



**INTERNAL**

SAP Data Services

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# **DQM Microservices Blueprints User's Guide**

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# 1 Introduction

## 1.1 Documentation set for SAP Data Services content objects


You should become familiar with all of the pieces of documentation that relate to the SAP Data Services blueprints and other content objects.

Document	What this document provides
<i>Content Objects Summary</i>	Lists all of the available blueprints and other content objects and the jobs and other objects that they contain.
<i>Content Objects What's New</i>	Highlights the new and enhanced blueprints and other content objects available for this release.
<i>Data Quality Management Custom Functions User's Guide</i>	Contains instructions for downloading and importing custom functions.
<i>Data Quality Management Match Blueprints User's Guide</i>	Contains a list of available Data Quality Management match blueprints and instructions for downloading, configuring, and running them.
<i>Data Quality Management Microservices Blueprints User's Guide</i>	Contains a list of available Data Quality Management microservices blueprints and instructions for downloading, configuring, and running them.
<i>Data Quality Management Product Blueprints User's Guide</i>	Contains a list of available Data Quality Management product blueprints and instructions for downloading, configuring, and running them.
<i>Data Quality Management Regional Blueprints User's Guide</i>	Contains a list of available Data Quality Management regional blueprints and instructions for downloading, configuring, and running them.

## 1.2 SAP information resources

A global network of SAP technology experts provides customer support, education, and consulting to ensure maximum information management benefit to your business.

Useful addresses at a glance:

Address	Content
Customer Support, Consulting, and Education services <a href="https://support.sap.com/">https://support.sap.com/</a> 	Information about SAP support programs, as well as links to technical articles, downloads, and online forums. Consulting services can provide you with information about how SAP can help maximize your information management investment. Education services can provide information about training options and modules. From traditional classroom learning to targeted e-learning seminars, SAP can offer a training package to suit your learning needs and preferred learning style.

Address	Content
Product documentation <a href="http://help.sap.com/bods/">http://help.sap.com/bods/</a>	SAP product documentation.
Product Availability Matrix (PAM) <a href="https://apps.support.sap.com/sap/support/pam">https://apps.support.sap.com/sap/support/pam</a>	Get information about supported platforms for SAP Data Services. Use the search function to search for Data Services. Click the link for the version of Data Services you are searching for.
SAP Data Services Community <a href="http://scn.sap.com/community/data-services">http://scn.sap.com/community/data-services</a>	Get online and timely information about SAP Data Services, including forums, tips and tricks, additional downloads, samples, and much more. All content is to and from the community, so feel free to join in and contact us if you have a submission.
Blueprints <a href="https://wiki.scn.sap.com/wiki/display/EIM/SAP+Data+Services+Blueprints">https://wiki.scn.sap.com/wiki/display/EIM/SAP+Data+Services+Blueprints</a>	Blueprints for you to download and modify to fit your needs. Each blueprint contains the necessary SAP Data Services project, jobs, data flows, file formats, sample data, template tables, and custom functions to run the data flows in your environment with only a few modifications.

## 1.3 Introduction to SAP Data Services 4.2 content objects

Welcome to SAP Data Services 4.2 version 14.2.0 Content Objects.

### Data Services overview

SAP Data Services delivers a single enterprise-class solution for data integration, data quality, and data profiling that allows you to integrate, transform, improve, and deliver trusted data to critical business processes. It provides one development UI, metadata repository, data connectivity layer, run-time environment, and management console—enabling IT organizations to lower total cost of ownership and accelerate time to value. With SAP Data Services, IT organizations can maximize operational efficiency with a single solution to improve data quality and gain access to heterogeneous sources and applications.

### Data Services Content Objects overview

We've identified a number of common scenarios that you are likely to perform with SAP Data Services. For each scenario, we've included a blueprint that is already set up to solve the business problem in that scenario. Each blueprint contains the necessary project, jobs, data flows, file formats, sample data, template tables, and custom functions to run the data flows in your environment with only a few modifications.

