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SAP C4C Introduction and Data Workbench– Part 3

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ABSTRACT

SAP C4C, also known as SAP Cloud for Customer, is essentially a cloud-based suite of customer relationship management (CRM) software provided by SAP. It is designed to help businesses manage their customer-related activities more efficiently across various touchpoints, including sales, marketing, service, and commerce. SAP C4C provides a unified platform for organizations to interact with their customers, analyze customer data, and drive engagement throughout the customer lifecycle. It offers features such as lead and opportunity management, marketing campaign automation, customer service ticketing, e-commerce capabilities, and analytics for better insights into customer behavior. SAP C4C is known for its scalability, flexibility, and integration capabilities with other SAP solutions and third-party applications. SAP C4C encompasses various modules and features to streamline customer relationship management processes: Sales, Marketing, Service, Commerce, and Analytics. SAP C4C is designed to integrate seamlessly with other SAP solutions such as SAP ERP, SAP S/4HANA, and SAP CRM, as well as with third-party applications. Integration enables a unified view of customer data across the organization and ensures data consistency and accuracy. SAP C4C is available as a cloud-based solution, offering benefits such as scalability, flexibility, and reduced infrastructure costs. It can be accessed via web browsers or mobile devices, allowing users to work from anywhere with an internet connection. SAP C4C focuses on improving the overall customer experience by providing tools for personalized engagement, omnichannel communication, and customer journey orchestration. It helps organizations build stronger relationships with their customers and drive customer loyalty and advocacy.

Key words: SAP, SAP C4C, SAP CRM, SAP S/4HANA, SAP Sales/Service Cloud

INTRODUCTION

Data Migration Workbench – The SAP C4C Data Migration Workbench is a powerful tool designed to simplify and streamline the process of migrating data into the SAP Cloud for Customer (C4C) system.

ETL – The ETL process, which stands for Extract, Transform, Load, is a crucial step in data warehousing, migration, and analytics. It plays a key role in integrating, consolidating, and analyzing data, allowing organizations to gain insights, make informed decisions, and drive business outcomes based on their data assets. ETL tools and platforms automate and streamline data extraction, transformation, loading, scheduling, monitoring, and error-handling processes.

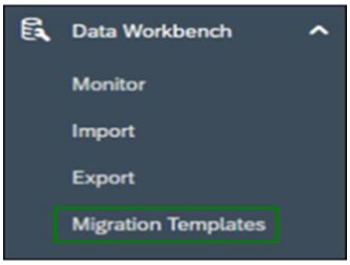
Webservice Monitor – The C4C Web Service Monitor in SAP Cloud for Customer (C4C) enables users to monitor and manage web service communication between SAP C4C and external systems. It provides real-time monitoring of web service calls to and from SAP C4C, allowing users to track the status of these calls for successful completion.

Code List Mapping – Code list mapping in SAP Cloud for Customer (C4C) is a feature that enables the mapping of code values between SAP C4C and external systems to ensure data consistency during integration.

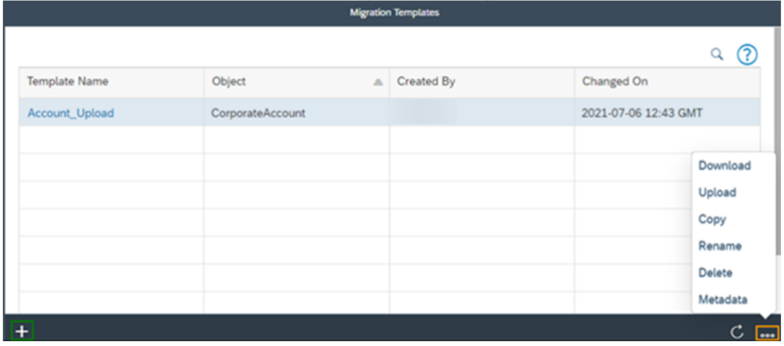
Pre-requisite: To understand this paper thoroughly prerequisite is SAP Cloud Integration – SAP C4C Introduction and Data Workbench– PART 1 and PART 2

DATA WORKBENCH MIGRATION TEMPLATES

To streamline the use of the Data Workbench, you can create and store reusable templates. These templates contain field and code list mappings between CSV files and SAP business objects. For example, a field represents a data input in a specific object, such as the "Name" field for an Account. Code lists are required when a field's datatype is a list, meaning only specific values are permitted. To get started, navigate to the Work Center View Migration Templates in the Data Workbench Work Center.



