SAP S/4HANA Cookbook
Customer/Vendor Integration

CUSTOMER

Run Simple

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DOCUMENT INFORMATION

	Date
Reviewed	2022/02

Version	Changes	Date
16Q4	Initial Version	2016/Q4
16Q4_V05	Version for review	2017/Q1
17Q1	Final version	2017/Q1
17Q1_V2	Added chapters '2.4.4.1.7.7 Miscellaneous Customizing Checks' and '2.4.4.2.5.4 Switch-Off country specific checks'	2017/Q2
17Q4	Adjusted document for external release	2017/Q4
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18Q2_V2	• Replace workaround for field status by SAP Note 2516606 • HCM employee mapping (sample coding) (Chapter 7.1.10) • Process PPO before starting SUM (Chapter 7.4.1) • Required SP for vendor contact persons (Chapter 7.1.4) • Remove 7.1.9.3 Master Data Checks	2018/Q2
19Q4	Overall Update	2019/Q4
20Q4	Overall Update	2020/Q4
21Q2	Minor change	2021/Q1
21Q4	• Update in Chapters 7.2 and 7.3.1. about CVI Cockpit SAP Notes and TCI CVI SAP Note 2.0 • Additional recommendation explanation on phased approach to do the CVI/BP synchronization phase as a separate phase separately before SAP S/4HANA conversion phase.	2021/Q4
22Q1	• Enhancements in Chapter 1 • Review updates in Chapters 3, 4.3 Business Partner Authorizations, and 4.4 Conversion Process Authorizations • Formatting and minor changes • Update on sections 7.2 CVI Cockpit and 7.3.1 TCI Note for CVI • Cookbook Attachment "TCI 2.0 Input Notes_Release_Wise.xlsx" has been moved to SAP KBA Note 3147029 - Guided Answer - CVI Cockpit and TCI for CVI	2022/Q1

1. PURPOSE AND SCOPE OF THE DOCUMENT

This document is intended as guidance on the topic of Customer/Vendor Integration (CVI). Customer/Vendor Integration is one of the key simplifications in SAP S/4HANA that affects most SAP customers. This document primarily gives guidance on topics of CVI for a System Conversion Scenario (Brownfield). For a Greenfield approach (New Implementation) please refer to best practices and in chapter 6 we added some information as well.
The terms “CVI Conversion” and “CVI Synchronization” will be used interchangeably in this document, as both terms appear in the SAP Notes and documentation.

Chapter 1 gives an overview about the structure and purpose of the Document.

In the **Chapter 2** you can get familiar with the context and motivation for the CVI, including definition of Customer and Vendor in the context of SAP, advantages of the Business Partner data model and the idea of CVI.

The **Chapter 3** explains the business impact of CVI, SAP recommendations on master data quality and cleansing, impact on business processes, such as creation and maintenance of Customers and Vendors master data and an overview of limitations of the BP on SAP ERP 6.0.

The **Chapter 4** gives an overlook over available Fiori Apps to maintain Customer and Vendor master data and informs about the most common authorization objects for BP, authorizations required for the conversion process and features such as customer hierarchies, customer classifications and usage of time-dependency.

The **Chapters 5-7** inform about the possible CVI Conversion Scenarios (System Conversion/Brownfield and New Install/Greenfield) and necessary preparation steps, checks and customizing activities which should take place before the synchronization. The **Chapters 7.4-7.6** describe steps and settings for the synchronization cockpit, postprocessing activities and issues that may arise during the synchronization and also tips and tricks and the settings that need to be changed after a successful synchronization.

You will find information about impact on custom code in **Chapter 8**.

The **Chapter 9** describes impact on surrounding systems, interfaces and integration with other applications and gives information about Industry solutions and specific steps for those and Integration with MDG and C4C.

Chapter 10 provides additional information in form of relevant SAP Notes and documentation.

Chapter 11 contains the list of figures.

2. CONTEXT AND MOTIVATION FOR CUSTOMER/VENDOR INTEGRATION

There are redundant object models in the traditional ERP system. Here the Vendor master and Customer master are used which are having several following limitations. The limitations of the Customer/Vendor Object Model:

- Only one single address
- No relation between a Vendor and a Customer for the same real-world entity (no role concept)
- No persons (B2C)
- No time-dependency

The strategic object model in SAP S/4HANA is the Business Partner (BP). Business Partner is capable of centrally managing master data for Business Partners, Customers, and Vendors. With current development, BP is the single point of entry to create, edit and display master data for Business Partners, Customers, and Vendors.

In terms of SAP Business Partner, the definition for Customer and Vendor is the following:

Customer
A Customer is a Business Partner to which goods and services are sold and/or delivered. A Business Partner can be a Customer and a Vendor at the same time if, for example, your Customer also supplies goods to you.

A Customer master holds information about the Customer such as their name, address, bank details, tax details and delivery and billing preferences. This Customer information is used and stored in transactions such as sales orders, deliveries and invoices.

Some Customer information is specific to a company (known as company code) or sales unit (known as sales area) within your organization.

Vendor
A Vendor (or Supplier) is a Business Partner which delivers and sells goods and services to your organization. A Business Partner can be a Vendor and a Customer at the same time if, for example, your Vendor also buys goods from you.

A Vendor master holds information about the Vendor such as their name, address, bank details, tax details and billing preferences. This Vendor information is used and stored in transactions such as purchase orders, goods receipts and Vendor invoices.

Some Vendor information is specific to a company (known as company code) or purchasing unit (known as purchasing organization) within your organization.

Using the Business Partner has the following advantages:

- A legal entity is represented with one Business Partner
- One Business Partner can perform multiple roles, e.g., Customer and Vendor (Supplier)
- General data is available for all different Business Partner roles, specific data is stored for each role
- Maximal data sharing and reuse of data which leads to an easier data consolidation
- Different Business Partner Categories – Organization, Person, Group
- Flexible Business Partner Relationships possible like “has contact person”, “is married with” etc.
- One Business Partner can have multiple addresses
- Time-dependency on different sub-entities e.g. role, address, relationship, bank data etc.
- Provide harmonized architecture across applications

To use the SAP Business Partner as leading object in SAP S/HANA, the Customer/Vendor Integration (CVI) must be used. The CVI component ensures the synchronization between the Business Partner object and the Customer/Vendor objects.

CVI is an automated procedure supported by the Master Data Synchronization Cockpit tool. It is used to synchronize Customer Master and Vendor Master objects with SAP Business Partner objects. CVI assigns every Customer and Vendor master data object to a newly created SAP Business Partner object and vice versa.

The diagram below illustrates the context.

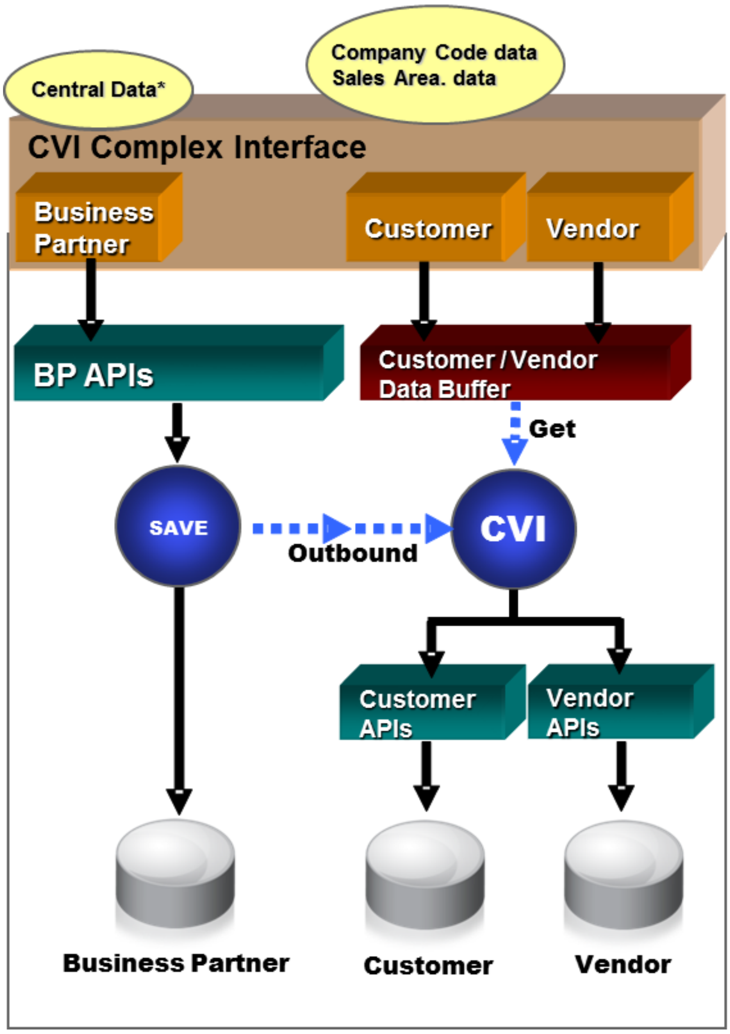


Figure 1: CVI Complex Interface.

A Business Partner is always created when a Customer or Vendor is created.

The complex interface of the CVI (Customer/Vendor Integration) contains Business Partner specific data as well as Customer and Vendor specific data.