You can download the blueprint packages from the SAP Community Wiki. On the website, we periodically post new and updated blueprints, custom functions, best practices, whitepapers, and other content. You can refer to this site frequently for updated content and use the forums to provide us with any questions or requests you may have.

Instructions for downloading and installing the content objects are also located on the SAP Community Wiki.

## 2 DQM microservices blueprints overview

SAP Data Quality Management, microservices for location data offers cloud-based microservices for address cleansing, geocoding, and reverse geocoding. You can embed address cleansing and enrichment services within any business process or application so that you can quickly reap the value of complete and accurate address data.

Starting in SAP Data Services 4.2 SP8, the DQM Microservices transform helps you configure and execute a subset of DQM microservices services within Data Services.

### i Note

The DQM transform functionality is available in a productive landscape when DQM microservices is generally released. For information about the availability of DQM microservices, see [2392827](#) - Availability of DQM microservices for location data in SAP Data Services 4.2 SP8. A trial landscape is also available.

The DQM microservices blueprints illustrate a number of common data quality scenarios that you are likely to perform with SAP Data Services to access functionality in DQM microservices. For each scenario, we've included a blueprint that is already set up to solve the business problem in that scenario. Each blueprint contains the necessary project, jobs, data flows, file formats, and sample data to run the jobs in your environment with only a few modifications.

## 3 Before you begin

Before you start using the DQM microservices blueprints, you or your SAP HANA Cloud Platform administrator will need to perform the following steps:

1. Obtain a DQM microservices account on either the trial or productive landscape.
  - *Trial landscape (HANA Cloud Platform, Developer Edition)*  
DQM microservices processes transactions one at a time and counts transactions toward a usage quota. Service is limited to 1000 transactions per country or 30 days of usage. Tracking starts with the first transaction that applies to your account.
  - *Productive landscape*  
If you are using DQM microservices on the productive landscape, you are charged for transactions.
2. If you are using the trial landscape, enable the DQM microservices service using the Data Quality Microservices tile in the SAP HANA Cloud Platform cockpit.
3. To set up authentication and authorization, create an OAuth client within the SAP HANA Cloud Platform OAuth service. This is used to authenticate Data Services with DQM microservice.

### **i** Note

DQM microservices supports both Basic and OAuth 2.0 authentication; however, only OAuth 2.0 is supported in Data Services.

4. Get one of the following sets of information about your OAuth service from the SAP HANA Cloud Platform cockpit:
  - Client ID
  - Client Secret
  - Token EndpointOr
  - OAuth 2.0 access token: Generate an OAuth 2.0 access token for the OAuth 2.0 client that you created for Data Services use.

For more information about DQM microservices, see the documentation set at <https://help.sap.com/viewer/d95546360fea44988eb614718ff7e959/Cloud/en-US>.

# 4 Downloading blueprint packages

## 4.1 Blueprint versions

The following table shows the version of the Data Quality Management blueprints that can be used for SAP Data Services. The blueprint version is displayed on the SAP Data Services Blueprints page of the SAP Community Wiki.

SAP Data Services version	Blueprint version	Blueprints available
4.2	4.2	Data Quality Management
4.1.1	4.1.1	Data Quality Management
4.1	4.1	Data Quality Management
XI 4.0	XI 4.0	Data Quality
XI 3.2	XI 3.2	Data Quality
XI 3.1	XI 3.0	Data Quality
XI 3.0	XI 3.0	Data Quality

## 4.2 Available DQM microservices blueprints

Each blueprints package contains sample jobs configured to illustrate an example for how to configure common use cases when using SAP Data Quality Management, microservices for location data within Data Services.

To see the contents of each blueprint, see the *Content Objects Summary*.

Blueprint	Description
Data Quality Management Blueprints – Microservices	Contains jobs configured to illustrate an example for how to configure specific DQM microservices use cases.



## 4.3 Downloading and setting up blueprints

### Context

These are the general steps for downloading and setting up Data Quality Management blueprint packages for SAP Data Services.

