selected from Amazon S3.
-

If they remove the Any Source and Any Type from the Source Priority order, the segment is smaller since the activation only selects email addresses from the Marketing Cloud source to include in the activation.

Knowledge Check

True or False

Contact Point selections determine which objects and fields are included in an activation.

Contact points are selected based on the Activation Target.

- True

Additional Attributes

Attribute Library lets you add additional attributes to your activation. You can add the following attribute types to your activation:

- Attributes of the Activation Membership entity.
- Attributes from entities mapped with a direct relationship to the Activation Membership entity.

New Activation

View, edit, or delete attributes for your activation.

Attributes Included

Add Attributes

Attribute	Preferred Attribute Name	Filters
1 Unified Individual Id		Not Available
2 First Name	FirstName	Not Available
3 Last Name	LastName	Not Available

When you include additional attributes in an activation, you can give the attribute a Preferred Attribute Name for that activation. You can add up to 100 additional attributes for an activation.

Add Additional Attributes

Attributes ⓘ

Search Attributes

- Account (9)
- Account Contact (9)
- Dormant Shopper ArvDMO (10)
- Email_arvindraman_dmo (5)
- Loyalty Program (6)
- Loyalty Program Member (15)
- Promotional Campaign Audiences ARVDMO (7)
- Unified Contact Point Address (7)
- Unified Contact Point Email (6)
- Unified Contact Point Phone (9)
- Unified Individual (10)

Loyalty Program Member

Loyalty Program Member Id

Email_arvindraman_dmo * Path ⓘ Email_arvindraman_dmo.Unified Individual Id > Unified Individual.Unified Individual Id, Unified Individual

First Name Last Name

Unified Individual * Path ⓘ Unified Individual.Unified Individual Id > Unified Contact Point Address.Party, Unified Contact Point Address

First Name

Cancel **Save**

Related Attributes

Apart from direct attributes, Data Cloud also allows you to activate one-to-many related attributes (such as products purchased or claims processed) during activation. This unlocks additional use cases and expands personalization capabilities in your messaging and journeys and other activations, like showing a list of the top five products in your messaging journeys.

Calculated Insights in Activation

Use Data Cloud Calculated Insights to enable activation journey decisions and message personalization.

Add your Calculated Insights (CI) metrics (measures) onto any new or existing activation. You can also add dimension filters to your CI metric for more granular insights on an activation.

Add Additional Attributes

Attributes ⓘ

Search Attributes

Birth Date		
Created Date		
First Name	A ₃	
Internal Organization	A ₃	
Last Modified Date		
Last Name	A ₃	
Outdoor Interest	A ₃	
Person Name	A ₃	
Photo URL	A ₃	
Salutation	A ₃	

Calculated Insights:

- *Unified Individual - CP Summary* (5) >
- Duplicate Subscriber Count (1) >
- RFM Scores (4) >
- Spend By Customer (6) >
- Spend by Customer (builder 1102) (5) >
- Spend By Customer (Jan 24 2022 v2) (5) >
- Spend By Customer (Jan 24 2022) (5) >
- Spend By Customer Clone Dec 16 (5) >

Unified Individual

Unified Individual Id	First Name	Last Name	Person Name	Outdoor Interest
RFMCombined__c				
Spend By Customer				
LifetimeValue__c				

To add attributes to your activation, drag them onto the canvas.

Cancel Save

(click to enlarge)

The following image shows CI added as an additional attribute.

Add Additional Attributes

NOTE: You cannot add a dimension field from your CI as an additional attribute.

Tips:

- When activating on an Individual Object, the additional attributes you can add include:
 - All direct attributes that were mapped from all data streams with the profile category to Individual object
 - Attributes from a DMO (Data Model Object) that have a 1:1 relationship between the DMO and Individual
 - Measures of Calculated Insights aggregated (group by) for Individual ID
- When activating on the Unified Individual object, the additional attributes you can add include:
 - Direct attributes (similar to Individual)
 - Calculated Insights measures aggregated for Unified Individual ID

As mentioned earlier, you can only activate Calculated Insights metrics (not dimensions).

A workaround option you can use to activate dimension data is ‘FIRST,’ ‘MAX,’ or a similar function which makes that column a metric.

When using this method, remember that the Calculated Insight should be coded in a way so that the value returned as a measure aligns to the logic being used in the Group By or Where Clause.

This scenario with example is covered more in the Insights lesson and exercise.

Knowledge Check

True or False

The same Calculated Insights aggregations can be added as an attribute to either a Unified Individual object or an Individual object.

- False

Managing and Reviewing Activations

You can manage your existing activations in the Activation tab in Data Cloud. Activities include editing and deleting an existing activation.

Name	Segment	Activation Target	Activation Status	
1 Individual - MC activation	All Individuals	MC_523010258	Active	
2 HighValueChurn_S3_20220110	High Value Churn Risk	Audiences_523010258	Active	
3 arv individuals to mc	arv individuals v2	MC_523010258	Active	
4 arv individuals to IS	arv individuals v2	Arvind Raman 523010258_Arvind Raman	Active	
5 2021-11-02	Dormant Shopper with High Loyalty Balance	Audiences_523010258	Active	
6 2021-11-02	High Value Churn Risk	MC_523010258	Active	
7 Extreme Loyalty Members to CDP Org 2021-11-02	Extreme Loyalty Members Up For Promotion	CDP_Org_523010258	Active	
8 Dormant Shopper to CDP Curated DMO	Dormant Shopper with High Loyalty Balance	CDP_Org_523010258	Active	
9 Arv Test segment to Texas & Atlanta	Arv test segment	MC_Texas_Atlanta	Active	
10 Unified Individual - MC Activation	All Unified Individuals	MC_523010258	Active	

(click to enlarge image)

You can see the Activation History within an activation, which shows when and how the segments were published. Additional Accepted and Rejected profiles provide more details for segments published to a Marketing Cloud activation target.

The following is a description of the fields in the image below.

Activation Field	Description
Segment	Number of profiles in your segment
Activation	Number of profiles sent to your activation target
Accepted	Number of profiles accepted by Marketing Cloud
Rejected	Number of profiles rejected by Marketing Cloud and the reasons why they were rejected
Last Publish Completed	Most recent date and time when your segment was published (value is blank for unpublished segments)
Publish Type	How a segment was published
Publish Status	Status of a segment

Activation
2021-11-02

Activation Target MC_523010258	Segment High Value Churn Risk	Activation Status Active
---	--	-----------------------------

Details

Last Publish Status Success	Description Activation into MC BU 523010258
Last Modified By  Automated Process , 2/22/2022, 7:35 AM	Created By  CDP Admin , 11/2/2021, 11:16 AM
Activation Status Active	
Segment High Value Churn Risk	
Name 2021-11-02	

Activation History

The Activation count can be lower than the Segment count if there are duplicate profiles and missing contact points. Salesforce CDP displays only the Accepted and Rejected count for the Marketing Cloud platform.

Segment	Activation	Accepted	Rejected	Last Publish Completed	Publish Type	Publish Status
257	257	257	0	02/22/2022, 10:35 AM	MANUAL	Success
32	32	32	0	01/10/2022, 01:29 PM	MANUAL	Success
31	31	31	0	11/02/2021, 02:38 PM	MANUAL	Success

Knowledge Check

Which Activation Target provides reasons why a profile in a segment is rejected?

- Marketing Cloud

Additional Resources

[Activation Targets](#)

[Activation](#)

[Data Actions](#)

[Add Related Attributes to a Segment](#)

Lesson: Data Cloud Activation Best Practices and Tips

ACTIVATION BEST PRACTICES AND TIPS

Marketing Cloud Activations

Profile Unification

- Individual ID (Subscriber Key)
- Contact Point Email Address (when Email Channel is selected)
- Contact Point Phone (if SMS Channel is selected)

- Contact Point Phone ILocale (when SMS channel is selected)
- Any additional attributes selected at activation

Individual ID Mapping

For Marketing Cloud activation, Individual ID maps to the **Subscriber Key** on the **Sendable DE Relationship**.

Individuals Multiple Sources

For Unified Profiles with Individuals from multiple source systems, Data Cloud always defers to **Individuals** originally sourced from Marketing Cloud.

Individuals not from MC

For Unified Profiles that have no Individuals sourced from Marketing Cloud, new records will be introduced to Marketing Cloud in the **Unified Audience Activation**.

Best Practices

Ensure messaging consent capture when activating new records to Marketing Cloud.

Be mindful of users with Edit access for Data Cloud-created Data Extensions as a publish schedule is set.

Consider staggering the publish schedule times for a large number of Data Cloud audiences.

Consider applying data retention rules as appropriate in Data Cloud-created data extensions.

TIPS:

Need to Know:

- Data Cloud also supports Marketing Cloud BU aware activations.
- More details can be found in the Salesforce help documentation.

Consent Best Practices

We recommend that you follow these practices to manage consent when using unified Data Cloud audiences in Journey Builder.

Apply Filter Contacts Criteria

When using Journey Builder, consider applying the Filter Contacts criteria to limit who's included in the audience when creating the entry source.

Assign a Publication or Suppression List

When configuring an email activity to use on a Data Cloud audience, consider assigning a Publication or Suppression list for more consent management options.

Select this Send To Delivery Option

When you configure an SMS activity in Journey Builder to use on a Data Cloud audience, select Send only to contacts who are subscribed currently in the Delivery Options configuration step.

This selection helps prevent sending to individuals who didn't opt in to receive the communication.

Use a Multi-Step Journey

For push messaging using Data Cloud audiences, use a multi-step journey. You can configure either a Push Notification, Inbox, or In-App Message activity to activate a MobilePush send. Consent for push messaging is managed in the MobilePush SDK (Software Development Kit).

Troubleshooting

Follow the process below for troubleshooting a typical use case.

Troubleshooting Example

Data Cloud segment counts don't match activation counts for a Marketing Cloud Activation.

	<p>There are many scenarios where an activation has a count that doesn't match up with the total segment count.</p> <p>Having records in a segment doesn't guarantee that all will have contact points (for example, emails)</p> <p>Without contact points (individuals with email), Data Cloud cannot generate Subscriber Keys.</p> <p>This can potentially generate less-than-expected or empty outputs</p> <p>If the output is empty, the Marketing Cloud side fails, and you'll see a failed activation in Data Cloud.</p>	
--	--	--



For Marketing Cloud Activations, Data Cloud enforces the presence of contact points (email address, phone number).