Partially, the data of the Business Partner and Customer/Vendor are redundant (BUT000 against KNA1 & LFA1 data). For instance, ‘Name and Address specific attributes are available in both sets of tables.

Customer or Vendor specific data is routed through the Customer/Vendor specific interface and mixed up with the Business Partner central data.

On commit, the Business Partner and corresponding Customer and/or Vendor is maintained/created.

SAP supports the conversion of existing Customer and Vendor data to Business Partner via guided procedure reports.

3. BUSINESS IMPACT

Only SAP Business Suite customer with Customer/Vendor integration in place can move to SAP S/4HANA, On-Premise edition 1909, 2020, 2021 and onwards (System Conversion approach).

To ensure a successful upgrade all Customers, Vendors and all contacts which relate to Customer or Vendor must be converted to a Business Partner, including Customers, Vendors and assigned contacts with the deletion flag.

CVI requires high quality master data to be converted. As master data is of significant importance, customers are recommended to run the Master Data Consistency Check Report well in advance of starting the CVI project and correct any possible master data issues that could jeopardize the CVI project. The execution of the report and data cleansing assures that the master data used in the CVI effort will be of high-quality.
If not executed in advance, this can be a serious roadblock for the conversion. More information on the Master Data Consistence Check Report is given in section 7.3.2.1 Master Data Cleansing: Master Data Consistency Check.

Before you execute the CVI conversion, SAP recommends archiving the Customers/Vendors with the deletion flag (section 7.3.3 Archive Customer/Vendor data with deletion flag)

Depending on your business requirements you could consider that Business Partner and Customer / Vendor get the same number. You can also decide to set up BP numbers completely independent from current Customer/Vendor numbers.
This approach is feasible for new implementation of SAP S/4HANA: all numbers for BP, customer and vendor master can be designed freely.
In case of conversion of existing SAP ERP to SAP S/4HANA, the number ranges for customer and vendor master are already established. When setting up number equality for BP in this case, it might end up in

- additional customizing settings just to safeguard number equality: e.g. additional BP Groupings 1:1 to Account Groups.
- limitations
  - If customer and vendor master have (partially) overlapping number ranges, only one object can have same number with BP.
  - When merging same legal entity of certain customer and vendor to one BP for customer and vendor having different numbers, you should consider whether the BP object will get the numbering from customer or vendor or a completely new number.
  - Not only customers and vendors, but also HCM employee master must be converted to BP during an SAP S/4HANA conversion. HCM employee master might have overlapping number ranges with customer and vendor number ranges. This can lead to number range concept restrictions if you want to keep the numbers from different source objects (HCM employee, customer, vendor).
  - The number range overlapping concept limitation could apply also in relation to other applications which use BP. Applications with BPs restricted to “artificial” BP-numbering might need to be considered.

The user interface for SAP S/4HANA to create and maintain Customer and Vendor master data is transaction BP and the respective SAP Fiori Apps (see section 4.1 and 4.2). The specific transaction codes to maintain Customer/Vendor (as in SAP Business Suite), are not available within SAP S/4HANA. The BP transaction is the single point of entry to create, edit and display master data for Business Partners, Customers, and Vendors.

<u>The following SAP Business Suite transactions will redirect to the transaction BP:</u>

- FD01,FD02,FD03
- FK01,FK02,FK03
- MAP1,MAP2,MAP3
- MK01, MK02, MK03
- V-03,V-04,V-05,V-06,V-07,V-08,V-09, V-11
- VAP1, VAP2, VAP3
- VD01, VD02, VD03
- XD01, XD02, XD03
- XK01, XK06, XK07, XK02, XK03

The following transactions are obsolete:
FD06, FK06, MK06, MK12, MK18, MK19, VD06, XD06, V+21, V+22, V+23

Mass maintenance for Business Partner fields via transaction MASS is available via object "Business Partner".

To update customer/vendor fields in S/4HANA 1709 SAP Note 2346269 – Mass Maintenance Functionality of Customers/Suppliers using XD99 and XK99 is required. Later versions of S/4HANA from 1809 onwards already have the functionality built in.

SAP Business Suite Customer and Vendor numbers are still used as selection input to those former SAP Business Suite transactions, e.g., VA01, ME21N, or standard reports. In case a new BP number is assigned to Customer or Vendor, the SAP Business Suite Customer or Vendor number must be used in those transaction or reports.

CVI ensures that Customer and Vendor master data tables are updated automatically after a BP is created/changed. All KNxx and LFxx Customer/Vendor master data table are still populated as previously in SAP Business Suite.

In SAP S/4HANA BP transaction covers almost all Customer/Vendor master data fields. For additional fields that are not included in the standard SAP S/4HANA BP transaction kindly go over the BDT interface activities in order to add your own custom fields. Please also check section 7.3.7 Check and integrate Customer/Vendor enhancements.

Limitations of synchronization direction BP->Customer /Vendor in SAP ERP 6.0
Technically this synchronization direction is available in SAP ERP 6.0. However, there are some **functional restrictions** compared to S/4HANA to be considered when using BP as leading object **in SAP ERP 6.0, e.g.**:

- It is not possible to maintain all the customer- or supplier-fields using BP transaction - as not all the fields are available in the BP transaction. There are no plans to improve the BP transaction, since the business partner is **not** a replacement for customer/vendor transactions, such as XD* and XK*in the **ERP** system.

  Please also refer to the following SAP notes for further information:

  - 1025037 - BP_CVI: Scope of functions in customer-vendor integration
  - 2772037 - Purchasing Fields Missing in T-code BP

- The account group is not displayed and cannot be changed using the BP transaction.
- If BP is leading object, integration and interface maintenance issues may arise. Field modification from FI-perspective (e.g. by account group) is not considered in BP-transaction.
- No FIORI-apps to maintain BP, BP-Customer and BP-Supplier.
- There is no search help/ no locator search or display like "BP by Customer/Vendor".
- Accessing Customer/Vendor documents from BP-transaction is not possible.
- From BP-transaction there is no direct menu link to Customer or Vendor classification data.
- Forward navigation in partner procedure of customer/vendor data is not supported (double click on partner number is not supported).
- All the SAP Business Suite help documents refer to Customer and Vendor transactions rather than Business Partner transactions.

4. SOLUTION IMPACT

4.1. Fiori App: Manage Customer Master Data

This app allows to manage Customer master data centrally for departments involved with sales. You can create, change, search, display, and copy Customer master data with the role SAP_BR_BUPA_MASTER_SPECIALIST.
Please note that the copy function for Sales Org. and Company Code data of the same Customer master is only available in FIORI.

Key Features

- Create Customer Master Data.
  Use Create Person or Create Organization buttons to create new Customer master data. Enter values in the relevant fields such as Basic Data, Roles, Address and so on. Save the entries.
- Edit Customer Master Data.
  Open a Customer master data record from the List Report page. You can also use the Search field and click Go button to find the Customer master data to change. Click Edit button. This opens the Customer data in draft mode for you to change the values. Save the changes.
- Copy Customer Master Data.
  Select a Customer master from the List Report page. Click Copy button. The new Customer master data record page is displayed with all the details of the Customer that you selected previously, except the Business Partner number, in draft mode. Edit the values as per your requirement. Save the entries. The Customer master data record is saved with a new Business Partner number.
- Time Dependency.
  If Time Dependency is enabled, you can set validity start date and validity end date for the fields such as Roles, Address, Address Usage, Bank Accounts, and Contacts. If Time Dependency is not enabled, the system considers the default values. The default values are current date (validity start date) and 31.12.9999 (validity end date)
- Address Usage.
  This allows you to manage different addresses (for example, Home Address, Business Address, Holiday Home) according to your preference. Standard Address (XXDEFAULT) is mandatory for Customer and Vendor roles.
- Attachments.
  This feature allows you to provide related attachments for Customer master data records. The app supports only General Object Services (GOS) type attachments.
  Please also check this blog on the GOS attachments:
  https://blogs.sap.com/2020/11/03/generic-object-services-gos-attachments-for-business-partner/

For more details see the Fiori Apps Library:
https://fioriappslibrary.hana.ondemand.com/sap/fix/externalViewer/#/detail/Apps('F0850A')/S6OP

4.2. Fiori App: Manage Supplier Master Data

This app allows you to manage Vendor master data centrally for all consuming departments (for example, purchasing department). You can create, change, search, display, and copy Vendor master data with the role SAP_BR_BUPA_MASTER_SPECIALIST.
Please note that the copy function for Purchasing Org. and Company Code data of the same Vendor master is only available in FIORI.

Key Features

- Create Vendor Master Data.
  Use Create Person or Create Organization button to create new Vendor master data. Enter values in the relevant fields such as Basic Data, Roles, Address and so on. Save the entries.
- Edit Vendor Master Data.
  Open a Vendor master data from the List Report page. You can also use the Search field and click Go button to find the Vendor master data to change. Click Edit button. This opens the Vendor data in draft mode for you to change the values. Save the changes.
- Copy Vendor Master Data.
  Select a Vendor master from the List Report page. Click Copy button. The new Vendor master data page

is displayed with all the details of the Vendor that you have selected previously, except the Business Partner Number, in draft mode. Edit the values as per your requirement. Save the entries. The Vendor master data record is saved with a new Business Partner Number.