### Procedure

1. To access the SAP Community Wiki, go to <https://wiki.scn.sap.com/wiki/display/EIM/SAP+Data+Services+Blueprints> in your web browser.
2. Log into your account using your username and password, or create a new account.
3. Review the list of available blueprint packages and other content objects and their descriptions to decide which to download.
4. Select the blueprint package that you want to download. A new page opens.
5. Select *View Document*.
6. Save the .zip file to the `Tutorial Files` folder in your installed SAP Data Services path. By default, this folder is installed to `\Program Files\SAP BusinessObjects\Data Services\Tutorial Files for 32-bit Windows` and `\Program Files (x86)\SAP BusinessObjects\Data Services\Tutorial Files for 64-bit Windows`.  
If you are running on UNIX, the `Tutorial Files` folder exists only on the Windows client workstation, and you should download the .zip file there.
7. In the `Tutorial Files` folder in Windows Explorer, right-click the .zip file and select to extract the compressed (zipped) folders to the `Tutorial Files` folder. For example, if you use WinZip for file compression, right-click the .zip file and select **WinZip > Extract to here**.  
Extracting creates subfolders and places the files in the appropriate location. The .atl file is saved to the `Data Quality Mgmt Samples` folder, the sample data files are saved to the `Data Quality Mgmt Samples\Microservices` folder.
8. In the Designer, import the `dqm_blueprints_microservices.atl` file. In the Passphrase window, enter **dqm\_blueprints\_microservices** and click *Import*. Click *OK* to close the warning window.  
Importing the file adds a project called `DataQualityMgmtBlueprintsMicroservices` to your object library. The project contains jobs whose names begin with `DqmBlueprintMicroservices` and contain in their name the Data Quality Management use case that they illustrate. Each job contains a data flow with the same name as the job. The import also adds a datastore called `DqmBlueprintsMicroservices` to your object library, and file formats whose names begin with `DqmMicroservicesIn` and `DqmMicroservicesOut` for the sample input and output data.
9. If you are running on UNIX, copy the input files to the job server machine and create the same folder structure that is on the Windows client workstation.

10. If you imported the blueprint `.at1` files using a Data Services Designer on 32-bit Windows and use a job server on 64-bit Windows, then you must copy the blueprint files to the Data Services installation of the job server machine.

# 5 Configuring and running jobs

## 5.1 Editing the datastore

### Prerequisites

To create a datastore for the DQM Microservices transform, you will need to gather information from your SAP HANA Cloud Platform administrator and your network administrator, if necessary. For more information about SAP Data Quality Management, microservices for location data, see the documentation set at <https://help.sap.com/viewer/d95546360fea44988eb614718ff7e959/Cloud/en-US>.

### Context

After you download the blueprint .zip file to the appropriate folder, unzip it, and import the .atl file in the Designer, you must edit the DqmBlueprintsMicroservices datastore.

### Procedure

1. Select the *Datastores* tab of the Local Object Library, right-click the DqmBlueprintsMicroservices datastore and select *Edit*.
2. In the *Edit Datastore DqmBlueprintsMicroservices* window, replace *CHANGE\_THIS* with your SAP HANA Cloud Platform cockpit application URL in the *Connection URL* field. The application URL looks like this: `https://dqmmicro<provideraccount>-<consumeraccount>.hana.ondemand.com/dq`. In the URL, the portion immediately after `dqmmicro` <provideraccount> represents the provider account number and <consumeraccount> represents the consumer account number. Your SAP HANA Cloud Platform administrator can provide the application URL.
3. In the *Advanced* pane, select one of the following methods of completing access information. Your SAP HANA Cloud Platform administrator can recommend the best method and provide the necessary information.
  - Method 1: Complete the *Client ID*, *Client Secret*, and *Access Token URL* options. Leave the *Access Token* option empty. Your SAP HANA Cloud Platform administrator can provide this information.

SAP Data Services option name	SAP HANA Cloud Platform cockpit option name
Client ID	Client ID

SAP Data Services option name	SAP HANA Cloud Platform cockpit option name
Client Secret	Client Secret
Access Token URL	Token Endpoint

- Method 2: Complete the [Access Token](#) option. Leave the [Client ID](#), [Client Secret](#), and [Access Token URL](#) options empty. Your SAP HANA Cloud Platform administrator can provide this information.