Knowledge Check

What happens when a Unified Profile has no Individuals sourced from Marketing Cloud?

- New records are introduced to Marketing Cloud in the Unified Audience Activation.

Data Cloud Activations

These best practices and tips offer approaches to achieving success with CDP Activations.

Object	Promotional Campaign Audiences ARVD...	Total Columns
Segment 1sgf0000004CCqAAM Last Processed	Segment 1sgf0000004CCqAAM Name	8
11/2/2021	Extreme Loyalty Members Up For Promotion	First Name
1	August	LifetimeValue
12/5/2022	Extreme Loyalty Members Up For Promotion	Outdoor Interest
1	Domenica	RFM Combined Score
12/5/2022	Extreme Loyalty Members Up For Promotion	Unfiled Individual Id
1	Brenna	39ba4319-424d-37c7-9407-59edfb795d48
11/2/2021	Extreme Loyalty Members Up For Promotion	1,373.25
1	Kalle	3bced738-6653-3e98-a205-0f9df5f53288f
11/2/2021	Extreme Loyalty Members Up For Promotion	60
1	Ouida	3e44658d-5f41-3f9e-8226-94d4c1904d87e
11/2/2021	Extreme Loyalty Members Up For Promotion	225
1		45da22b8-2762-3760-edbc-78726710178
11/2/2021	Extreme Loyalty Members Up For Promotion	287
1		5f1fb6d-4842-39a7-9c0e-979ff2347f8e

- The primary key of the curated Data Model Object (DMO) is the same field as the primary key of Activate on Entity.
- When a segment is refreshed multiple times in a curated DMO, the same row is updated if the primary key already exists.
- Each time you publish a segment to a curated DMO, records are added or updated to the DMO based on the primary key. It doesn't delete existing records from the DMO. The following attributes persist in the curated DMO:
 - Segment {segmentid}
 - Segment {segmentid} Name
 - Segment Last Processed
- Use the Last Processed field (date) to retrieve records, applying filter criteria if needed.

Knowledge Check

True or False

Each time a segment is published to a curated DMO, the existing records in the DMO are deleted.

- False

Amazon S3 Activations

These best practices and tips offer approaches to achieving success with Amazon S3 Activations.

High Value Churn Risk_HighValueChurn_S3_20_2022022215261789/							Copy S3 URI					
Objects		Properties										
Objects (2)												
Objects are the fundamental entities stored in Amazon S3. You can use Amazon S3 inventory to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. Learn more												
<input type="checkbox"/>	<input type="checkbox"/> Copy S3 URI	<input type="checkbox"/> Copy URL	<input type="checkbox"/> Download	<input type="checkbox"/> Open	<input type="checkbox"/> Delete	<input type="checkbox"/> Actions	<input type="checkbox"/> Create folder	<input type="checkbox"/> Upload				
<input type="text"/> Find objects by prefix												
Name	Type	Last modified	Size	Storage class								
part-00000-68089305-f859-40f0-ae1b-3f43e0800613-c000.csv	csv	February 22, 2022, 10:33:44 (UTC-05:00)	22.1 KB	Standard								
segment_metadata.json	json	February 22, 2022, 10:35:04 (UTC-05:00)	291.0 B	Standard								

- After you create and activate segments to Cloud File Storage, a subfolder called Salesforce-c360-Segments is automatically created.

- Segments in Amazon S3 are created in YYYY/MM/DD/HH/{first 100 characters of segment name}/{20 characters of activation name}_{timestamp in yyyyMMddHHmmsssSSS format} folder.
- Within the folder, you will find two files
 - segment_metadata JSON file (segment_metadata.json)
 - Includes metadata about the segment including the segment name, record count
 - CSV file of everybody who is in the segment

NOTE:

For Amazon S3 activations, Data Cloud does not enforce the presence of contact points, like email addresses or phone numbers.

Consuming Data Cloud Data in Core CRM

Data Cloud Data has the potential to support many use-cases across the Salesforce Platform. Some use cases include:

- Search - Search for a Profile using Contact Point Information (e.g. Email, Phone).
- Display - Surface details about a specific Unified Profile related to an Individual.
- Engagement - Show depth of activity through aggregation or summary for one Unified Profile (i.e. Case History).

The common pattern is a consumption model, whereby the CRM org consumes the relevant data from Data Cloud for search, display, or engagement purposes.

Point of View

This attached POV in the Partner Community lays out some of the different options & considerations.

<https://partners.salesforce.com/pdx/s/user-setup?gt=https%3A%2F%2Fpartners.salesforce.com%2F0694V00000OU7oo>

Tip:

The Segment Membership DMOs are only populated when you **publish** a segment (not when you create it)

Knowledge Check: Data Cloud Activation

When are Activation Targets created?

- Before setting up an activation

How are Calculated Insights added to an Activation?

- Additional Attribute

Which two options are available for automated batch publish and activation?

- 12 hours

- 24 hours

When activating on Unified Individual to Marketing Cloud, which three attributes are automatically included?

- Contact phone number
- Email subscriber key
- Contact email address

Where do you define the location where you want to use your segment?

- Activation Target

A customer is interested in updating the CRM Contact lead based on streaming Data that's coming to Data Cloud. What feature would you recommend?

- Data Actions

What data points can be activated in Calculated Insights when activating a segment?

- Metrics

In which activation target does Data Cloud also create a separate segment metadata JSON file?

- Amazon S3

What edition of Salesforce supports External Activation Platform creation?

- Namespaced Developer Edition

Select the best option that completes the statement.

Cloud File Storage Activation Target lets you publish segments...

- From Data Cloud to Amazon S3.

For which Activation Target does Data Cloud not enforce the presence of contact points (email address, phone number)?

- AWS S3

Select the correct option below to complete this sentence.

Activation Membership expands the possibility of activating the profile entities that have a _____ relationship with the Segmented On entity.

- 1:Many

Solution Kit: Segment Membership Dashboard

Knowledge Check: Data Cloud Activation

Data Cloud: Administration

Packaging and Data Kits

Data Cloud is built on the Salesforce native platform with access to all the data that's managed across clouds for compatibility.

What is a Package?

A Salesforce Package is a container for something as small as an individual component or as large as a set of related apps. After creating a package, you distribute it to other Salesforce users and organizations, including those outside your company.

A package is created in order to distribute Data Cloud information to other Salesforce organizations, including those outside your company.

Packages come in two forms: **Unmanaged** and **Managed**.

Unmanaged Package

- All components and attributes are editable.
- Not upgradeable nor supported.
- The developer has no control over the components once installed.

Managed Package

- Typically used by ISVs on AppExchange to sell and distribute their apps.
- Protects intellectual property of developer/ISV.
- Is upgradeable and supports versioning.
 - To support upgrades, certain destructive changes are not allowed.
- Contains a distinguishing namespace.

Data Cloud supports both Unmanaged and Managed packaging. A package is created to distribute Data Cloud information to other orgs.

Currently, Data Cloud supports the packaging of data streams, data models, and calculated insights.

The screenshot shows the Salesforce Package Manager interface. At the top, it says "CDP Package - CI and S3 Data Stream, Version 1.0". Below that, there's a "Version Detail" section with fields for Package Name, Version Name, Version Number, and Description. It also shows the Installation URL: <https://na15.salesforce.com/sfdx/install/package.aspx?ch=0M500000000u2>. To the right, there are fields for "Uploaded By" (CDP Admin), "Upload Date" (3/9/2022, 10:33 AM), "Password Protected" (unchecked), and "Change Password".

Below the main title, there are sections for "Package Components" under "Resources (8)", "Objects (1)", and "Fields (16)". Each section lists components with their names and descriptions, such as "eCommerce_Order_S3201028" and "eCommerce_Order_S3201028.map_eCommerce_Order_S3201028_1634573302038". The "Component Type" column indicates the nature of each component, such as Data Source, Object Source Target Map, and Data Transport Object.

Data Kits

Data Kits offer a more efficient way to package Data Cloud. Create new Data Kits to bundle CRM data streams and data models with flexibility and ease. This experience makes deploying multiple CRM streams as easy as Data Cloud out-of-the-box bundles.

The screenshot shows the Salesforce Data Kits interface. On the left, there's a sidebar with "Quick Find" and links to "Setup Home", "CONFIGURATION" (B2C Commerce, Marketing Cloud, Salesforce CRM, Websites & Mobile Apps, Ingestion API, Interaction Studio, External Activation Platform), and "TOOLS" (Data Kits, which is currently selected).

The main area shows a "Data Kits" page for "Test Data Kit". It has a "Data Kit Contents" section with two tabs: "Data Streams (1)" and "Data Models (3)".

- Data Streams (1):** Shows one entry: "ARCRMBundle" (Type: Bundle, Connector: Salesforce CRM).
- Data Models (3):** Shows three entries: "Case", "Marketing Preference", and "Product Related Activity" (all included by "Case").

Adding Data Cloud metadata to a Data Kit

The Data Kit provides a new experience layer that presents related metadata and enables the end-user to add them optionally as part of their solution.

Data Cloud admins flexibly add Data Cloud metadata like data streams and data models into a Data Kit first before packaging.

Tying and Suggesting Related Metadata

The Data Kit provides a framework to custom tie metadata that may or may not be related.

The Data Kit automatically suggests related metadata that may not be directly related based on the normal Salesforce platform relationships but is available to Data Cloud.

Adding Data Kits to Packages

When ready for packaging, add the Data Kit and its content.

There is no worry of unintentionally missing metadata or including too much unnecessary metadata.

By enabling users to select and group their Data Cloud metadata using Data Kits, admins have control over package content.

Review the Data Cloud Packaging and the Data Cloud Extensibility Matrix to know more.

Data Kits vs. Packages

Traditionally, when you create a Salesforce package, it automatically includes all the related metadata or nothing. This approach is a simple way to ensure platform referential integrity is intact.

Data Kits simplify metadata management.

- The problem is that with expanding business use cases, data modeling is exponentially complex.
- For Data Cloud, admins need a way to manage the metadata they want to package as well as keep up with all the relationships and references.
- The all-or-nothing approach potentially introduces a lot of duplicated metadata or cause certain functionalities to fail due to the lack of related metadata.
- Data Kits streamline the package creation process by wrapping around all the independently packageable Data Cloud metadata so that you can create and deploy complete solutions on Data Cloud.

Sample Data Kit Use Cases

1. Create and test a custom object data stream in a Data Cloud org. Deploy the predefined CRM data stream bundles along with data model mappings in a single Data Kit.