In the following screen, you can create, update, copy, rename, delete, upload, and download templates. Please note that the upload function does not accept just any CSV file as a template. It is designed to transfer migration templates between systems, requiring a specific format (.dwbtmpl). For example, a template downloaded from the testing system can be uploaded to the production system using this function.



Template Name	Object	Created By	Changed On
Account_Upload	CorporateAccount	[redacted]	2021-07-06 12:43 GMT

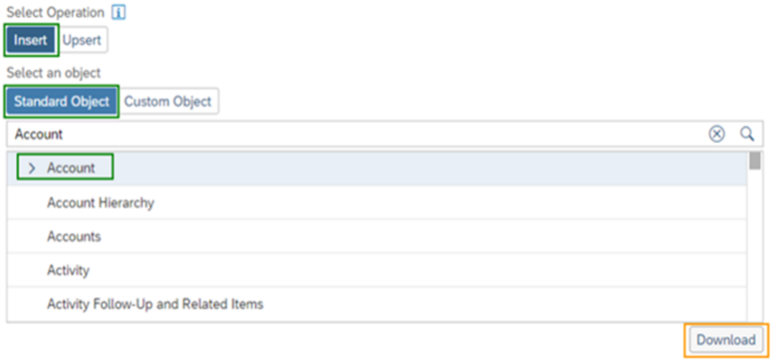
By clicking on Metadata a ZIP folder will be downloaded, which contains a folder with Code Lists, a file with the header of the template, and a definition file. This function can be very helpful when trying to understand an unknown template. To create a new template from scratch click the + Icon in the bottom left. The next screen is very similar to the one from the Import Work Center View and the process is pretty much the same too. First, an operation must be selected:

Insert: Data with new external keys is created; existing data is rejected

Upsert: Data with new external keys is created; existing data is updated

The default option here is Insert, which is suitable in most cases. Next up select the object, e.g. Account. When clicking on download again a ZIP folder will be downloaded, containing a code list folder, a template (for the specific object), and a file with field definitions.

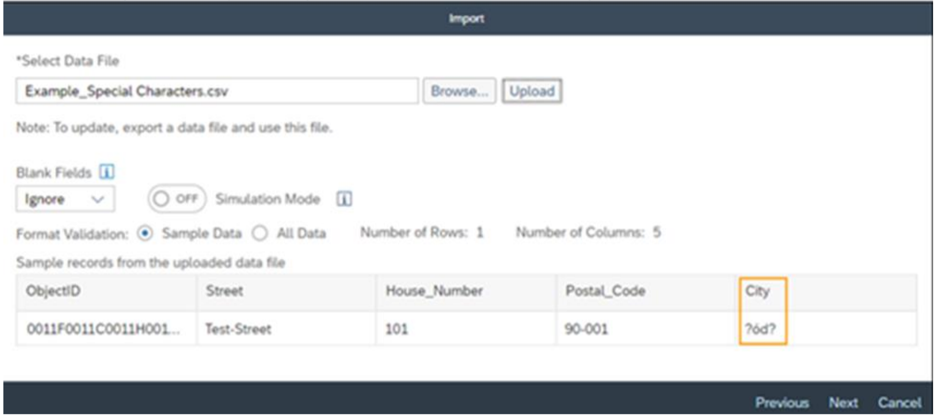
Next, upload the CSV file, whether it contains only a header or includes records. Files previously used for uploads can be reused here to create a template. Maintain the mapping as you would for the import process: connect the fields from the CSV header with the corresponding fields of the Sales Cloud object. If needed, edit the code list mapping. You can use existing code list templates by selecting one under "Select a code list template." If no specific mapping is required, simply skip this screen. To complete the creation, give the template a name (or keep the auto-



generated one) and click the create button. The template will now appear in the overview table. To use a template in the Import section of the Data Workbench, navigate to the Work Center View Import.