SAP Data Services option name	SAP HANA Cloud Platform cockpit option name
Access Token	OAuth 2.0 access token

4. If necessary, enter your proxy information in the [Proxy host](#) and [Proxy port](#) options. You can obtain this information from your network administrator.
5. Click [OK](#) to close the [Edit Datastore DqmBlueprintsMicroservices](#) window.

## Results

After you edit the datastore, you should be able to run the blueprints.

## 5.2 Before running the hybrid job

### Prerequisites

The `DqmBlueprintMicroservices_AddressCleanseHybrid` job illustrates a configuration that cleanses addresses for one country on premise with the Global Address Cleanse transform, and addresses for all other countries in the cloud with the DQM Microservices transform. The scenario is that you do enough business in one country to warrant an on-premise license of address reference data for that country.

Before you run the hybrid job, you must complete the following tasks.

1. Copy the address cleanse reference file for the on-premise country that you have a license for.
2. In the substitution parameter configuration `Configuration1`, in `$$RefFilesAddressCleanse` enter the path location where you copied the address cleanse reference file.
3. (Optional) You may want to add at least one record for the country that you have a license for in the input text file `<DqmMicroservicesInSampleData.txt>`. The sample data used for the hybrid blueprint includes addresses in Brazil, China, Germany, France, India, Japan, Mexico, and the United States. If your on-premise license is for one of these countries, then this step is already completed. If you copied the downloaded compressed file and extracted it in the location specified in [Downloading and setting up blueprints \[page 9\]](#), you will find the input file here:
  - For 32-bit Windows: `\Program Files\SAP BusinessObjects\Data Services\Tutorial Files\Data Quality Mgmt Samples\Microservices`

- For 64-bit Windows: \Program Files (x86)\SAP BusinessObjects\Data Services \Tutorial Files\Data Quality Mgmt Samples\Microservices
4. Edit the job to route addresses for the country that you have a license for to the Global Address Cleanse transform, and addresses for all other countries to the DQM Microservices transform. If your on-premise license is for the United States, then this step is already completed.
    1. Select the *Data Flows* tab of the Local Object Library, and double-click the DqmBlueprintMicroservices\_AddressCleanseHybrid data flow.
    2. Double-click the Case transform to open it.
    3. In the editable text box you will see the expression CountryID2Char.COUNTRY = 'US', which defaults to the the United States. Change **us** to reference the ISO 2-character country code for your country.
    4. Save the data flow.
  5. After running the job, you may validate the engine that cleansed each address by looking at the HTTP\_STATUS\_CODE field in the output file. Records that are cleansed on premise do not receive an HTTP status code; therefore, the content of the field is null. Records that are successfully cleansed in the cloud receive an HTTP status code of 200.

## 5.3 Decimal separator in the geo job

### Context

In some locales it is common to use a decimal point as the decimal separator in latitude and longitude coordinates. For example, 40.689144 and -74.044468. In other locales, it is common to use a decimal comma. For example, 40,689144 and -74,044468.

By default, the DqmBlueprintsMicroservices\_AddressCleanseGeo job outputs the latitude and longitude values with a decimal point.

Complete the following steps in order to output the latitude and longitude values with a decimal comma as the decimal separator:

### Procedure

1. Go to the *Formats* tab in the local object library of the Data Services Designer.
2. Expand the *Flat Files* tree and right-click on the DqmMicroservicesOutAddressCleanseGeo file format. Click *Edit*.
3. In the *Format* column for the Latitude output field, select **###0,0** from the drop-down menu. Do the same for Longitude.
4. Click *Save* and close the *File Format Editor* window.

## Results



After running the `DqmBlueprintsMicroservices_AddressCleanseGeo` job, the latitude and longitude values in the `DqmMicroservicesOutAddressCleanseGeo.txt` output file have a decimal comma for the decimal separator.

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