- Time Dependency.
  If time dependency is enabled, you can set validity start date and validity end date for the fields such as Roles, Address, Address Usage, Bank Accounts, and Contacts. If time dependency is not enabled, the system considers the default values. The default values are current date (validity start date) and 31.12.9999 (validity end date).
- Address Usage.
  Allows you to manage different addresses (for example, Home Address, Business Address, Holiday Home), according to your preference. Standard Address (XXDEFAULT) is mandatory for Customer and Vendor roles.
- Attachments.
  This feature allows you to provide related attachments for Vendor master data records. The app supports only General Object Services (GOS) type attachments.
  Please also check this blog on the GOS attachments:
  https://blogs.sap.com/2020/11/03/generic-object-services-gos-attachments-for-business-partner/

For more details see the Fiori Apps Library:
https://fioriappslibrary.hana.ondemand.com/sap/fix/externalViewer/#/detail/Apps('F1053A')/S6OP

4.3. Business Partner Authorizations

The authorization concept for Customer and Vendor remains unchanged in the S/4HANA. Besides the authorization objects available in SAP ERP 6.0 for Customers and Vendors, which still will be checked, there are additional BP authorization objects 'B_BUPA*' and 'B_BUPR*'.

The security of SAP Business Partner is guaranteed by the general authorization concept of SAP Business Partner. The security of sensitive data such as payment cards can additionally be protected by using encryption. You can find the authorization objects using the transaction SU21.
For further information on Business Partner Security please refer to the link: SAP Business Partner Security - SAP Help Portal.

See below a short description of the most common authorization objects for SAP Business Partner.

Authorization Object: B_BUPA_GRP - Authorization Groups
Authorization Groups: With this authorization object you define which business partners can be edited based on the authorization group.

Authorization Object: B_BUPA_ATT - Authorization Types
Authorization Types: With this authorization object, you can define authorizations for any number of input fields in business partner maintenance. You determine which business partners may be maintained, depending on the field values. In Customizing you define an authorization type and specify the names of the fields that should be checked.

Authorization Object: B_BUPA_FDG - Field Groups
Field Groups: With this authorization object you can define authorizations for individual field groups in business partner maintenance. You thereby define which fields in business partner maintenance can be maintained or viewed by a user.
Authorization Object: B_BUPA_RLT - BP Roles
Roles: With this authorization object you define which Business Partner roles can be edited.

B_BUPR_BZT Relationship Categories
With this authorization object you establish which relationship categories can be processed.

B_BUPR_FDG Relationship Field Groups
With this authorization object you can define authorizations for individual field groups in business partner relationship maintenance. You thereby define which fields of the business partner relationship can be maintained or viewed by a user.

Payment Cards:

B_CARD_SEC
Authorization Encryption Card Master: You can use this object to regulate authorization for display and/or maintenance of payment card master data. With this object, you control the authorization for the encryption or decryption of payment card data.

B_CCARD
Payment Cards: You can use this object to regulate authorization for display and/or maintenance of payment card master data.

For more information and possible Authorization Scenarios in SAP S/4HANA please go over the following blog: https://blogs.sap.com/2020/10/16/bp-authorization-tips-and-tricks/

If you have special requirements, please see the following SAP note:
2591329 - New BADI to control field status based on combination of Header data (like Category, grouping, activity, role) with authorization check - SAP ONE Support Launchpad

4.4. Conversion Process Authorizations

To prepare the conversion and start the BP synchronization you need (amongst others) the authorizations for CVI customizing, the synchronization cockpit and the Postprocessing Office (PPO). With SAP Note 3149693 - Authorization Check for CVI_COCKPIT(CVI_COCKPIT) the CVI Cockpit has been enhanced with an authorization check on the transaction code.

Authorization Object: CVI_CUST - Process Assignment Customizing and Synchronization Reports
You use this authorization object to determine whether the assignment customizing for the attributes belonging to the object pair Business Partner-Customer/Vendor and the corresponding synchronization reports can be processed.

Authorization Object: MDS_LOAD - Synchronization (Individual and Mass Maintenance)
This authorization object checks which source objects a user can synchronize with the Synchronization Cockpit and Postprocessing Office (PPO). The Synchronization Cockpit and PPO use this authorization object for mass and individual synchronization. This authorization object does not determine whether you can edit master data.

Authorization Object: C_PRECHK_M and B_MASSMAIN
For the Master Data Consistency Check Report, the authorization objects C_PRECHK_M and B_MASSMAIN provide authorization to use the Edit feature, preventing any unauthorized operation. You can correct the master data consistency errors using the Edit only if the authorization is assigned. Also, you can Mass Populate values with these authorizations.

- Authorization object C_PRECHK_M and the activity 02 assigned
- Authorization object B_MASSMAIN, activity MASSOBJTYP and values XD99 (customer) or XK99 (vendor) assigned.

4.5. Customer Hierarchies

The Customer/Vendor Hierarchy function remains the same. There is no simplification in SAP S/4HANA.

4.6. Customer Classifications

Customer Classification is available in SAP S/4HANA.Usage of Time-Dependency

4.7. Usage of Time-Dependency

Following entities can be activated for time-dependent data:

- BUT020 - Time Dependency BP Addresses
- BUT0BK - Time Dependency BP Bank Data
- BUT100 - Time Dependency BP Roles
- CRM_BUT050 - Time Dependency: Contact Person Relationship

Default address, bank data and contact person relationship are shared with customer/vendor master using CVI. When BP is the leading object synchronized with customer/vendor (it is mandatory in S/4 and it is possible, but usually not used in ECC) it is necessary to execute report BUPTDTRANSMIT regularly (e.g. daily).

In case performance problem occurs with this program, please consider following OSS note as a workaround: 2151842 - BUPTDTRANSMIT performance problem from but000_swap and outbound.

Please note that time dependency on header level data (BUT000) is not supported in S/4HANA. Check note 2379157 - S4TWL - Business Partner BUT000/Header Level Time Dependency for details.

To activate/deactivate certain time-dependent feature use IMG-node: *SAP Customizing Implementation Guide -> Cross-Application Components -> SAP Business Partner -> Activation Switch for Functions*

5. CVI CONVERSION SCENARIOS

The diagram below shows the two different CVI Conversion scenarios: New Install (Greenfield) and Conversion (Brownfield).

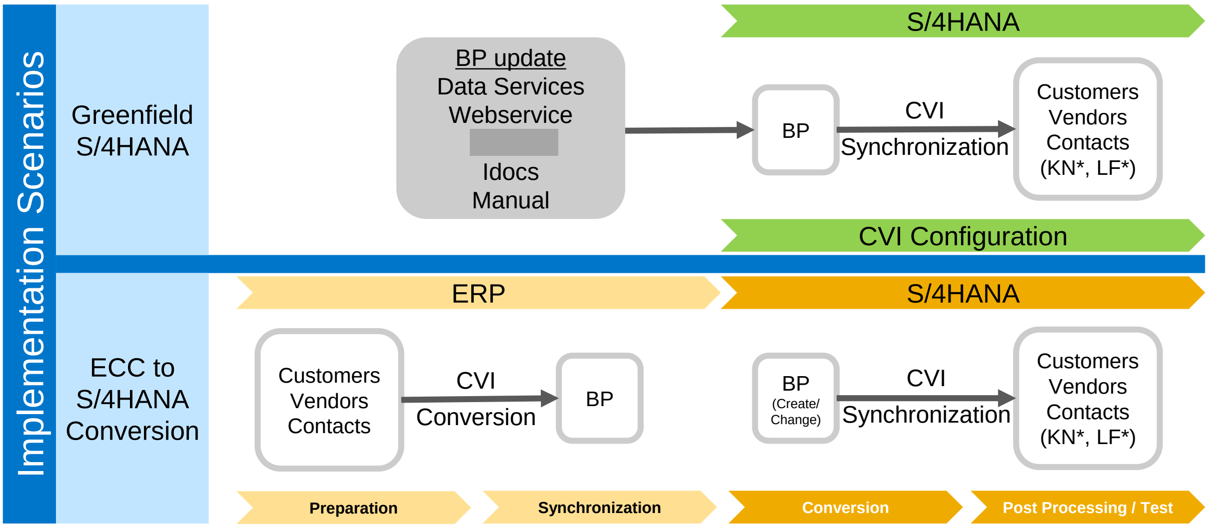


Figure 2: CVI Synchronization Scenarios.

Each scenario has its own challenges, but some general considerations and preparations are relevant for both.

Skillsets

- Functional and customizing knowledge of Customer/Vendor and BP master data is necessary (for e.g. BP number range determination)
- Technical knowledge is necessary especially for enhancements
- Basic business process knowledge in sales and procurement

Documentation

Business Partner Conversion Document, Simplification List and Enhancement cookbook should be taken to knowledge. Also, for a new installed system the Business Partner Conversion Document and Simplification List is useful to understand the CVI settings for the direction BP -> Customer/Vendor. Please refer to SAP Note 2265093 - S4TWL - Business Partner Approach to get the latest versions of the Conversion Document and the Simplification List Item “Business Partner Approach”.