DATA WORKBENCH HOW TO DEAL WITH SPECIAL CHARACTERS

When working in the Import Work Center View of the Data Workbench, special characters can pose challenges. This guide explains how to upload information containing special characters from various foreign languages (e.g., Polish, Chinese) without any issues. To illustrate this process, we'll use an example of updating an account. After uploading the file, you might encounter the following error in the overview table:



Import

*Select Data File

Example_Special Characters.csv

Note: To update, export a data file and use this file.

Blank Fields: Ignore

○ OFF Simulation Mode

Format Validation: ● Sample Data ○ All Data

Number of Rows: 1 Number of Columns: 5

Sample records from the uploaded data file

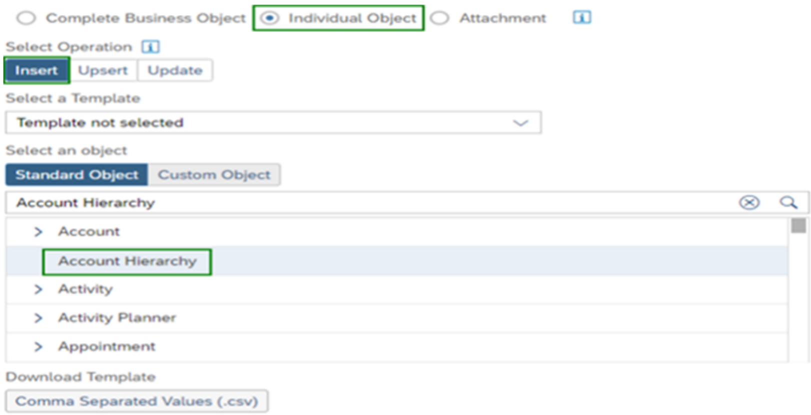
ObjectID	Street	House_Number	Postal_Code	City
0011F0011C0011H001...	Test-Street	101	90-001	?ód?

This issue arises due to the UTF-8 encoding of the CSV file. To save the file in UTF-8, open it in a text editor and save it again as a CSV file with UTF-8 encoding. When you open the CSV file in Excel, special characters may be replaced by random characters (such as question marks). This is the same issue displayed in the screenshot from SAP Sales Cloud. Unfortunately, there is no way to resolve this issue directly in Excel, but there is a simple workaround. After saving and closing the CSV file in Excel, do not open it in Excel again. Instead, make any further changes using a text editor like Microsoft Editor or Notepad++. This approach prevents Excel from replacing special characters with random ones.

DATA WORKBENCH ACCOUNT HIERARCHY UPDATE

This section explains how to update the Account Hierarchy, specifically the Parent Account field, using the Data Workbench. First, prepare an Excel file ensuring it is saved as a CSV file with UTF-8 encoding. Fill in the information for the AccountID (of the Sub Account) and the ParentAccountID. Once the file is ready, go to the CRM system and navigate to the Import area. Select "Individual Object," choose the operation "Insert" (not "Update"), and select the object "Account Hierarchy." Click "Next" in the bottom right of the screen.

In the following screen, use the "Browse" button to select your CSV file. After uploading, you will see an overview table with the data from the file. Quickly check for any mistakes, then continue by clicking "Next" again.



○ Complete Business Object ● Individual Object ○ Attachment

Select Operation: Insert | Upsert | Update

Select a Template: Template not selected

Select an object: Standard Object | Custom Object

Account Hierarchy

Download Template: Comma Separated Values (.csv)

Move on by once again selecting Next and already the last screen will be displayed. There you can upload your data by clicking the Import button. At last head over to the Monitor, wait for your upload to finish, and watch out for any warnings or errors. Once the update has been made you can check the Accounts, to see if everything has worked out. For the parent accounts have a look at the tab Account Hierarchy, there now should be a chart of the hierarchy. When looking at the Sub-accounts look for the field Parent Account, it now should contain the name of the parent account with a hyperlink to it.