Data Kit Contents

Data Streams (1)

Name	Type	Connector
ARCRMBundle	Bundle	Salesforce CRM
Case_00D5f000003lFTq	Bundle Item	Salesforce CRM

Data Models (3)

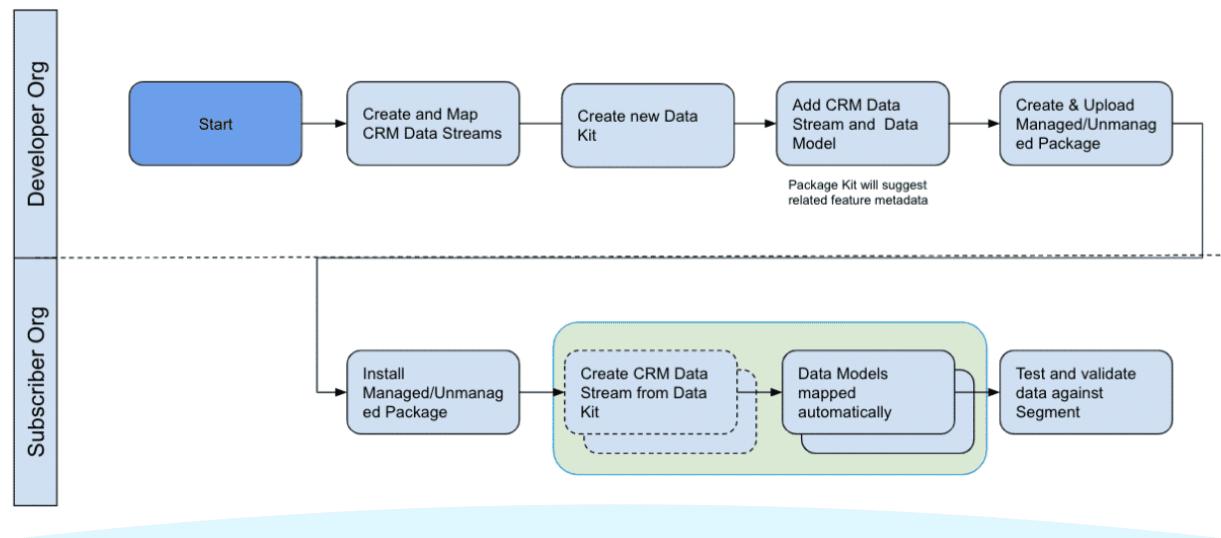
Name	Included By
Case	Case
Marketing Preference	
Product Related Activity	

2. Optionally, data models are added to a Data Kit. Developers and Admins don't need to manually recreate the data models between environments or select them individually in the Package Manager view.



Data Kit Creation & Deployment Flow

Review the flowchart below to understand the entire process of creating a data kit to deploying it to an org.



TIP:

- Unmanaged packages support packaging AWS S3 data streams with relationships to both standard and custom data models.
- Managed packages support packaging AWS S3 data stream with relationships to custom data models only.

Knowledge Check

If an ISV partner wanted to sell their app on Appexchange, how would they package their app?

- Managed

Identify the three benefits of using Data Kits within a package.

- Makes recreating the data models between environments unnecessary
- Streamlines the package creation process
- Manages metadata needing to package

Metadata

Metadata is data that describes other data. To understand how Salesforce defines metadata, contrast business data with Salesforce metadata.

Business data includes the records directly corresponding to your company's business such as an address, account, or product. Salesforce metadata describes the schema, process, presentation, authorization, and general configuration of your Salesforce org.

With the Metadata API standard Salesforce API layer, you create, modify, or manage metadata objects. Parts of Data Cloud configuration objects are available in Metadata API. More details on Metadata API are found in the [Metadata API developer guide](#).

Metadata is data such as: fields, configurations, code, logic, and page layouts that go into building the information architecture and the look and feel of your Salesforce environment. Metadata is imported into Salesforce, modified in the product interface, or edited via the Salesforce Metadata API.



With the Salesforce Metadata API layer, you create, modify, or manage metadata objects. Parts of Data Cloud configuration objects are available in Metadata API.

Currently, Metadata API is used in these parts of Data Cloud:

- [AWS Data Streams](#)
- [Ingestion API Data Stream](#)
- [Mobile and Web Data Streams](#)
- [Data Lakes](#)
- [Data Models](#)

Knowledge Check

Which three Data Cloud metadata objects are available in the Metadata API?

- Data Lakes
- Data Models
- AWS Data Streams

Additional Resources

[Data Cloud Developer Guide](#)

[Metadata API Developer Guide](#)

[Analyze Data](#)

[Salesforce Data Cloud Admin Implementation Guide](#): Save this helpful guide for admins to implement and configure Data Cloud, including steps and examples for setting up a Salesforce Data Cloud org.

[General Admin Tasks in Data Cloud](#): Delve into this help documentation to learn about additional Admin tasks, beyond provisioning and connecting data sources.

[Packaging in Data Cloud](#): Explore packaging in Data Cloud, including packageable components, unmanaged packages, managed packages, versioning, a push upgrade, and AppExchange.

[Data Cloud Extensibility Readiness Matrix](#): Review this extensibility readiness matrix to understand the programmatic support available for Data Cloud configuration.

[Managing Feature Access with Sharing Rules on Salesforce Data Cloud](#): View this article to explore how to use sharing rules to control access on Data Cloud.

[Triggering Notifications on Data Cloud Status Changes](#): Scope out this article to discover how to be notified proactively when there's a status change on your Salesforce Data Cloud setup.

Workflow Orchestration

Workflow Orchestration enables Data Cloud Admins to define more granular, connected workflows with more flexible execution schedules.

You orchestrate a Workflow in Data Cloud by defining workflows and chaining together Data Cloud processes, such as ingestion (Salesforce CRM and Amazon S3 data streams), segments, and activation.

You run processes in a sequence as needed instead of waiting to run them at a scheduled time. For example, you chain the processes to refresh calculated insights or run segmentation when data ingestion is completed. You define workflows to monitor orchestration flow runs or check their progress. Use Flow Builder to orchestrate Data Cloud workflow processes. With Flow Builder, you build complex enterprise-scale automation with automated triggers, reusable building blocks, and prebuilt solutions.

Enable Data Cloud Admins to define more granular, connected workflows with more flexible execution schedulers.

Obstacles	Use Cases
<ul style="list-style-type: none"> ● Data Cloud processes are schedule-based ● Triggering of processes even when not required ● No-near real-time processing ● Long waiting time between processes 	<ol style="list-style-type: none"> 1. Reward customers who are impacted by a technical failure by depositing loyalty points to their accounts and sending an email. Kick off CIs once data is ingested and once CI has completed, kick-off segmentation and activation. 2. Kick-off IR job to run only after data ingestion for one or more data streams is complete. Kick-off segmentation and activation only once IR job is complete.

Feature Overview

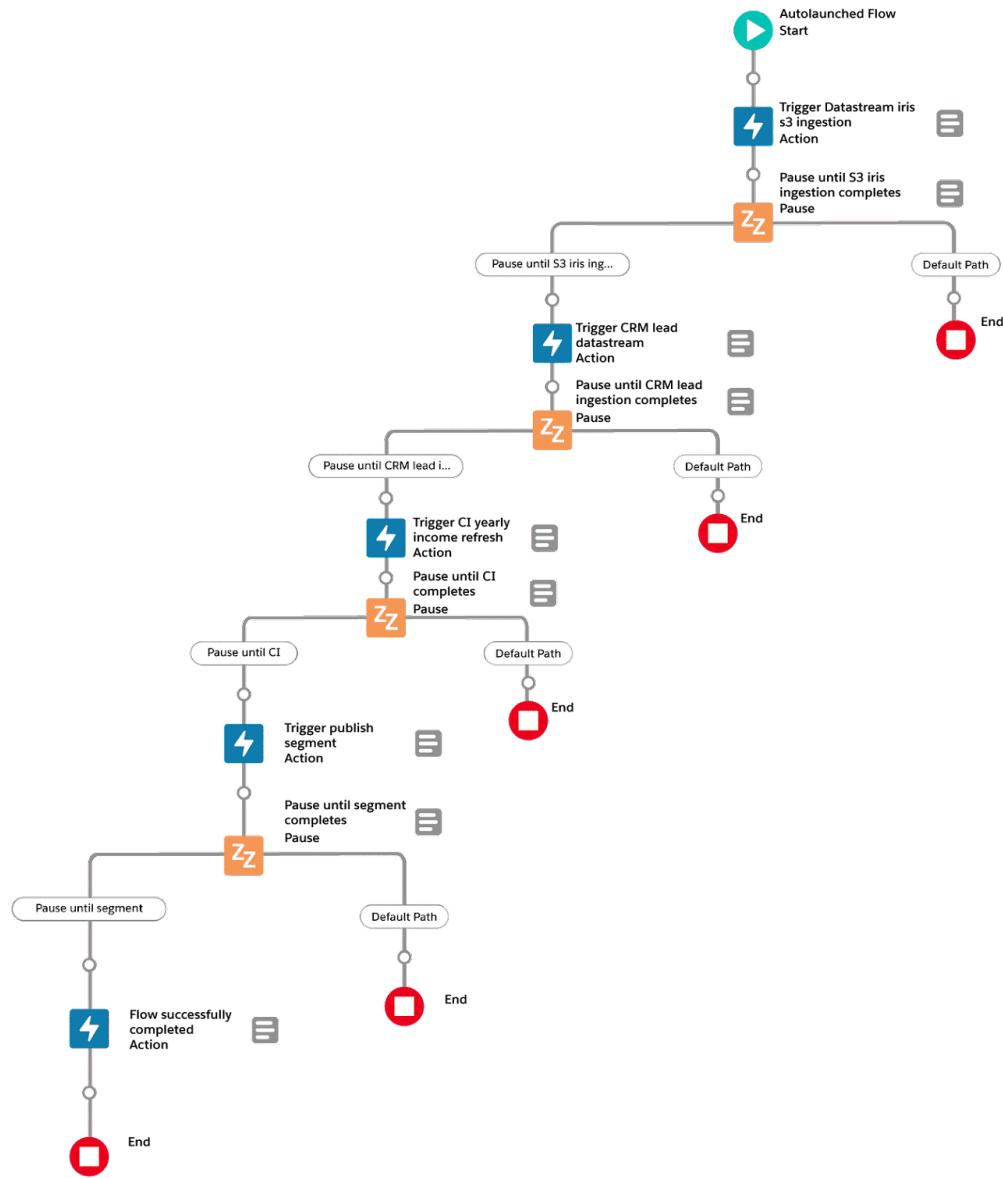
Data Cloud Admins now define more granular, connected workflows with more flexible execution schedules.