General information for Customer Vendor Integration can be found in SAP Help:
SAP Help: Customer Vendor Integration.
Further links are provided throughout this cookbook and in the section 10.2 Documentation.

Enhancements

Please keep in mind that BP/CVI enhancements may require additional planning and resources during the CVI project. For the documentation and template source code please download and refer to the following sap Notes:

- SAP Note 2309153 - BP_CVI: Guideline Version 1.144 for customer enhancements in CVI (customer/vendor integration) in S4HANA releases
- SAP Note 2295823 - BP_CVI: Transfer of customer / vendor fields to the Business Partner - template source code

For further information on enhancements see also chapter 7.3.7 Check and integrate Customer/Vendor enhancements

Tools
SAP provides a report to perform CVI related configuration checks, to find out missing customizing entries and to support the creation/correction of these entries. They can be used in both scenarios. See section 7.3.2.27.3.2.2 CVI Customizing – Check**Error! Reference source not found.**
Especially for the conversion scenario there are further tools like the CVI cockpit (see section 7.2 CVI Cockpit).

SAP Notes
Chapter 10.1 SAP Notes provides an overview of all SAP Notes mentioned in this document (plus some additional notes which can be useful). To search for more CVI related SAP Notes use the search term 'BP_CVI'.

Further documentation
Chapter 10.210.2 Documentation provides links to further documentation.

6. CVI FOR NEW IMPLEMENTATION (GREENFIELD)

6.1. Configuration

As a prerequisite to configure CVI in a new installed SAP S/4HANA system, the configuration for Business Partners must be completed. Best Practice Building Blocks BN4 and J61 describe the relevant steps and configuration parameters for setting up Business Partner functionality as well as CVI settings. If a project is not based on Best Practice, use those parameters as reference only. Check, if the existing Business Partner settings meet your requirements and adjust and complete where necessary.

Building Block BN4 (2018): Basic Settings for Business Partners

This building block provides main configuration settings for the SAP Business Partner (BP) object focusing on those settings which are mandatory to create BP-Employees as part of IAM (Identity & Access Management) users.

Additional settings for the Business Partners are provided with further building blocks (e.g. J61) for which BN4 is a mandatory prerequisite.

Function list:

- BP Roles
- Number Ranges
- BP Groupings and assignment of Number Ranges
- Field Attributes per Client
- Field Attributes per BP Role
- Academic Titles
- Name Affixes
- Name Prefixes
- Marital Status
- Forms of Address
- Name Formatting Rules
- Define Address Types
- Identification Types

Building Block J61 (2018): Central Configuration for Business Partners

This building block provides main configuration settings for the SAP Business Partner (BP) object focusing on the use of BPs as BP-Customer, BP-Vendors, BP-Contacts etc. In addition, it provides settings for the "ERP" - objects "Customer" and "Vendor".

Technical settings to make use of the SAP Business Partner are provided with building block BN4. BN4 is a mandatory prerequisite for building block J61 to use the Business Partner functionality

Function list
Building Block J61 provides many configuration settings from different areas. The overview shown below is not a complete view on all settings, but a representative extract:

- Partner Determination settings for "ERP" Customer/Vendor objects
- Settings for "ERP" Customer and Vendor Account Groups
- Value table content for "ERP" Customer and Vendor fields
- Value table content for SAP Business Partner fields
- Settings for the CVI (Customer / Vendor Interface)

Building Block JA2 (2018): Sample Master Data Business Partners

This building block provides sample Business Partners (BP-Customers and BP-Contacts, BP-Vendors) for being used in a variety of scenarios like "Sell from Stock" or "Procure to Stock".

Most of the SAP Best Practices scenarios use Business Partners from this building block as sample master data for use in process scripts. Additional Business Partners for specialized scenarios are provided with other sample master data building blocks.

6.2. Migration / BP update

In a new installed system (Greenfield Approach), the upload of Business Partner data is only one of many tasks of a typical migration project. Find below an overview of available tools and interfaces.

Migration Cockpit

Migration cockpit is a tool delivered along with any installation of S/4HANA. It is intended to perform initial load of several objects (more than 150 available objects on 1909 release)
Information on Migration cockpit can be found on following links:

- help.sap.com's landing page for data migration;
- Best Practices scope item BH5: Data Migration to S/4HANA from file;
- OSS note 2537549 - Collective SAP Note and FAQ for SAP S/4HANA Migration cockpit (on premise).

Concerning business partner topic, please also refer to following OSS note:

- 2848224 - Migration Cockpit: Collective KBA for Business Partner (Customer, Supplier)

SAP Rapid Data Migration to S/4HANA

For further information on SAP Rapid Data Migration for S/4HANA on premise use the following links:

- SAP Best Practices Explorer
- SAP Note 2239701 - SAP Rapid Data Migration for SAP S/4HANA, on premise edition

IDOC

IDOCs DEBMAS and CREMAS are available in SAP S/4HANA OP 1511. Please see SAP Note 2312529 - Error in ALE inbound while receiving the data for DEBMAS and from S/4HANA 1610 onwards please consult SAP Note 2479954 - DEBMAS/CREMAS IDocs in SAP S/4HANA Business Partner..
Please also check section 9.1.2 IDocs DEBMAS/CREMAS in S/4HANA

RFC and SOA Services

Any external application creating or updating the Business Partner Master Data must use the available API (CL_MD_BP_MAINTAIN), IDOC or BP SOA Service as described in SAP Note 2417298 - Creation of Business Partner with Customer and Supplier Roles.
Please also consider following note: 2506041 - S4TWL - API RFC_CVI_EI_INBOUND_MAIN is not supported from the release S/4 HANA OP 1709 FPS2 and in Cloud Edition 1805 onwards

7. CVI SYNCHRONIZATION SYSTEM CONVERSION

7.1. Overview and Phased Approach

To ensure a successful conversion, all Customers, Vendors and Contact Persons in all clients in the respective system must be converted to Business Partners. This is also true for the Business Partners that are already in use. When the Customer/Vendor transformation process is triggered, the system posts all required fields into the Business Partner. The BP is the leading object and single-entry point to maintain Business Partner, Customer and Supplier (formerly known as Vendor) master data in SAP S/4HANA.

The entire Business Partner data transfer including conversion and Business Partner post processing activities usually takes place in four phases, which are illustrated in the following diagram.

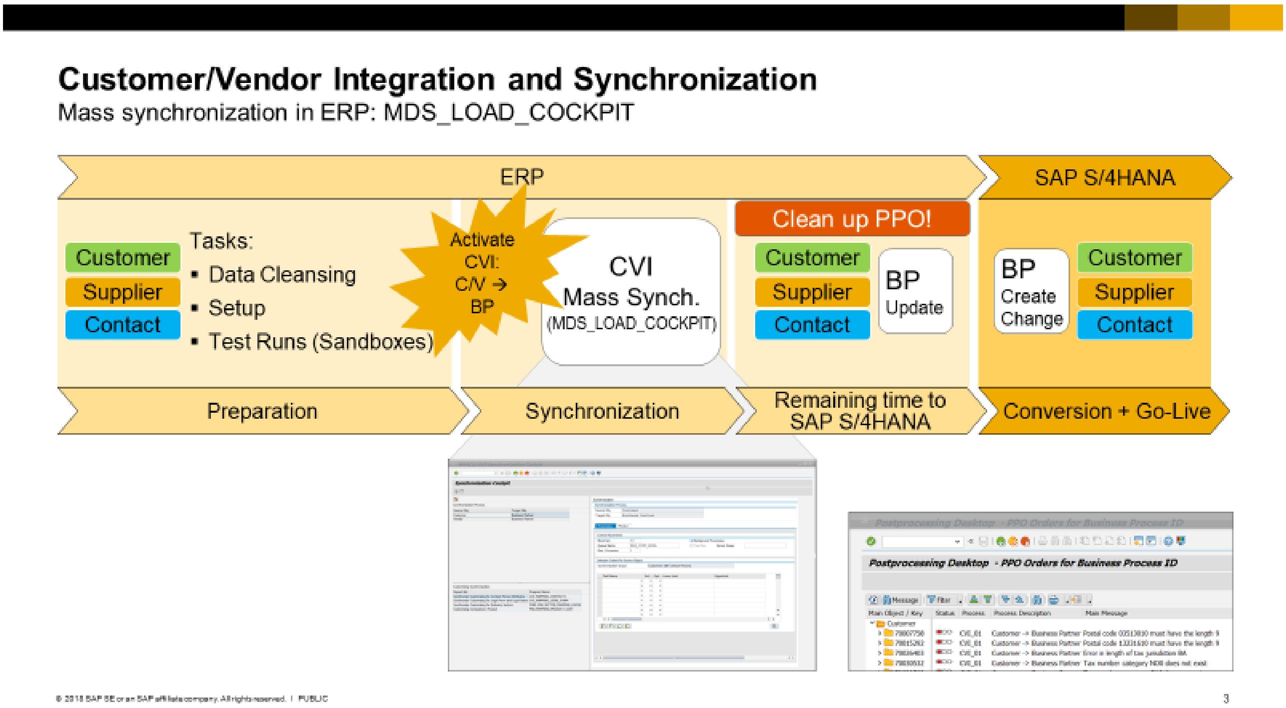


Figure 3: CVI Synchronization Process.