DATA WORKBENCH DELETING OBJECTS WITH THE DATA WORKBENCH

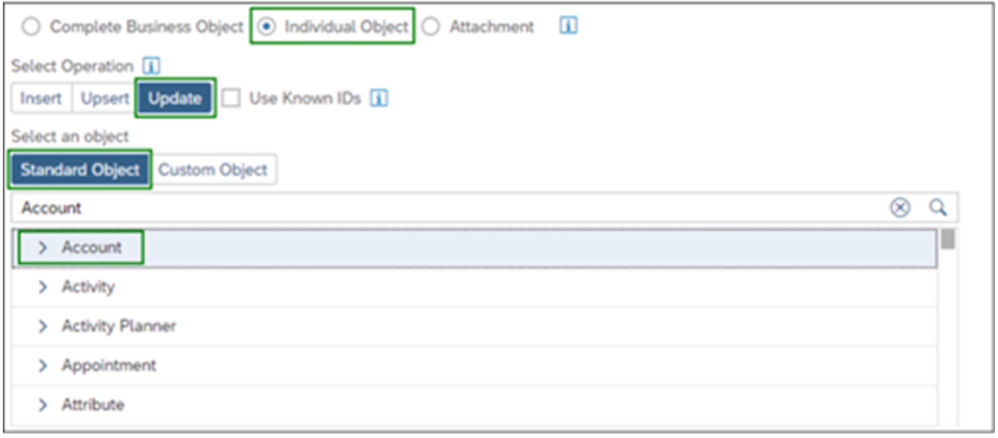
This section explains how to delete objects from the SAP Sales Cloud using the import function of the Data Workbench. Before proceeding with deletions, ensure you are familiar with the Import and Export functions as deleting objects is a specific use case. The deletion process is straightforward once you know the basics.

First, define the records to be deleted. Go to the Export section of the Data Workbench, select the object (e.g., accounts), adjust the filters, and export the CSV file. Open this file and remove any records that should not be deleted. Add a new column at the end of the file called "ToBeDeleted" and insert the value "TRUE" for each record to be deleted. Save the file and re-upload it into the system.

To do this, go to the Import area and use the Update function. Select the object from which records should be deleted, in this example, accounts.

In the next screen upload the CSV file with the added columns by using Browse to search for the file and Upload to loading it into C4C. Skip to the end of the overview function and check for the ToBeDeleted column. Click Next in the bottom right of the screen and navigate to the last screen. Here the import can be started by using the Import button in the bottom right.

Wait for the Import to finish, this can be checked by clicking the Refresh button in the Monitor area, and then all the records from the file will be deleted from C4C. For some objects, it might occur that records can't be deleted, because they are restricted from being deleted. For example, it can happen that tickets only can be set to irrelevant or accounts to obsolete, in this case, an error will occur. These restrictions can be different from system to system.



○ Complete Business Object ● Individual Object ○ Attachment

Select Operation

Insert Upsert **Update** □ Use Known IDs

Select an object

Standard Object Custom Object

Account

› Account

› Activity

› Activity Planner

› Appointment

› Attribute

PRACTICES FOR USING DATA WORKBENCH

Identify data that needs to be imported - When migrating data from a legacy system into SAP Hybris Cloud for Customers not all data would be needed. Depending on your go-live date it is practical to start with an essential set of data such as master data to ensure all the dependencies between the data are in place and choose only relevant transaction data e.g. it may not be essential to migrate all closed opportunities but rather all open opportunities.

Ensure data is cleansed - Remove all duplicate records in the prepared file that need to be imported.

For e.g., there could be multiple account names – Acme Inc and Acme Corp in the CSV file. Rather than import the file and deal with duplicate records in CSV it is better to check for duplicate records in the CSV file itself. Remove all "," values in Account and Contact Names e.g. Acme, Inc to ensure it is not treated as a delimiter. Use existing available tools such as Microsoft Excel to clean and prepare the data file. Use the sort and filter option to find duplicate records. Use the concatenate function to merge values.

Use the text-to-column feature to separate first name and last name from one column to two separate columns. This can be applied for Address fields as well in case you want to split into three columns. If data is loaded with duplicate records use the Data Cleanse capability in Administrator to remove or merge duplicate records. Note: If duplicate accounts are removed/merged before migration the document references to these accounts need to be updated as well.

Check for data correctness and consistency - Ensure that all mandatory fields are entered in the CSV file. Mandatory fields can be identified with the label – mandatory in the file template. Check data for junk, wrong/special characters, in the file before importing. Ensure code list values are entered as per the code list value template. Copy/paste values rather than typing manually to ensure there are no errors during import. Ensure CSV header names are not modified, or the sequence is not changed from the downloaded template. If modified, you need to manually maintain the mapping during the import step.