Use Salesforce Flow builder to chain together Data Cloud workflows such as ingestion, CI, IR, segments, and activation.

Biggest competitive differentiators

Data Cloud actions are used in Salesforce Flow builder to create automated workflows. This leads to near-real-time execution in a sequence based on the customer's need.

Autolaunch Flow



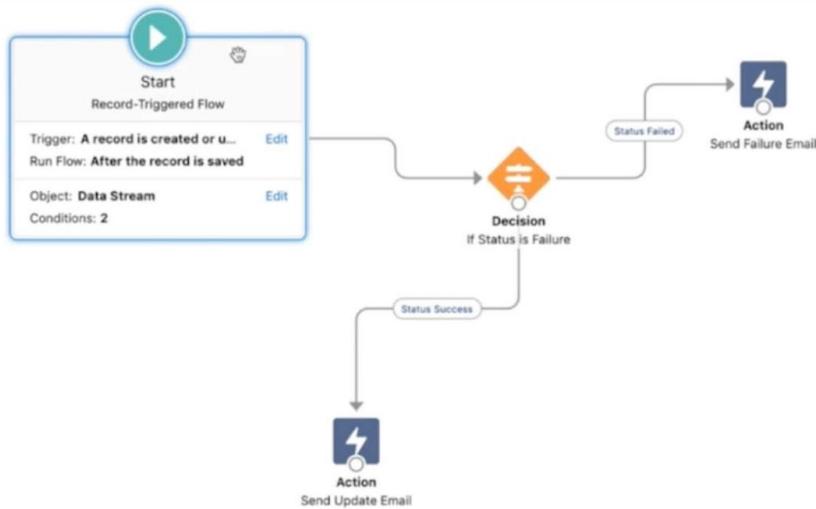
Available Flow Actions

- Data Ingestion for CRM datastream.
- Data Ingestion for S3 datastream.
- Publish Calculated Insight.
- Trigger Identity Resolution Job.
- Publish Segments, materialize segments, and activate.

Error Notifications

Using Salesforce Flow, you interact with Data Cloud objects using the Flow framework. Some examples include:

1. Get the latest status and information on your Data Cloud usage without viewing the actual records.
2. Set up notifications for your Data Cloud data in Flow Builder to monitor and take action on your Data Cloud instance. You don't have to view object records to receive the latest updates with this capability.



Fields:

- Data Stream Status
- Data Stream Records

Trigger:

- When Data Stream Status = Error
Or
- When Data Stream Records > 5000

Actions:

- Send an Email
- Post to Chatter
- Other Channels

The following objects are currently supported in Flow Builder:

- Identity Resolution
- Calculated Insights
- Data Streams
- Segments
- Activations

Sample Notification Use Cases

These two use cases are typical examples demonstrating the usefulness of Flow.

Use Case 1

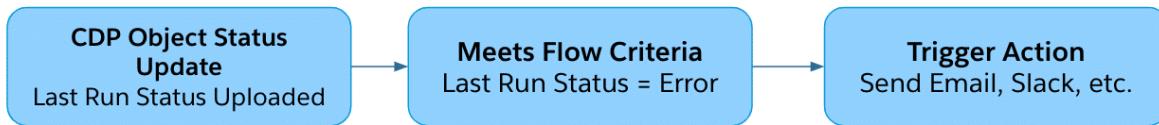
- Situation: Consider a scenario in which you're the Data Cloud administrator for your organization. You would like to know when an error occurs on Identity Resolution.
- Solution: You set up a flow notification that notifies whenever an error occurs on Identity Resolution. This enables you to address the issue immediately, instead of finding out about the issue from your end-users.

Use Case 2

- Situation: Consider another scenario where you want to send out a notification to the data specialist team whenever someone makes a change to the data model so they can quickly evaluate the changes that were made.
- Solution: With Flow and Data Cloud, admins decide when they'd like to be notified and how. Flow triggers various actions including creating new records, sending emails, or making callout to platforms like Slack.

Flow Notification Lifecycle

For object status changes which are new record creations or updates to an existing record, you evaluate conditions to trigger the needed action, such as sending an email, sending a Slack notification, or others.



Knowledge Check

Fill in the blank.

The list below represents the Data Cloud _____ that are currently supported in Flow Builder.

- Identity Resolution
- Calculated Insights
- Data Streams
- Segments
- Activations

Answer: Object or Objects is acceptable

Data Cloud: Administration Reports and Dashboards

Overview

When it comes to reporting and analytics, there are two flavors.

1. Analytics Reports & Dashboards on top of Data Cloud Data.
2. Administrator Reports & Dashboards on top of Data Cloud configuration.

Data Cloud Analytics

Analyzing the data and creating reports/dashboards for data that lives in Data Cloud are the DLO (Data Lake Objects), DMO (Data Model Objects) and CI (Calculated Insights). Data Cloud allows you to use various tools and products to analyze your data. They include Salesforce tools such as Tableau, CRM Analytics, Marketing Intelligence. In addition using the JDBC driver allows you to use your favorite tools to access and retrieve this data.

 TIP: It's important to note the data that lives in Data Cloud itself is in the Data Lake so at this point, it's not possible to use the Standard Salesforce Reports & Dashboards in CRM on top of this.

Administrator Reports

Data Cloud supports several configuration objects that allow you to use CRM Reports and Dashboards on top of these configuration objects. This lesson details the Administrator Reports and Dashboards you can create in CRM today.

Data Cloud exposes several objects that are used to create Reports and Dashboards. This allows you to visualize your use of Data Cloud by building reports and dashboards.

Lightning Report Builder

Lightning report builder is a powerful and intuitive tool for analyzing your Salesforce data. Group, filter, and summarize records to answer business questions.

The following objects are currently supported in Lightning Report Builder.

- Data Stream
- Segment
- Activation Target
- Identity Resolution

Lightning Chart

For a visual overview of your data, add a report chart to give users a visual way to understand the data in your report. Lightning charts are also added to various parts of the customizable Lightning UI.

This is an example of a Lightning Report that shows Data Cloud Segments by their status and the Population Count, Publish Status, and Publish Schedule.

Report: Segments
CDP - All Segments by status

Segment Status	Segment Name	Population	Publish Status	Publish Schedule	Last Publish Completed
Inactive (1)	Arv all individuals	8	-	Don't refresh	-
ubtotal					
Active (16)	Arv test segment	55	Success	Don't refresh	3/16/2022, 8:09 AM
	test	46	Success	Don't refresh	2/22/2022, 7:50 AM
	VALIDATION - Loyalty Members	4	-	Don't refresh	-
	Dormant Shopper with High Loyalty Balance	38	Success	Don't refresh	-
	VALIDATION - Cross-entities	3	-	Don't refresh	-
	VALIDATION - Store Purchases	11	Success	Don't refresh	-

This is an example of a dashboard that shows different components of your Data Cloud data in a single view, including data streams, segments, activation status, and more.

CDP - Data Stream Total Records

255k

[View Report \(CDP - Data Stream Total Records\)](#)

CDP - All Segments by status

17

[View Report \(CDP - All Segments by status\)](#)

CDP - All Activation Targets

5

[View Report \(CDP - All Activation Targets\)](#)

CDP - Data Stream Last Processed Records

[View Report \(CDP - Data Stream Last Processed Records\)](#)

CDP - Data Stream Total Records

Data Stream Name	Data Stream St...	Last Run St...	Total Rec...	Created By
Account_00D5f000003iFTq	Active	Success	14	CDP Admin
Account_CDPOrg_0005f000005X0Z8	Active	Success	5	CDP Admin
Base Events_ARInteractionStudio	Active	Failure	24	CDP Admin
Benefit_00D5f000006MgC8	Active	Success	12	CDP Admin
BenefitType_00D5f000006MgC8	Active	Success	7	CDP Admin
Cart Event Items_ARInteractionStudio	Active	Failure	0	CDP Admin
Cart Events_ARInteractionStudio	Active	Failure	0	CDP Admin

[View Report \(CDP - Data Stream Total Records\)](#)

CDP - Data Stream Total Records

[View Report \(CDP - Data Stream Total Records\)](#)

CDP - All Segments by status

TIP: To create a report on a Data Cloud object, you need to configure a custom report type. Once the custom report type is created, it will become available in the Lightning Report Builder.

Knowledge Check

Which one of the following provides users a visual way to understand the data in a report.

- Lightning Chart

Data Cloud: More on Administration

Individual Record Pages

Lightning App Builder

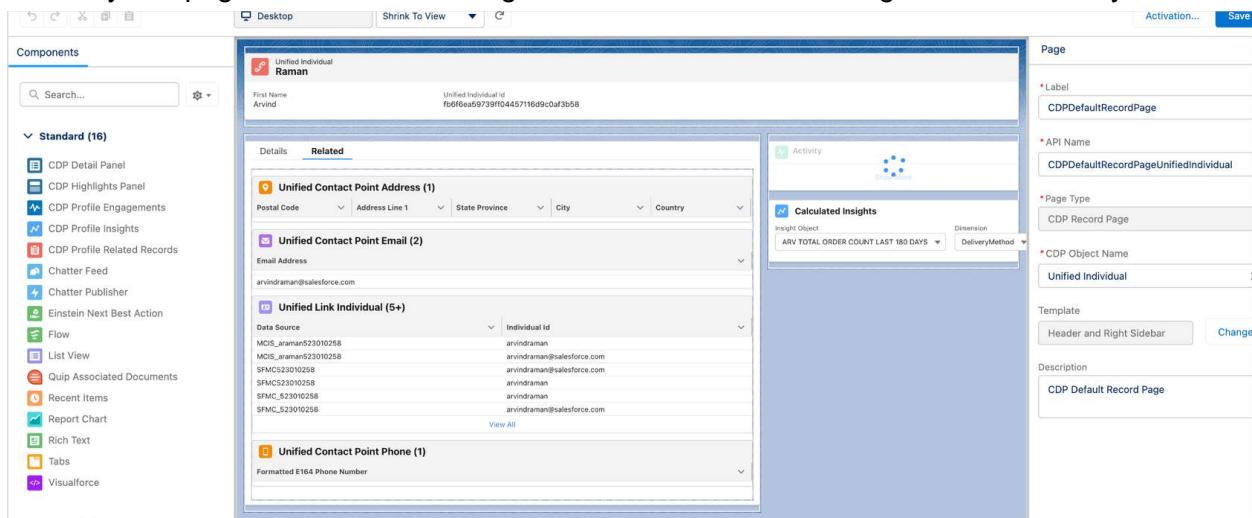
With Lightning App Builder, admins customize and organize their Data Cloud Unified Individual Record Pages to quickly surface insights most relevant to their teams.