The transformation steps **Preparation and Synchronization** are described in detail in this document and must be executed in the defined sequence and must be repeated in case of errors.

Recommendation when to do the BP/CVI synchronization phase:
Do not include the BP/CVI synchronization phase into the SAP S/4HANA conversion phase. Do it weeks or even months before. BP/CVI synchronization should not be part of the critical path of SAP S/4HANA conversion. This avoids last minute surprises for the SAP S/4HANA conversion phase.

The conversion process must be triggered following to the SAP S/4HANA Conversion guide. The activities in the Post Processing step are also described in the mentioned document.

7.2. CVI Cockpit

This phased approach is supported with the, so called “CVI Cockpit”. This CVI Cockpit had been provided to guide the user in a sequential and logical process flow to execute CVI activities and reflects the phases of a CVI project to prepare a SAP S/4HANA conversion.

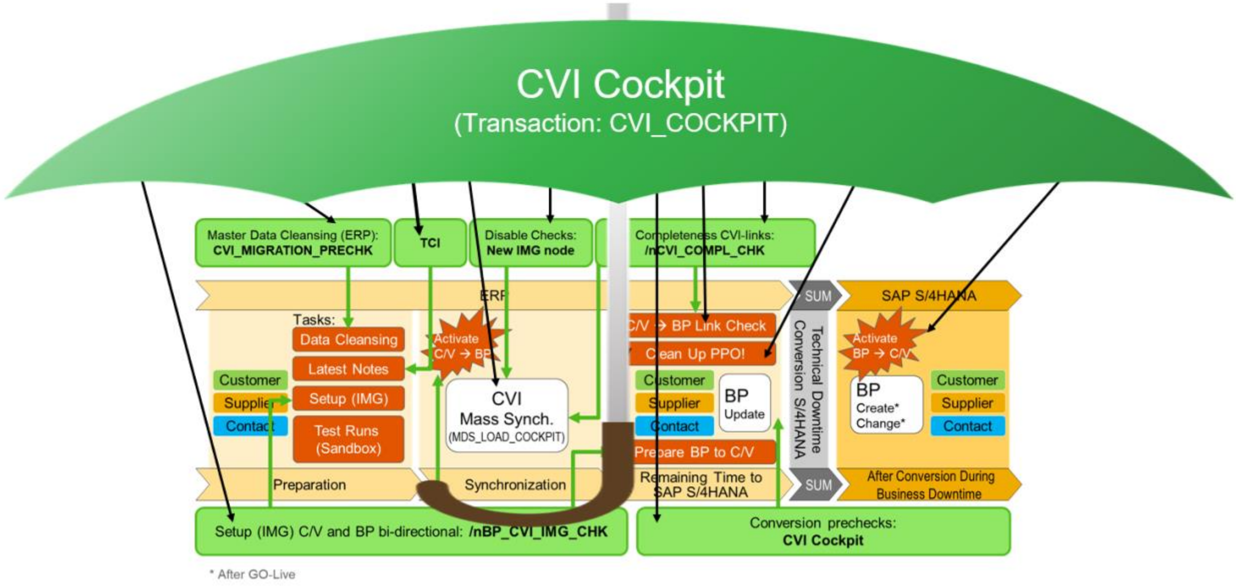


Figure 4: Phases supported by CVI Cockpit

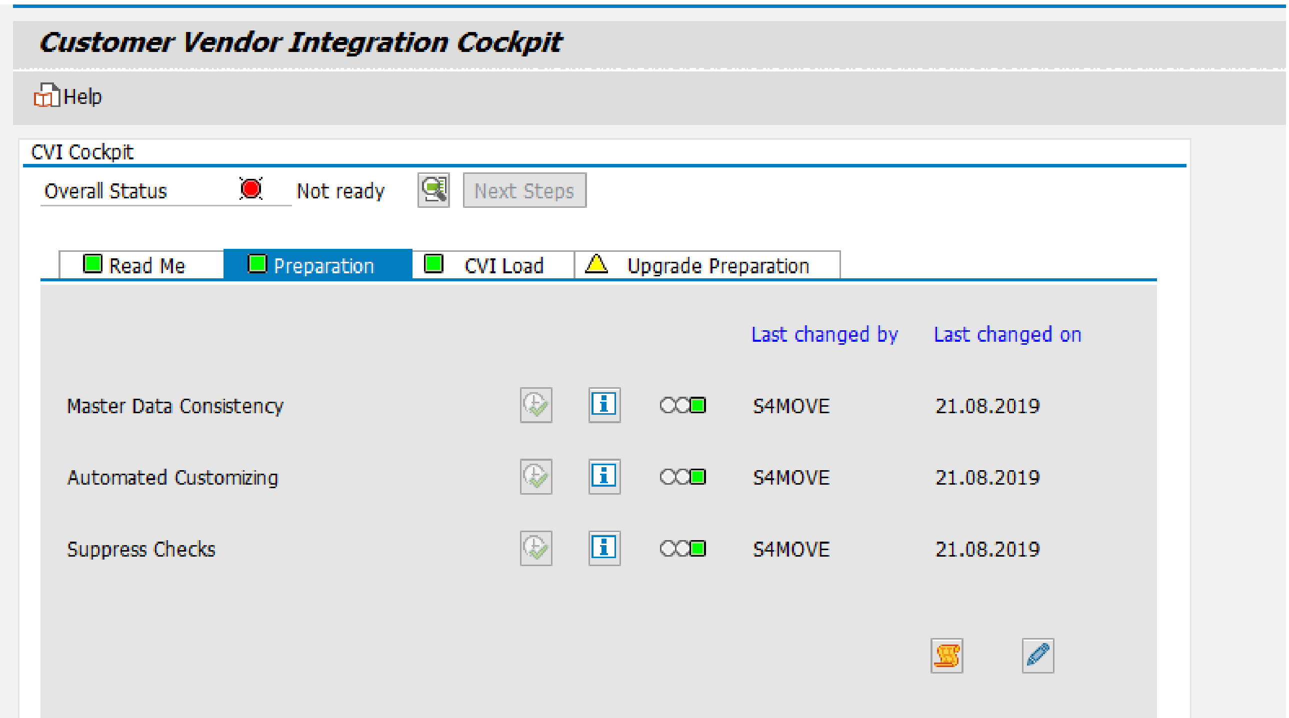


Figure 5: Transaction CVI_COCKPIT (ECC 6.0)

The CVI Cockpit collects all important activities per phase:

- Read Me
  This is the first Stage of CVI Cockpit. Users can get information about various pre-requisite OSS notes and help documentations, related to CVI migration processes. This phase consists of:
  - Note Checker (link to SAP Note 2823648 - Information on Pre-requisite SAP Notes for Business Partner CVI Synchronization, please also check section 7.3.1 TCI Note for CVITCI Note for CVI
  - CVI Library (SAP Note with important information links: 2823632 - Consulting Note for Business Partner Approach and CVI Process).

- Preparation
  This is the second Stage of CVI Cockpit. The Tasks in this stage performs necessary business checks (functional and customizing) in the Customer and Vendor master data required for CVI synchronization process to Business Partner data model. This stage also gives a provision to customize the checks which user may intend to suppress in a test or sandbox system. This phase consists mainly of
  - Master Data Consistency Check (more information in this blog post and in section 7.3.2.1 Master Data Cleansing: Master Data Consistency Check)
  - Automated Customizing (more information in this blog post and in section 7.3.2.2 CVI Customizing – Check

- CVI_LOAD
  This is the third stage of CVI Cockpit. It has a total of 8 tasks divided into three sections – Pre-Load Activities, Real Load Activities, and Post Load Activities. These tasks perform the main synchronization activities that creates BP master data in system, for all the customer and vendor records. This phase consists mainly of:
  - Pre-Load Activities
  - Real Load Activities with the launch of the main CVI load tool: SAP transaction MDS_LOAD_COCKPIT. More information in section 7.4 Synchronization.
    - this LOAD Blog Post and
    - this ERROR HANDLING Blog Post)
  - Post Load Activities

- Upgrade Preparation
  This is the fourth and currently the last Stage of CVI Cockpit. It is used once the SAP S/4HANA conversion project approaches the productive conversion. These checks are to be executed in advance to be prepared for having resolved all errors before conversion pre-checks are executed. This stage also helps to check the consistency of the BPs created. This phase consists mainly of:
  - Post Processing
  - Upgrade Prechecks

It supports a status logging. Per activity a certain status (in progress, done etc.) can be set. Once all activities per phase are done the next phase can be started. The Overall status is set automatically to "green" once all customers, vendors and their contact persons are linked with a Business Partner. Please consider: all manual status changes are logged with user and time.
If you face problems during the execution of single stages, please refer to the following Note: «3037330 - CVI_COCKPIT stages are greyed out».

The CVI Cockpit is available via SAP Note 2832085 - New Central Cockpit for Customer Vendor Integration (CVI) to Business Partner. It was introduced with ECC 6.0 EHP8 SP13 and it was down ported to ECC 6.0 EHP0 and upwards.