Data can be prepared in Excel but needs to be saved in CSV format. For data consistency, it is recommended to use SAP pre-delivered template files for each of the objects. This ensures consistency with the column headers and auto-mapping during the data import-guided activity. When using, custom header names need to be mapped during the mapping activity. Once the file is prepared, save the file in CSV format before data loads. Ensure encoding is set as UTF-8. Also, note that CSV will automatically convert any formulas, and formatting into standard CSV accepted format. Also, only one sheet is accepted per CSV so if you have multiple sheets they will be automatically removed.

Only use columns that are required for Import operation - Often you may not need to import all columns in the import step so only choose the exact column headers you need. Remove all other columns from the import file. This ensures any unforeseen data loss or data updates. Mandatory fields are also visible for each object so users can understand business critical fields that need to be maintained. For Update scenarios, first export the data to retrieve the additional column names such as Object ID, and UUID. Note: Changing column names would result in an error during upload of file. Also, for child entities such as Opportunity Item that are first exported and need to be updated, additional columns – Header Object ID and Parent Object ID are included in the file and should not be modified during an update.

Data Workbench using Object ID as the primary key for Data Imports - Object ID is the unique identifier used by the Data Workbench tool to ensure that each data record is unique. UUID is an internal identifier that further uniquely identifies each of the records, especially for parent-child relationships but both keys are purely internal reference keys and are not required to be modified by the customer. For update scenarios of child objects e.g. Opportunity Items 2 new keys are generated – namely, Header Object ID and Parent Object ID to keep track of the dependency. All of the ID fields need not be updated by the customer and are essentially generated by the ODATA Framework for dependency tracking and data consistency.

A maximum of 50K records per file is supported for Import & Export scenarios - For Individual Objects, only a maximum of 50K records are supported in each CSV file. For Complete Business Objects, only a maximum of 50K records at the Root/Header is supported. Total ZIP file size needs to be at or below 10MB.

For Attachments, the total ZIP file should not exceed 100MB and Individual attachments should not exceed 10 MB. Depending on the total number of records that need to be exported, Data Workbench will automatically split the file into chunks of 50K records each. So, for example, if the total number of records is 500K that will result in 10 files that are visible in the Monitor Work Center view.

For High volume data loads please reach out to SAP Cloud Operations - Please create a support incident - indicating the volume of data loads that need to be imported. The main Details should include - Objects being imported, Associated data volume for each object, System and Tenant details (Test, Production), and Go-Live date.

Tenant Lifecycle Management - Ensure all data loads are done successfully in Test tenants and Development tenants (if applicable) before moving to Production. This is especially critical for extension fields added via KUT/SDK to ensure dependent transports are also reaching target systems before data loads take place.

Perform Spot Checks and confirm Data count - Once the data is imported - do spot checks on the UI to ensure desired fields are populated as well as perform a record count across objects to ensure there are no missing records due to errors during migration or duplicate records that passed through.

CONCLUSION

In this white paper on SAP Cloud for Customer (C4C), we have explored the Data Workbench in detail, covering its overview, key capabilities, and fundamental operations. The Data Workbench is an essential tool in C4C that facilitates the efficient import, export, and update of large volumes of data. Key capabilities of the Data Workbench include its user-friendly interface, support for multiple data formats, and robust error-handling mechanisms. These features ensure that data migration and management tasks are streamlined and accurate, reducing the risk of errors and enhancing data integrity. We also delved into the basics of using the Data Workbench, including the step-by-step processes for data import and export. This foundational knowledge is crucial for users to effectively leverage the tool and optimize their data management practices. Lastly, we discussed the notation of data types within the Data Workbench, highlighting the importance of understanding how different data types are represented and processed. This knowledge is vital for ensuring that data is correctly interpreted and manipulated within the system.

Overall, the Data Workbench in SAP C4C is a powerful and versatile tool that significantly enhances the efficiency and reliability of data management processes. By understanding its capabilities and functionalities, organizations can better manage their customer-related data and drive more effective business operations.

Declarations

Ethics approval and consent to participate: Not Applicable

Consent for publication: All authors have consent to submit this paper to the Journal of Cloud Computing. Also, we confirm that this paper or any part of this paper was not submitted anywhere.

Availability of data and materials: Not Applicable

Competing interests: Not Applicable

Funding: Not Applicable

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