- Customizability
 - Customize and organize the Record Detail page for your Data Cloud Unified Individuals. This includes ordering and hiding specific fields, and UI components.
- Extendability
 - The App Builder page for the Data Cloud record supports customization with other Salesforce Out-of-Box Lightning Components or custom components created by customers.
- Accessibility
 - The access to Profile Explorer and Unified Individual is managed by a Permission Set in the Salesforce Platform Setup.

Profile Explorer Record

The **Profile Explorer** record page within Data Cloud can now be customized with App Builder, so fields on this page can be re-ordered or added/dropped, etc.

Each unified individual has one page available for customization, viewable by all user groups. Currently, the page customization is org-wide. All the users in the org see the same layout.



The components available are:

1. Data Cloud Detail Panel
2. Data Cloud Highlights Panel
3. Data Cloud Profile Related Records

4. Data Cloud Profile Engagements
5. Data Cloud Profile Insights

 **TIP:** Profile Explorer and its search only work with Unified Individuals.

- Data Panel: This component displays record details for a Data Cloud record.
- Highlights Panel: This component displays record details for a Data Cloud Record in a compact display.
- Profile Engagements: This component shows engagement for a Unified Individual.
 - Note: The component only shows the last 90 days of engagement.
- Profile Insights: This component shows the Profile (Calculated) insights for a Unified Individual.
 - Keep the following considerations in mind:
 - Only Calculated Insights associated with a Unified Individual are shown.
 - To display a Calculated Insight when viewing a Unified Profile in Profile Explorer, include the UnifiedIndividual.ssot_id__c field in the outer query.
 - When you select a CI (Calculated Insight) from the dropdown list, the Unified Profile view defaults to a graph display showing the number metrics. If the CI contains only non-numeric metrics (for example, text or date metrics), a no-data message is returned because these values can't be displayed in graph format.

Contact Record

In the CRM org where Data Cloud is provisioned, you use Data Cloud components on the Contact Record.

The Contact record page within Data Cloud can now be customized with the following components.

- Data Cloud Profile Engagements
- Data Cloud Profile Insights
- Data Cloud Profile Related Records

The screenshot shows the Salesforce App Builder interface. On the left, there's a sidebar titled "Components" with a search bar and a list of standard components. A red box highlights the "CDP Profile Engagements", "CDP Profile Insights", and "CDP Profile Related Records" components. The main area is a contact record for "Carole White". It shows basic contact information like Title (VP Sales), Account Name (Global Media), Phone (416) 555-1212, Email (info@salesforce.com), and Contact Owner (William Yeh). Below this is a "Calculated Insights" section with an insight object set to "test arithmetic". The "Address Information" section shows a mailing address in Toronto, Canada, with a map pin. To the right, there are sections for "Unified Contact Point Address", "Unified Contact Point Email", "Unified Contact Point Phone", "Unified Link Individual", and an "Activity" section which states "No engagement to display".

Knowledge Check

Fill in the blank

Admins use the _____ App Builder to customize and organize Data Cloud Unified Individual data.

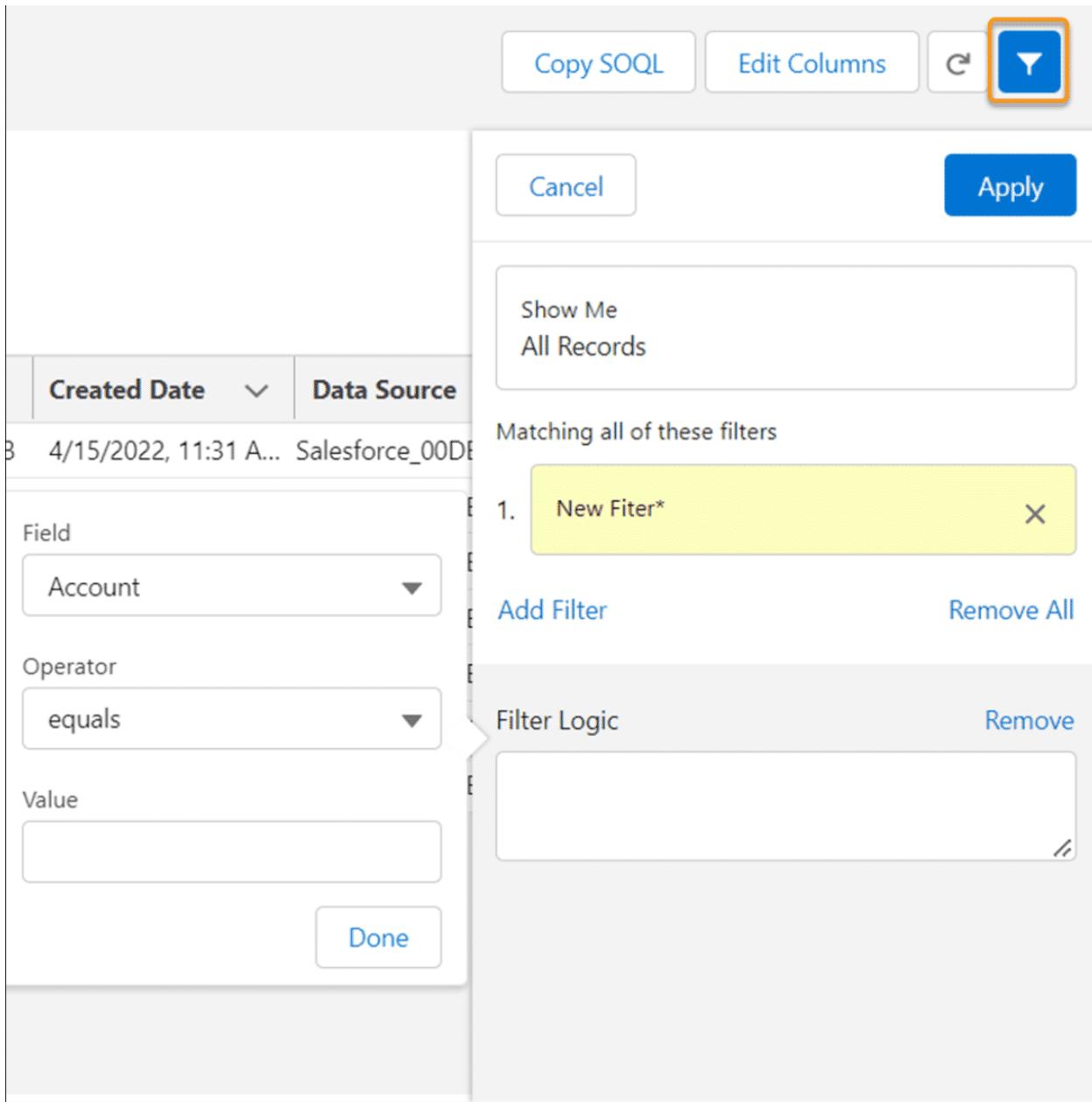
- **Lightning**

Troubleshooting

Data Explorer

Use Data Explorer within Data Cloud to view and validate the data that exists in your Data Model Objects (DMO), Data Lake Objects (DLO), and Calculated Insights (CI). You use this to ensure your data, formula and other transformations are accurate.

The screenshot shows the Data Explorer interface within the Customer Data Cloud. The top navigation bar includes "Customer Data Cloud", "Home", "Data Streams", "Data Model", "Calculated Insights", "Identity Resolutions", "Data Explorer" (which is selected and highlighted in blue), "Profile Explorer", and "More". The main area is titled "Data Explorer Objects" and shows a table for a "Data Lake Object". The "Object" dropdown menu is open, with "Data Lake Object" selected and highlighted by a red box. Other options in the dropdown are "Data Model Object" and "Calculated Insights". The table has columns for Case Num..., Case Origin, Case Reason, Case Type, cdp_sys_P..., cdp_sys_S..., Closed, and Closed Date. There are three rows of data. The first row has Case Num... as 001RN000000C77D500RN000001WXnu00001000, Case Origin as Phone, Case Reason as Instructions not clear, Case Type as NULL, cdp_sys_P... as NULL, cdp_sys_S... as false. The second row has Case Num... as 001RN000000C77D500RN000001WXnt00001002, Case Origin as Phone, Case Reason as NULL, Case Type as NULL, cdp_sys_P... as NULL, cdp_sys_S... as false. The third row has Case Num... as 001RN000000C77D500RN000001WXnu00001000, Case Origin as Phone, Case Reason as NULL, Case Type as NULL, cdp_sys_P... as NULL, cdp_sys_S... as false.



You also use filters to include or exclude records.

TIP: Data Explorer only displays a maximum of 100 records. Use filters to control the records being returned and displayed in Data Explorer.

Segment Membership DMO

When publishing your segment, a segment membership DMO is automatically created to store information about the members of the segment.

This allows the user to check membership data on their segment. Some of the use cases include:

- Check your test data in the segment that was created to ensure the membership is correct.
- Obtain deeper insights on the member composition of your segments.
- Identify which profiles have entered and exited a segment over specific periods of time.
- See segment membership as a related attribute when querying one or more specific profiles.

For more detail, please review Data Cloud: Segmentation Course.

Troubleshoot Segment Errors

See some of the more common segment errors and how you resolve them.

Error	Troubleshooting Suggestion
Segment is too complex	<ul style="list-style-type: none">• Use a CI instead of many attributes and nested operators.• Use a CI instead of an attribute (data model object) with many relationships.• Combine text values into one Is In text operator.
Segment returns skewed data	Remove placeholder values like 0 or Unknown from source data before ingesting data into Data Cloud.
Segment references too many DLOs	Split a segment into multiple smaller segments.
Too many segments are trying to publish at the same time	<ul style="list-style-type: none">• Wait for some segments to finish publishing and try again.• Change the publish schedule for some of your segments.

Troubleshoot Activation Errors

See some of the more common activation errors and how you can resolve them.