Also, be aware of these SAP Notes for the CVI Cockpit:

- 2850537 - DDIC Changes for Central Customer Vendor Integration (CVI) Cockpit
- 2861108 - CVI_COCKPIT: CVI_LOAD Table entries and Documentation
- 2812309 - CVI_COCKPIT: CVI_LOAD Stage
- 2891522 - CVI_COCKPIT: Navigation to new customizing check report
- 3022635 - TCI 2.0 Note for BP/CVI Update to CVI Cockpit

The following additional SAP Notes should be considered, if you encounter the described bugs in your system when implementing the CVI Cockpit or look for functional enhancements of the CVI Cockpit:

- 2898609 - Timeout or Dump after clicking "Real time status" button in CVI Cockpit.
- 3000296 - 'Overall Status' of CVI_COCKPIT remains red.
- 3015262 - Push Button 'Next Steps' not visible in CVI_COCKPIT.
- 3017965 - Enhancements to Customer Vendor Integration Cockpit (CVI_COCKPIT)

- 3147770 - DDIC for SP18 CVI-Cockpit: cross client status
- 3131243 - Customer/Vendor Integration Cockpit(CVI_COCKPIT) was enhanced with cross client synchronization status information.
- 3074379 - Retail Sites Exclusion from Customer Vendor Integration (CVI) Cockpit
- 3112307 - Retail Sites Exclusion from Customer Vendor Integration (CVI) Cockpit - Documentation
- 3149693 - Authorization Check for CVI COCKPIT(CVI_COCKPIT)
- 3139888 - Enhancements to CVI COCKPIT - Authorization Profile
- 3082229 - CVI Cockpit - Tasks executable at any time
- 2858507 - CVI_COCKPIT - Error while processing on clicking Block Maintenance transactions or Release Maintenance transactions

Please check SAP Notes regularly for latest list of pre-requisite and optional SAP Notes applicable for the implementation of the CVI Cockpit.

As the CVI Cockpit is linking to the Master Data Consistency Check (section 7.3.2.1) and the CVI Customizing Check Report (section 7.3.2.2), take notice of the referenced sections in the Cookbook and mentioned SAP Notes.
Additionally, SAP has also introduced the use of TCI (Transport-Based Correction Instruction) Note to facilitate a simpler and quicker process of implementing relevant CVI related SAP Notes. The details of TCI Note can be found in next section (section 7.3.1). The following decision flow diagram is a guide for you to evaluate how to implement the CVI Cockpit, with OR without implementing the TCI Note, into your ERP system, and what additional steps you may require based on your ERP version and support package level:

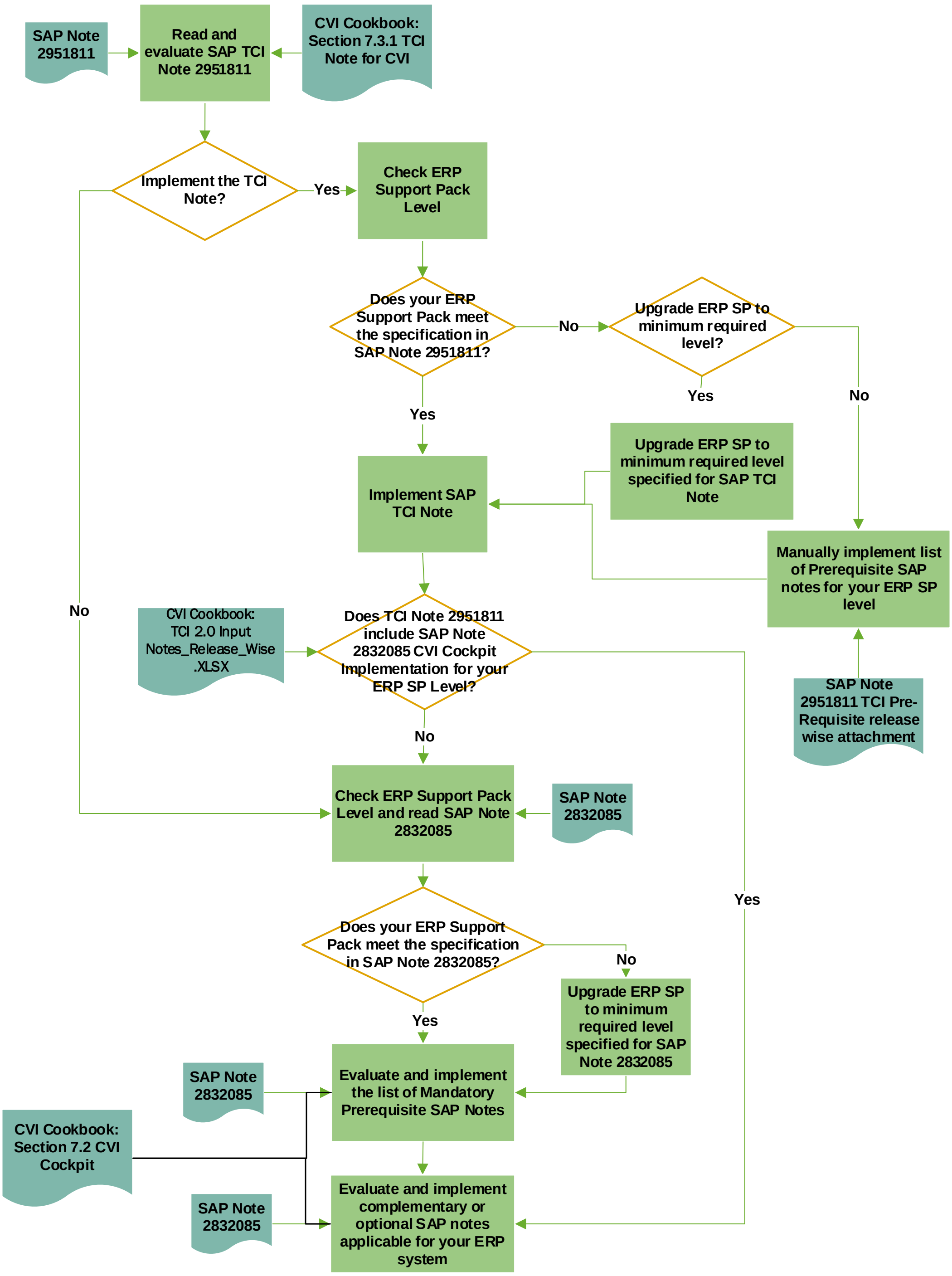


Figure 6: Preparations for the CVI Cockpit regarding SAP Notes

This blog gives an initial overview about the CVI Cockpit:
New CVI Cockpit – Enabling Movement to SAP S/4HANA through seamless BP Synchronization

As well this presentation gives an initial overview:
S/4HANA MOVE – BP/CVI - CVI Cockpit

7.3. Preparation

7.3.1. TCI Note for CVI

To ease the implementation of a big number of CVI related SAP Notes, SAP has collected CVI relevant corrections into a Transport-Based Correction Instruction note (TCI-note):

- 2951811 – Transport-based correction instructions (TCIs) for customer vendor integration (CVI) on ECC (SAP_APPL)

The implementation of this CVI TCI SAP Note is recommended in early stages of an CVI project as preparation for an SAP S/4HANA conversion project.

Transport-based correction instructions (TCI) have the following benefits compared to implementing individual SAP Notes with correction instructions (CI):

- Fast consumption of consolidated CIs
- No development skills needed for implementation due to an automatic installation process
- Support of all transport-enabled SAP ABAP objects such as DDIC, Table Content, and MIME
- No adjustment activities during SP import and upgrade for SAP standard objects
- Clear functional focus and less side-effects.
- De-implement or roll back TCI (For more information, see SAP Note 2408383 - TCI - Enabling System for SAP Note Transport-Based Correction Instruction (TCI) Rollback).

Please review this SAP Note for basic information on TCI note technology, validity, and preparation activities for applying TCI notes:

- 2187425 - Information about SAP Note Transport based Correction Instructions (TCI)

Check especially conditions related to your SAP Netweaver release.

The **most current** TCI note for CVI is:

- 2951811 – Transport-based correction instructions (TCIs) for customer vendor integration (CVI) on ECC (SAP_APPL)

Note: An earlier TCI note for CVI – SAP note 2820678 - CVI SAP_APPL TCI was first released which is now to be considered as obsolete. This old note should not be used. That´s the reason why you find in some descriptions "TCI 2.0" in relation to 2951811 – Transport-based correction instructions (TCIs) for customer vendor integration (CVI) on ECC (SAP_APPL).

In case your ERP version is of a lower Support Pack version than the minimum for TCI CVI SAP Note 2951811 – Transport-based correction instructions (TCIs) for customer vendor integration (CVI) on ECC (SAP_APPL), consider one of the following 2 options advised:

1. **Either**, perform Support Pack upgrade to at least the minimum Support Pack version for TCI CVI SAP Note
2. **Otherwise**, manually apply SAP Notes from the list of SAP Notes contained in TCI CVI SAP Note applicable for your ERP version and support package level.

For the specific list of SAP Notes covered in TCI CVI SAP Note 2951811 – Transport-based correction instructions (TCIs) for customer vendor integration (CVI) on ECC (SAP_APPL) for your ERP Support Pack level, please refer to the *TCI 2.0 Input Notes_Release_Wise.xlsx* attachment of SAP KBA Note 3147029 - Guided Answer - CVI Cockpit and TCI for CVI. This SAP KBA Note provides a helpful guided answer on this as well.

Be aware, that the TCI note gives a good coverage of about 600 to over 1000 SAP Notes (depending on your ERP Support Pack level), but doesn´t guarantee 100% SAP Note coverage for CVI. New SAP Notes in the CVI functional area can be released at any time without being immediately embedded in the CVI TCI SAP Note.

Please also be aware of this additional SAP Note for the CVI TCI SAP Note:

- 2850361 - Delivery of texts (DE/EN) for language-dependent objects of TCIs for customer/vendor integration (SAP Note 2818292)

7.3.2. S/4HANA Pre-Checks and Check Reports

SAP supports a conversion project by providing pre-checks that identify the required steps to ensure that the system is compatible with the conversion process.

The SAP S/4HANA Transition Checks are intended for mandatory checks and its use is enforced by the upgrade tool. The upgrade tool will ensure that the SAP S/4HANA Transition Checks are executed and that the transition is performed only when all checks have been completed successfully.

Also, there are reports available to perform configuration checks, to find out missing customizing entries and to support the creation/correction of these entries. Additionally, the reports can be used to perform post checks after initial load. Those are included in CVI Cockpit.

Check reports can be launched from the CVI Cockpit. For CVI Cockpit overview see section 7.17.1 Overview and Phased Approach for CVI Cockpit overview and SAP Notes.

Previously used reports like PRECHECK_UPGRADATION_REPORT, CVI_UPGRADE_CHECK_RESOLVE, CVI_FS_CHECK_CUSTOMIZING or ZCUSTOMER_LINK_CHECK_REPORT should not be used any more, the following check reports which are linked into the CVI Cockpit should be used.

7.3.2.1. Master Data Cleansing: Master Data Consistency Check

During synchronization of customer and vendor masters to BP the content of certain fields is checked against current valid rules. Some fields (e.g., tax numbers) are going to be mapped to native BP-fields (e.g., Tax Codes). Old or inconsistently entered values lead to errors during the synchronization run. To check most common errors beforehand, SAP provides transaction CVI_PRECHK (report CVI_MIGRATION_PRECHK).

Remark: This report covers only the most important master data functional checks with respect to business partner conversion. The list of checks is not as extensive as the checks that are taken place in MDS_LOAD_COCKPIT during the actual conversion.

It provides the advantage, that you can run this check without having done the BP/CVI customizing.

The report can be used to check data quality and track data cleansing. It is also possible to change wrong or missing field content and to execute mass changes for the same type of error. A master data correction is possible either directly in the error list or via direct jump into master data maintenance transactions XD02/XK02.

Address Cleansing with SAP Data Quality Management (DQM)

Address cleansing is possible with the help of SAP Data Quality Management (DQM). For more information about DQM, see SAP Data Quality Management.

The Master Data Consistency Check report is also compatible with Data Quality Management (DQM) 4.0 SP10 for address validations based on the configured Postal Address directories. However, microservice capabilities are only supported with DQM 4.1 version.

Please check here for details:
https://help.sap.com/viewer/39615c43587c4405aba2de8ebf33cd66/6.18.15/en-US/cab77276399f4088999c0c8269f7333b.html

It´s possible to trigger an immediate check rerun from the error list with the given selection criteria.

Selection Screen:

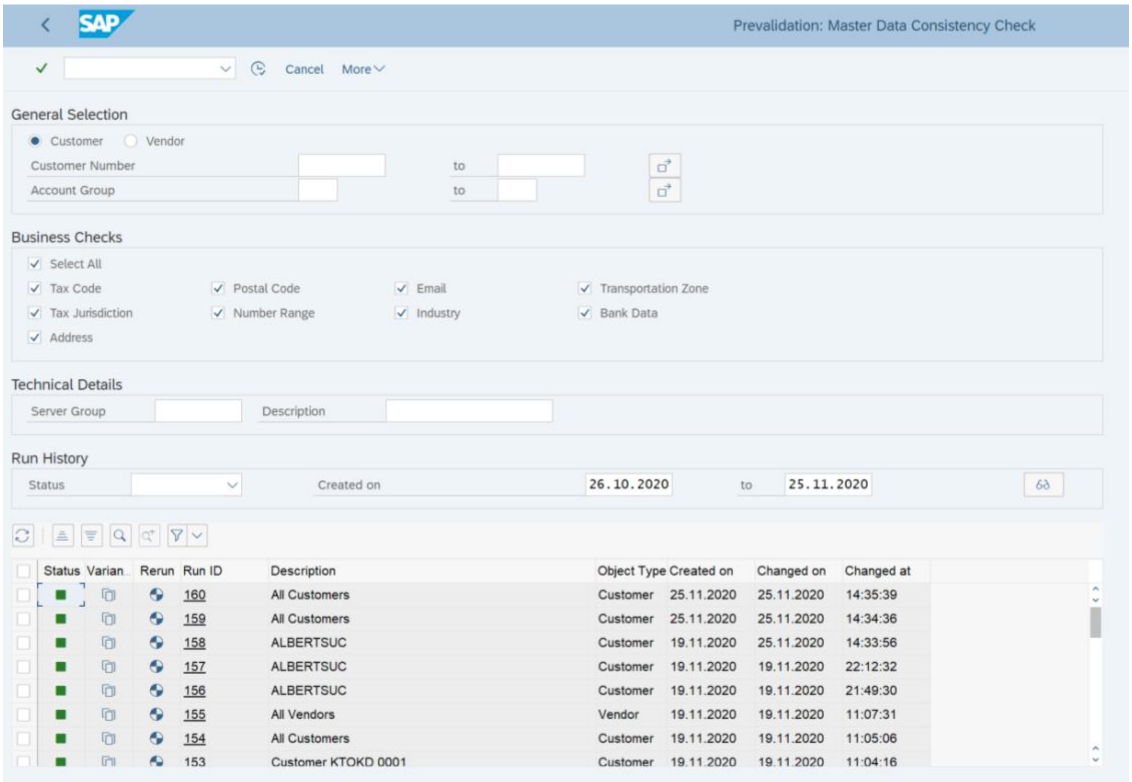


Figure 7: Selection Screen of Master Data Consistency Check

Result:

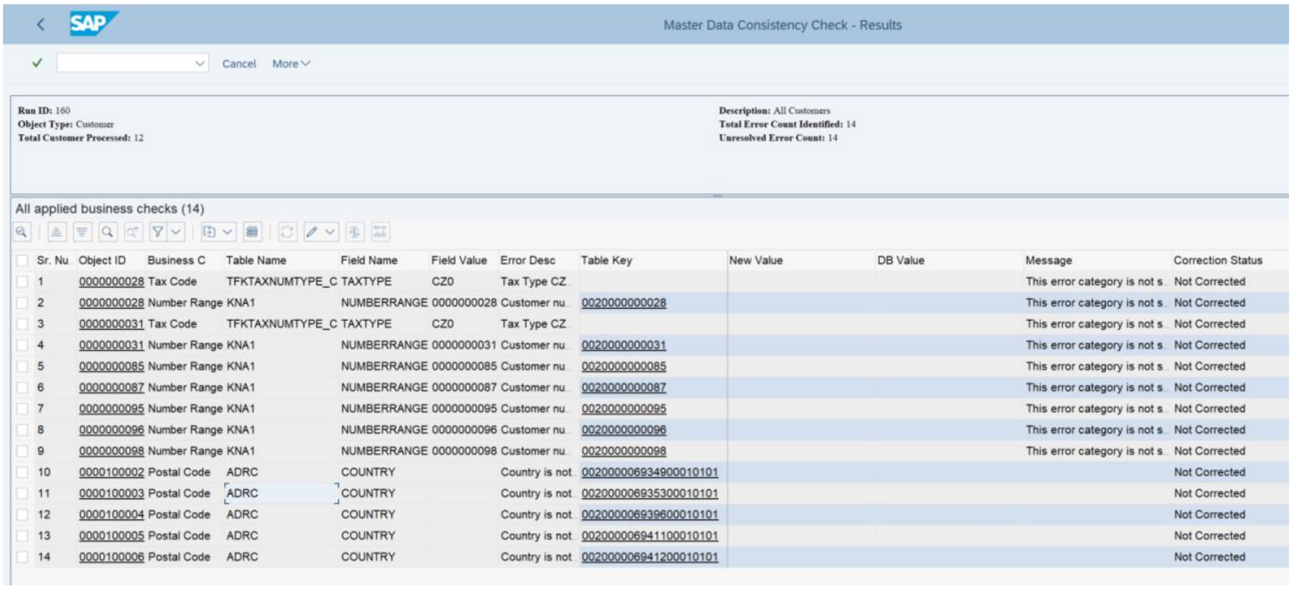


Figure 8: Result list of Master Data Consistency Check

If the report is missing (lower ECC6 support package stacks), please check these SAP Notes::

Main Note: 2743494 Prevalidation: Master Data Consistency Check

- 2942339 Prevalidation: Master Data Consistency Check V2 - DDIC creation
- 2891951 Enhancements to Prevalidation: Master Data Consistency Check Report
- 2949093 Enhancements to Prevalidation: Master Data Consistency Check Report – Authorization Object
- 2949094 Prevalidation: Master Data Consistency Check Report -Authorization Object: DDIC

- 2958796 Vendor data is not getting saved from Prevalidation: Master Data Consistency Check Report
- 2996762 Industry checks are not getting performed in Master Data Consistency Check (Tcode CVI_PRECHK) report
- 2968936 Master Data Consistency Check Report - Address Cleansing based on Data Quality Management (DQM): DDIC Creation
- 2957924 Master Data Consistency Check Report - Address Cleansing based on Data Quality Management (DQM)

A number range for number range number ‘01’ for object ‘CVI_PRECHK’ must be added with transaction SNUM so that run IDs can be created (see SAP note 2963656 - Transaktion CVI_PRECHK is not working).