Error	Troubleshoot Suggestion
Invalid email address	<ul style="list-style-type: none">• Make sure the email address you provided has an @ and .com.• Provide an email address that's fewer than 254 characters.
Required fields don't have a value	Fill out all the required fields.
Invalid Date	Provide date as MM/DD/YYYY or DD/MM/YYYY.
Invalid phone	<ul style="list-style-type: none">• Provide a phone number as ####-###-####.• Provide a phone number with the correct country code number.

Sharing Rules

Sharing Rules are used to extend sharing access to users in public groups, roles, or territories for your Data Cloud Objects.

The objects currently supported include:

- Data Streams
- Calculated Insights
- Segments
- Activations
- Activation Targets

The screenshot shows the Salesforce Setup interface with the following details:

- Sharing Settings** is selected in the left sidebar under Security.
- The main title is **Sharing Settings**.
- Reward Fund Sharing Rules**: No sharing rules specified.
- Reward Fund Type Sharing Rules**: No sharing rules specified.
- Scorecard Sharing Rules**: No sharing rules specified.
- Segment Sharing Rules**:

Action	Criteria	Shared With	Access Level
Edit Del	Owner in Role: AMER Marketing	Role: AMER Marketing	Read Only
Edit Del	Owner in Role: UK Marketing	Role: UK Marketing	ReadWrite
- Service Appointment Sharing Rules**: No sharing rules specified.
- Service Crew Sharing Rules**: No sharing rules specified.

Sharing rules in Salesforce consists of 3 main components:

- Records
 - Define the records to share. A certain user may own them or meet criteria that allow the user access.
- Users
 - Define the user. This may be an individual or a certain user group by role, territory, or public group.
- Access
 - Define the access level. The user can be granted read-only or read and write access.

 TIP: Admins can use sharing rules to extend access to users in public groups or roles, but not remove their access.

Use Cases

Use Case #1: Control the Access of a Data Cloud Config



- Control the access of Data Cloud a config like Data Streams or Segments with Sharing Rules.
- As a Partner Marketing user, they can only see other segments created by the Partner Marketing team and not the Direct Marketing team.

Use Case #2: Access to Specific Activation Targets



Direct Marketer should only have access to the Direct Marketing Activation Targets, whereas Partner Marketing may have access to other sets of Channels.

Use Case #3: Manage Segments with Sharing Rules



Segments can also be managed by sharing rules so specific teams only see Segments created by their teammates.

Knowledge Check

Identify the three objects that are supported by Sharing Rules.

- Calculated Insights
- Segments
- Activation Targets

Knowledge Check

Identify the features for an Unmanaged Package. (choose three)

- Not upgradeable or supported
- Commonly used for one-time migration of metadata
- Package Developer has no control over the components once installed

Identify a typical use case for customizing and organizing the Data Cloud Unified Individual record page.

- To order and hide specific fields that are relevant to your team

What is used to receive notifications about the latest status of Data Cloud usage without viewing records?

- Salesforce Flow

What is used to customize and organize Data Cloud Unified Individual Record Pages for surfacing insights?

- Lightning App Builder

Which three Data Cloud actions are available via Flow?

- Publish Calculated Insights
- Publish Segments
- Trigger Identity Resolution Job

What cannot be used to create a report on Data Cloud data that's in a DMO (Data Model Objects)?

- CRM Reports and Dashboards

What can be used to make Segments available only to certain groups based on their role?

- Sharing Rules

What is used to import AWS Data Streams into Salesforce and modify in the product interface?

- Salesforce Metadata API

If you want to build a CRM report to include a Data Cloud configuration object, what do you need to do first?

- Configure a custom report type

Identify the attributes that describe a Package. (choose three)

- A container that is distributed
- If managed, then used by an ISV on AppExchange
- May include Data Streams (S3), Data Models, and Calculated Insights

Data Cloud: Implementation Basics

A Partner's Role in Implementation Success

Consulting Partners in the Salesforce ecosystem play a crucial role in helping organizations implement and leverage a wide range of Salesforce solutions to achieve customers' business objectives. To effectively support your clients, your organization must possess a deep understanding of the technical, functional, and strategic aspects of software implementation.

Plan and Architect

Recommended Approach - Plan and Architect

- **Planning** is the initial discovery phase where people share information about the goals they hope a software implementation will achieve.
- **Architecting** is the phase that follows when people start to align on how to achieve those goals through a design of the platform's capabilities.

It's critical to get both of these phases right, but in this lesson, we'll focus on Architecture.

Here's an approach that sets you up for success right from the start. The secret is to carry out the design in the opposite direction of the implementation flow. The phrase, "Begin with the end in mind" applies nicely here. Let's explain.



- WHY and WHAT
 - Start by reconnecting with your customer's business objectives, and the supporting use cases. How does achieving these use cases make your customer successful?
 - Data Cloud is implemented in many ways to serve many needs, so make sure the proposed configuration addresses those needs. Build data sources, segmentations, insights, and resolution models with the intent to lay a foundation for future enhancements that don't constrain your customer's ability to grow.
 - This is extremely important to grasp because having to unravel a harmonized data model is a daunting challenge.
- TAXONOMY
 - Plan to spend a lot of time understanding your customer's data taxonomy. This is the hierarchical structure of how their information is classified and organized, and it's critical to understand how to make sense of their data before attempting to apply it to the Salesforce 360 model.
 - In the architecture process you may identify gaps between the two models, but always make sure to validate these assumptions before deciding to create customizations. The old woodworker's adage "Measure twice, cut once" applies well in this case because errors made in this stage creates a significant amount of rework if they need to be revisited.
- DATA AUDIT
 - As you progress through design you need to be judicious about the scope of data you choose to ingest into Data Cloud and select that data that's relevant for the use cases supported.
 - It's usually easier to expand the volume or scope of data in a later phase than dial it back. This helps reduce unnecessary utilization costs and maximizes customer value.

- It's important in this phase to also examine the data to be ingested and identify points of potential failure. Is the data well organized? Does it contain the proper relationships and keys in order to be mapped successfully to the Customer 360 data model? It's recommended to minimize any formulas being applied during ingestion, so don't be afraid to put a pause on the implementation if serious data cleanup is needed that would prevent the customer from achieving their vision of success.
- PROFILE STRATEGY
 - When consulting with your customer in regards to a Unified Profile, make sure to spend extra time building a shared understanding of all the data points, rules, and prioritization that needs to be accounted for in designing matching and reconciliation rules.
 - Walk through hypothetical matching scenarios so they understand and align with how the rules are applied to real data. The consolidation rate influences important metrics tied to utilization.
- COMPUTATIONS
 - There's immense value in the computational power of Data Cloud, and your customers want to unleash its capabilities to calculate insights and perform transformations on their data. In addition to keeping the customers' goals in mind when designing the computations they need, it's also important to remain mindful of their technical skill. While your development team may quickly and easily design SQL statements, your client may not have the same level of familiarity, and may perform your selection of methods that are more easily understood, such as Calculated Insight Builder.
 - Try to minimize technical debt by using low-code or no-code options when designing a solution and resort to code when click based methods are unavailable or overly complex.
- VALUE
 - As you progress through Design, align frequently with your customer on the key performance indicators (KPIs) driving each use case. Make sure they're well understood and you understand precisely how they need to be derived.
 - Make sure you provide metrics that allow the customer to measure the impact of your work and the value of the platform in the form of operational or tactical metrics.
 - Most customers have a list of critical metrics, but don't hesitate to recommend additional ones, especially if they help them understand and measure their success along a longer roadmap.

Knowledge Check

- Identify the segments and audiences.
 - Why and What
- Design the extended data model.
 - Taxonomy
- Explore data sources and data relationships.

- Data Audit
- Consolidate data points into the Unified Individual Profile.
 - Profile Strategy
- Derive calculated insights.
 - Computations
- Establish metrics for reporting needs.
 - Value

Project Variations

Customer Types

Next, let's look at two customers with different states of readiness to understand how they impact the scope and timeline of a basic implementation.



Customer 1- Established solution

Our first customer comes from a larger, more mature organization with a well-defined data infrastructure. They have a clear understanding of their data needs and have invested in the necessary resources to manage their data effectively.

The customer also has a clear vision for how they want to use Data Cloud, and they are going to invest in the necessary resources to implement it successfully.



Customer 2- New Solution

Our second customer is a smaller, newer organization with a less mature data infrastructure. They don't have a clear understanding of their data needs or haven't invested in the necessary resources to manage their data effectively.

They are less likely to have a complete vision for how to use Data Cloud but understand the importance of a unified profile and harmonized data model to gain deeper insights and power more advanced activations. They're excited about how using a platform like Data Cloud helps them accelerate their business.

The journey to implementation success looks a little different for each of them. Let's take a look at a recommended approach for these two common customer types across several important dimensions. Keep in mind that these are just examples, and your actual customers may be somewhere in between or have unique needs of their own.

Implementation Factors

The typical factors that differentiate each implementation are as follows:

- Scope: The general requirements and use cases
- Team: The size and skills of the customer's support staff
- Testing: The depth and breadth of verification needed
- Governance and Compliance: Alignment with company and regional policies

All of these factors add or remove complexity to an implementation, ultimately affecting the project timeline.

Established vs developing customers also need a varying amount of general business and data strategy consultation. Developing customers need more assistance from your organization with learning best practices on how to standardize their data, provide supporting data hygiene in source systems, and roadmapping once the implemented solution is in place.

Knowledge Check

A customer has an existing CRM system, but it is not integrated with other data sources and relies mostly on exporting reports.

- Developing

A customer has recently expanded their product line and wants to implement Data Cloud to support marketing efforts.

- Need more Information

A customer has recently gone through an acquisition and wants to implement Data Cloud to align customer data across its multiple business lines.

- Established

A customer has limited technical expertise but wants to implement Data Cloud to improve customer service and marketing efforts.

- Developing

A customer is currently expanding operations outside of Europe and North America and wants to understand Data Cloud's capabilities in terms of data privacy, regional data management, and policy compliance.

- Established

A customer has provided a briefing document with its 5 year goals including its business plan and trajectory for expansion of use cases with Unified Data across each of its connected systems.

- Established

An organization has reported that their Business Intelligence team has difficulty building accurate reports due to data quality issues, and don't fully trust their data.

- Developing

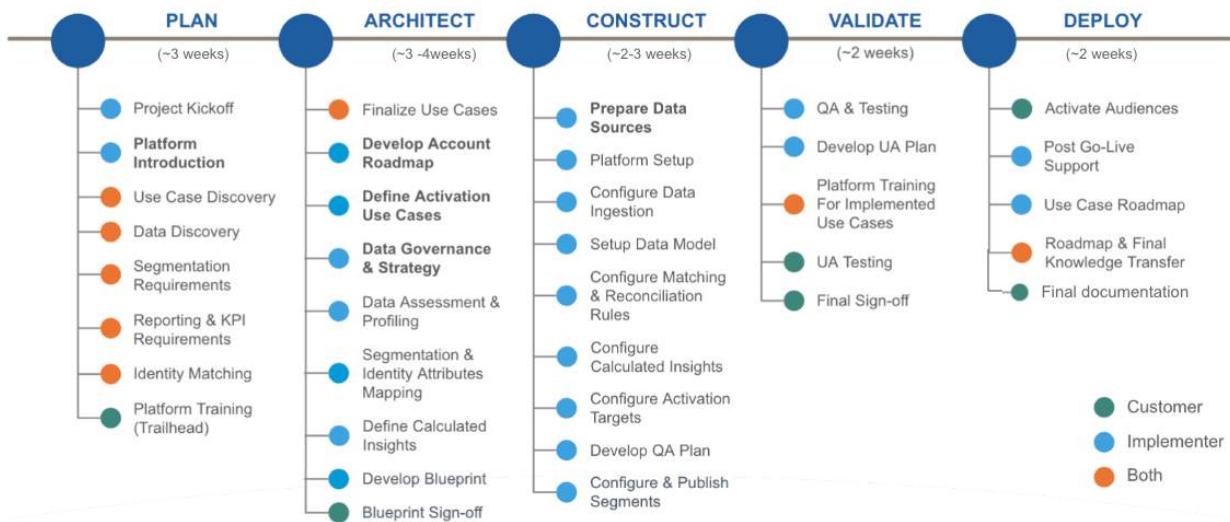
Timeline and Action Plan

Sample Timeline

While there isn't an exact timeline on how long your implementation is, there is a basic recommendation to expect a timeline of around 12-14 weeks, with variation based on your client's maturity and the project's overall complexity with all organizations working at full velocity.

Data Cloud involves a high degree of alignment and customer interaction, so expect the majority of your time to be spent in business analysis, planning, and architecture. Some of these activities are run in parallel, and some may be dependent on prior activities. Take a look at the example given to get a basic understanding of the order of operations within an implementation.

This timeline outlines the high-level phases of a typical implementation project for Data Cloud.



Plan

The Planning phase typically lasts about three weeks and is critical for laying the foundation for a successful implementation by ensuring all stakeholders are aligned on the project goals and requirements. Notice the customer begins training right away. They receive hands-on platform training at the end of the engagement, but it's critical they start to understand the platform terminology and methods of Data Cloud in order to be better partners during the remaining phases.

Architect

The architecture phase takes up to four weeks. This is where the technical schematics of the platform are built and the customer and the implementation team are in full alignment that the data is properly modeled and configured to support the desired use cases. This is the phase where assumptions and the supporting data are validated. Once the client approves the implementation plan, the build proceeds.

Construct

Although Data Cloud works in a declarative environment, the Development or Construct phase takes about two to three weeks due to the sheer volume of configuration and test planning that must be done. This phase is critical for building out the technical infrastructure of the platform and ensuring the data is properly modeled and configured to support the desired use cases.

Validate

Once the platform is constructed, it moves into the validation phase, which involves executing various testing plans and gaining client acceptance for every key component of the platform.

This is when the client starts to go hands-on, and you get an opportunity to gather important user feedback as well as train the users on how to use the platform as configured.

Deploy

In the deployment phase the work shifts to moving Data Cloud into a production context by activating audiences, finalizing and handing off documentation, providing post-go-live support, providing final knowledge transfers, and turning the focus towards their roadmap by identifying the next goals that define their success with Data Cloud.

Knowledge Check

- Data Discovery
 - Plan
- Blueprint Sign-off
 - Architect
- Configure Data Ingestion
 - Construct
- User Acceptance Testing
 - Validate
- Go-live support
 - Deploy

Team Structure

Now that you reviewed the timeline and activities, let's explore the team structures suggested for these projects.

Resources and Utilization: Implementation Team

12-14 Weeks ~1000 Hours

	PLAN (2 weeks)	ARCHITECT (3 weeks)	CONSTRUCT (2 week)	VALIDATE (2 week)	DEPLOY (1 week)
PROJECT MANAGER	60%	60%	60%	40%	60%
BUSINESS ARCHITECT	50%	60%			40%
SOLUTION ARCHITECT	50%	60%	10 %	10 %	20%
DATA ARCHITECT	20%	40%			
ADMIN / DEVELOPER			100%	40%	40%
QA SPECIALIST			20%	60%	
TRAINING SPECIALIST	5%			10 %	20%

- While it's difficult to give guidance on estimates for a typical implementation, expect a baseline of approximately 1000 hours spread over 12-14 weeks, split 60% in the Plan/Architect phase and 40% in the remaining phases.
- It's important to remember that most of the work for a Data Cloud implementation is outside of the platform, where a consulting team is eliciting requirements, aligning with the client, and formulating a solid design.
- The project management hours have been adjusted to account for increments in duration and remain in line with the small project size.

Knowledge Check

True or False, typical implementations require over 2000 hours and take roughly 20-40 weeks.

- False

True or False, hours should be devoted roughly 60% to consultancy and 40% to development.

- True

Recommended Scope

Let's review the recommendations around scope that are summarized across the three different pillars.

What's Included in a Typical Implementation?

Project Governance & Use Case Discovery	Solution Setup & Configuration	Activation, Training & Roadmap
<ul style="list-style-type: none"> ● Program Execution ● Introduction to Data Cloud platform and its functionality ● Development of up to five (5) use cases ● Prescriptive Data Strategy and Governance ● Reporting and KPI Identification ● Discovery & Design ● Data Review and Profiling ● Definition of Operating Model ● QA and UA Design 	<ul style="list-style-type: none"> ● Data Ingestion & historical data load from up to three (3) sources ● Standard Cloud Information Model Objects Mapping ● Up to three (3) Calculated Insights ● One (1) Identity Resolution Ruleset with up to three (3) Identity Matching & Reconciliation Rules ● Up to three (3) Audience Segments ● Up to three (3) Activation Targets 	<ul style="list-style-type: none"> ● Up to two (2) Platform Training Sessions for Implemented Use Cases ● Up to Five (5) activations ● Use Case Roadmap

For a typical implementation, expect some effort at the early stage of the project invested in the customer education on the platform, assisting them with the use cases definition and development. This doesn't imply full transformational and or organizational consultancy, rather an alignment with the desired digital strategy and identifying practical low-hanging fruit to start with.

- Include a definition of the operating model for the customer, quality assurance, and user acceptance testing.

- The scope for the build should include limits whenever possible. This includes the number of connected data sources, audience segments, calculated insights, identity resolution rulesets, and so on. These limits are applied and validated by the scoping and estimation team during the presales process once the customers' use cases have been fully understood.
- This general scope does imply a broader data assessment in context with the connected platforms, limited to findings and recommendations.
- On the activation side, include the journey alignment. Ensure adoption and go-live strategy for journeys includes audiences that will be produced as a result of these current projects.

Knowledge Check

Identify the three activities that would be included in a typical implementation.

- Use Case Definition and Development
- Model Object Mapping
- Use Case Roadmap

Additional Resources:

[Data Cloud Glossary of Terms](#)

[Implement Like Salesforce](#)

[Data Cloud Use Cases](#)

[Data Cloud Release Notes](#)

[Data Cloud Release Hub for Partners](#)

Knowledge Check

Select the three True statements that follows.

- Customers should begin learning Data Cloud concepts in Trailhead as soon as possible.
- Customers without a high degree of technical skill should utilize click-based tools within Data Cloud to avoid establishing too much technical debt.
- Developing companies will likely need to spend more time on things like training and use case refinement.

How much effort should be spent on Consulting vs Development?

- 60% Consulting / 40% Development

Which of the two following statements are True about scoping your implementation?

- It's best to put limits on large things like the number of connected data sources.
- Not every customer will use Data Cloud the same way, so you will likely have to modify your scope for their unique needs.

What are the 5 stages of implementation?

- Plan, Architect, Construct, Validate, Deploy

Which of the three following topics are covered during a standard architect process?

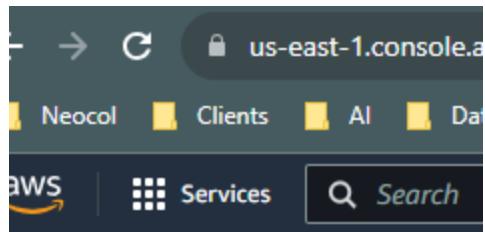
- Profile Strategy
- Data Audit
- Build Data Taxonomy

Select the True statement that follows.

- Make sure your customer understands how identity matching rules will join identities together using sample data.

AWS

Need to create a user



Identity and Access Management (IAM)

Search IAM

Dashboard

Access management

User groups

Users

Roles

Policies

Identity providers

Account settings

Access reports

Access analyzer

Archive rules

Analyzers

Settings

Credential report

Organization activity

Service control policies (SCPs)

Related consoles

IAM Identity Center New

AWS Organizations

Need to create permission to bucket and policy

https://help.salesforce.com/s/articleView?id=sf.c360_a_s3_bucket_policies.htm&type=5

https://docs.aws.amazon.com/AmazonS3/latest/userguide/example-bucket-policies.html?icmpid=docs_amazons3_console

The screenshot shows the AWS S3 Bucket Permissions Overview page for the bucket 'zillerdatacloud'. The top navigation bar includes 'Amazon S3 > Buckets > zillerdatacloud'. Below the navigation is a breadcrumb trail: 'zillerdatacloud' with an 'Info' link. A horizontal menu bar at the top of the main content area includes 'Objects', 'Properties', 'Permissions' (which is highlighted in blue), 'Metrics', 'Management', and 'Access Points'. The main content area has a header 'Permissions overview' and a sub-section 'Access' with the note 'Objects can be public'. Below this is a section titled 'Block public access (bucket settings)' with a status indicator 'Off' and a link to 'Edit'. Another section titled 'Block all public access' shows it is also 'Off' with a link to 'Individual Block Public Access settings for this bucket'. At the bottom of the page is a section titled 'Bucket policy' with a note about bucket policies applying to objects owned by other accounts.

```
{  
  "Version": "2012-10-17",  
  "Statement": [  
    {  
      "Sid": "",  
      "Effect": "Deny",  
      "Principal": "*",  
      "Action": "s3.*",  
      "Resource": "arn:aws:s3:::zillerdatacloud/*",  
      "Condition": {}  
    }  
  ]  
}
```

```
"Condition": {
    "Bool": {
        "aws:SecureTransport": "false"
    }
},
{
    "Effect": "Allow",
    "Principal": {
        "AWS": "arn:aws:iam::987504469424:user/Ziller"
    },
    "Action": [
        "s3:GetBucketLocation",
        "s3>ListBucket",
        "s3:GetObject",
        "s3:PutObject",
        "s3>DeleteObject"
    ],
    "Resource": [
        "arn:aws:s3:::zillerdatacloud",
        "arn:aws:s3:::zillerdatacloud/*"
    ]
}
}
```

Salesforce Days

Data Cloud Skill Up Sessions (12 sessions for 6 weeks)

<https://quip.com/0k29AxC34DiT>

<https://quip.com/bCWPAX8INj3t> - QA office hours

Session 1

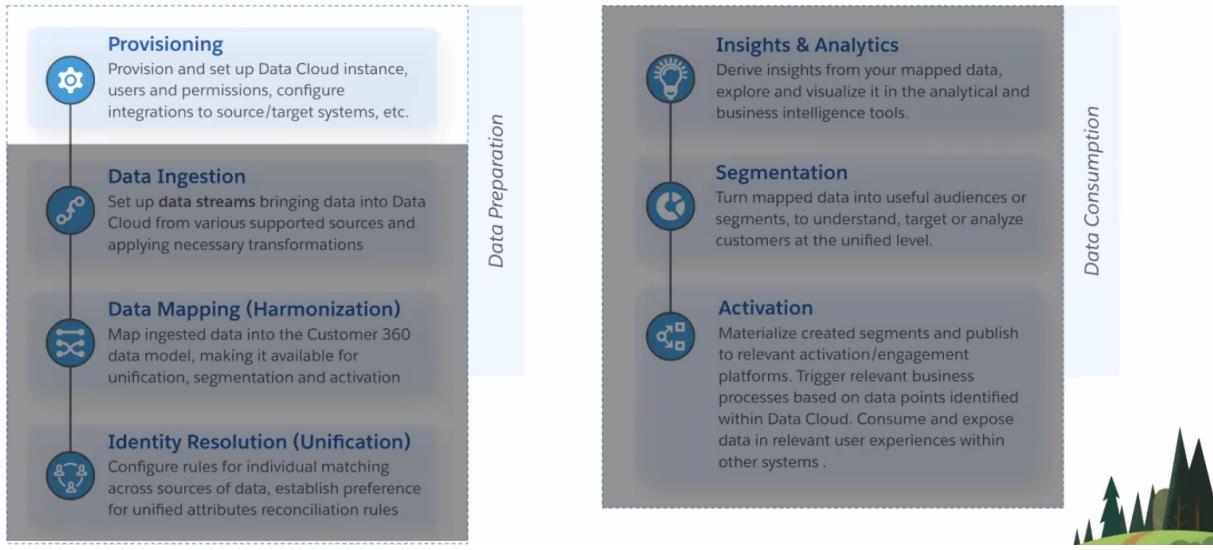
The screenshot shows a slide titled "Study Tips (for the first 2 courses)". At the top left is a "ACCREDITED Professional" badge. On the right are three performance metrics: "Total Question" (50), "Lotted Time" (75 min), and "Passing Score" (66 %). The slide features a blue header bar and a white content area. The content area contains a section titled "Exam Details" with two bulleted lists of study topics:

- Solution Overview (10%)**
 - Function and business value
 - Typical use cases
 - Key product terminology
 - Data lifecycle
 - Data Ethics
- Setup / Administration (21%) (tougher)**
 - Permissions and org-wide settings
 - Data stream types & data bundles
 - Connection requirements
 - Provisioning & topologies
 - Using reports, dashboards, and flows
 - Basic troubleshooting
 - Data Explorer & Profile Explorer
 - Data Kits & Packages
 - API Capabilities

The slide has decorative elements including small birds flying in the top right, a cartoon character in the bottom right, and green foliage at the bottom.

The Big Picture: Implementation Themes

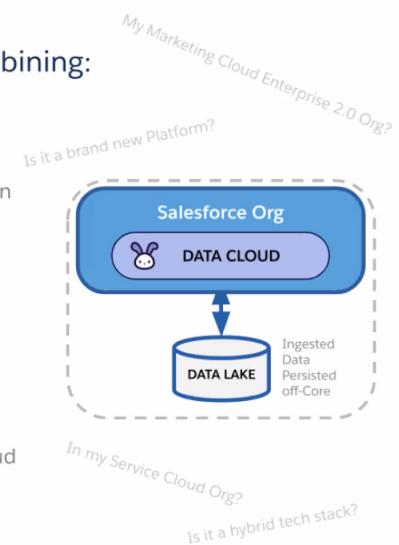
Related to the components of Data Cloud



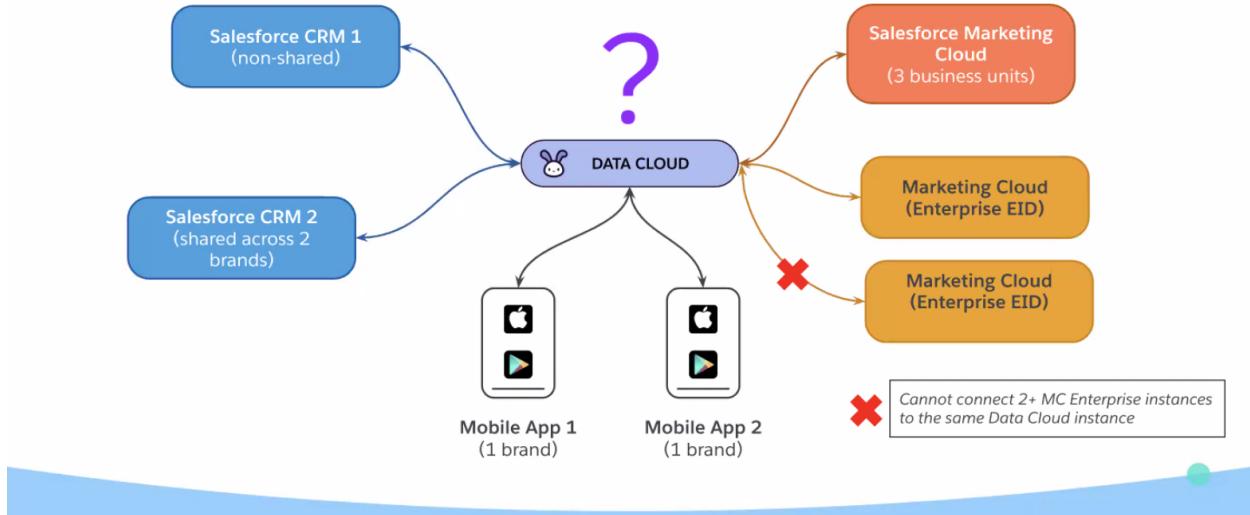
Where does Data Cloud Live?

Data Cloud is built on top of the Salesforce Platform, combining:

- **Core Salesforce Org Capabilities**
 - Used for things like: Reports and Dashboards, Flow, Authentication, & Application sObjects (like 'Activation' or 'Segment') for metadata definition
 - Sharing Rules and data access restrictions work differently in Data Cloud
- **Data Lake stores ingested data, perform transformations**
 - This data is not currently available to many core Salesforce platform operations – it is not stored as sObjects
- **API + Productized Integrations with Other Salesforce products**
 - Productized, API integrations with Marketing Cloud, Commerce Cloud, Mulesoft & OOTB CDP Org LWCs to help navigate data stored in Data Cloud

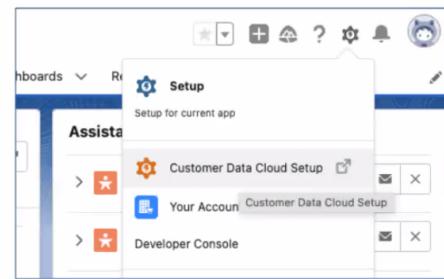
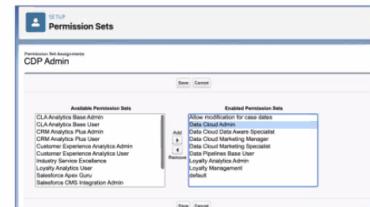


Data Cloud Provisioning



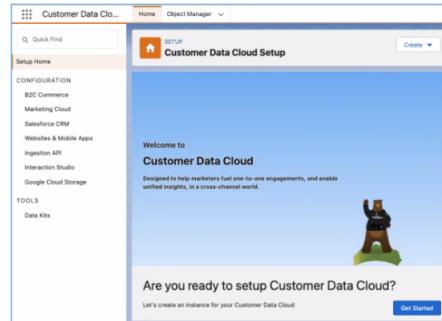
Step 1 - Assign User Permissions

- Enable [Admin permission set](#) to the relevant Salesforce CRM user
 - Data Cloud Admin Permission Set



Step 2 - Provisioning your Data Cloud Instance

- Customer Data Cloud -> Setup Home
- Provision the instance from the **Are you ready to setup** prompt by clicking on the **Get Started** button
- Confirm that all steps completed successfully



Are you ready to set up Customer Data Cloud?

- Planning your Customer Data Cloud instance.
- Creating your Customer Data Cloud instance.
- Populating your Customer Data Cloud instance.
- Ensuring your instance is ready.

Your instance is located on: **CDP1-AWS-PROD1-USEAST1** ⓘ

Goal (Homework) post this call

Verify access to

- Partner Community
- PLC (Partner Learning Camp)

Enroll in the Data Cloud Curriculum

- sfdc.co/GetToKnowDataCloud

Slack

- Join the **#help-datacloud-enablement** Slack channel

Complete the first 2 courses in the curriculum

- Data Cloud: Overview
- Data Cloud: Setup

Request a Data Cloud Trial org

- Activity in *Setup Course*
- Use company email

*Trial orgs only available for 90 days

Bookmark the Program Guide

- sfdc.co/DCGetSkilledUp

The screenshot shows the Data Cloud Curriculum interface. At the top, it says "Get to Know Data Cloud". Below that, it says "Stage 1: Get to Know Data Cloud". There are two course cards: "Data Cloud: Overview" and "Data Cloud: Setup". Both courses have progress bars indicating they are partially completed.