The document “BP_Conversion_Document.pdf” attached with the SAP Note 2265093 - S4TWL - Business Partner Approach2265093 - S4TWL - Business Partner Approach contains information about the Master Data Consistency Check Report in the sections 3 and 6.2.

There´s also an informative blog available:
Business Partner CVI – Master Data Consistency Checks supporting the SAP S/4HANA MOVE

7.3.2.2. *CVI Customizing – Check*

The transaction BP_CVI_IMG_CHK “CVI Customizing – Check Report” (ABAP report CVI_CUSTOMIZING_RESOLVE) helps you with setting up the necessary BP and CVI customizing for both directions, customer/vendor to BP and BP to customer/vendor. It´s integrated into the CVI Cockpit on the “Preparation” tab as “Automated Customizing” and on the “Upgrade Preparation” tab as “Preupgrade Customizing Check”.

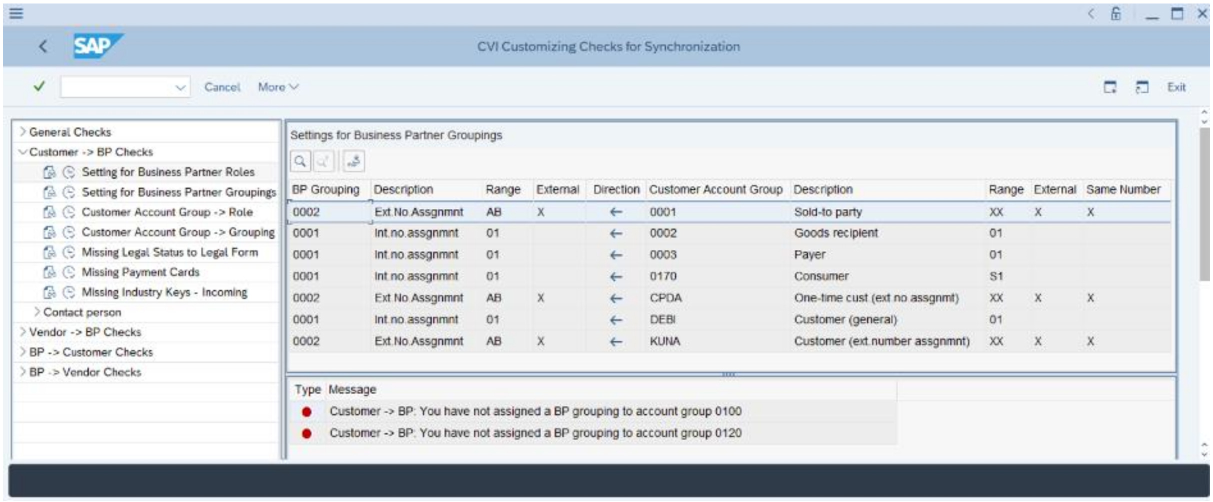


Figure 9: Example Snapshot of the CVI Customizing Check

It shows error messages for customizing which is used in master data (where applicable) and it provides for each check a link to respective customizing settings for resolution and for some even inline customizing is possible.

CVI/BP customizing steps are described in detail in this cookbook, this check report supports you with the additional checks and direct access to customizing maintenance.

There´s also an informative blog available:
https://blogs.sap.com/2020/03/31/cvi-customizing-check-report/

Please check this note if you miss the report in your system:
2891455 - New Customizing Check Report for SAP S/4HANA Master Data Migration (BP<->CVI)

7.3.2.3. *CVI Completeness – Check*

The transaction CVI_COMPL_CHK (ABAP report CVI_COMPLETENESS_CHECK) provides the list of Customers, Vendors and Contact Persons which have not yet been converted to Business Partners. You can select a range for which you want to view the missing information. It´s possible to download the lists as MS Excel files which can be directly uploaded to MDS_LOAD_COCKPIT for a subsequent run. They are exported into files with these names in the default location, C:\Temp\CVI.

- unsync_customers.xls
- unsync_customers_contacts.xls
- unsync_suppliers_contacts.xls
- unsync_suppliers.xls

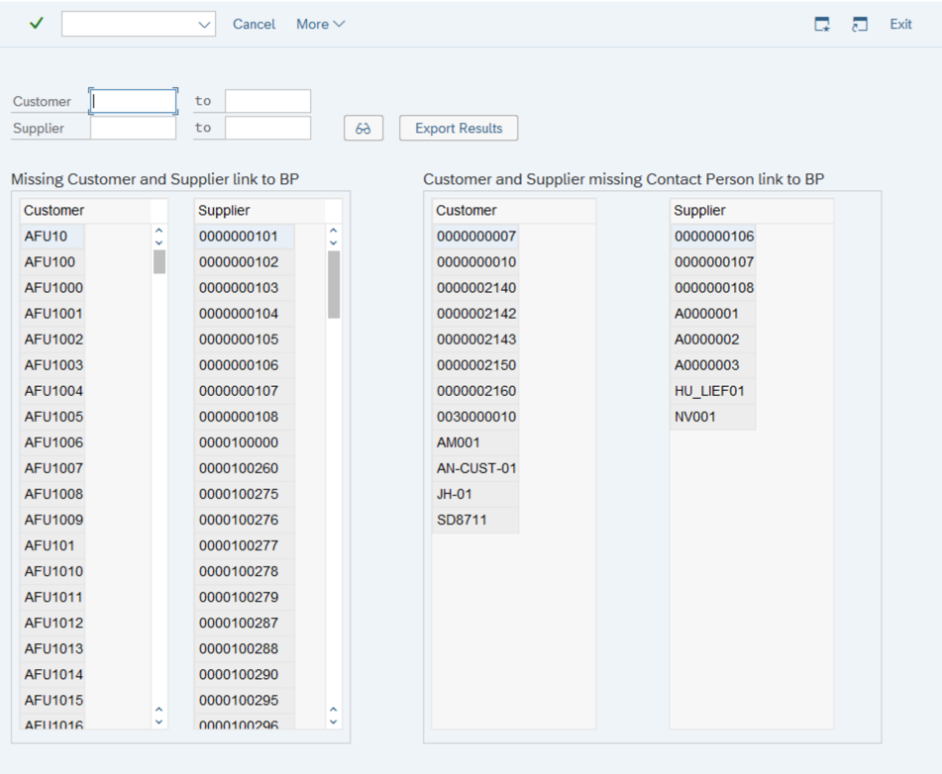


Figure 10: Example Snapshot of the CVI Completeness Check

7.3.3. Archive Customer/Vendor data with deletion flag

Before you execute the transformation for all Customer/Vendor data without restrictions, SAP recommends archiving the Customers/Vendors with the deletion flag. Also, Customers/Vendors with deletion flag which are not archived must be converted to BPs

Archiving is an optional step. It can be skipped if no added value is provided by the process. Archiving could simplify CVI conversion if Customer or Vendor objects settings were removed from the IMG, e.g., obsolete number range. If you plan to archive, it is recommended to mark deletion flag for archive **before activating Customer/Vendor-to-BP synchronization**. Marking deletion flag with Customer/Vendor-to-BP synchronization on will also convert the Customer/Vendor to Business Partners with archiving flag set. The Customers and Vendors with deletion flags could be converted to Business Partners.

Archiving Customer Data
Use the following link to reach the SAP Help Portal: Archiving Customer Master Data (FI-AR, SD)

Path:
From SAP help portal (help.sap.com), search for SAP ERP and from here go to SAP Library.
In SAP Library, go to “SAP ERP Cross-Application Functions”, then go to “Scenarios in the Applications”, then to “Data Archiving (CA-ARC)” and then to “Financial Accounting (FI)”. From here, go to following path:

Financial Accounting (FI) > Archiving Financial Accounting Data (FI) > Archiving Customer Master Data (FI-AR, SD)

Archiving Vendor Data
Use the following link to reach the SAP Help Portal: Archiving Vendor Master Data (FI-AP)

Path:
From SAP help portal (help.sap.com), search for SAP ERP and from here go to SAP Library.
In SAP Library, go to "SAP ERP Cross-Application Functions", then go to "Scenarios in the Applications", then to "Data Archiving (CA-ARC)" and then to "Financial Accounting (FI)". From here, go to following path:
Financial Accounting (FI) > Archiving Financial Accounting Data (FI) > Archiving Vendor Master Data (FI-AP)

Archiving in Customer/Vendor Integration
The impact of archiving in environments where CVI is activated is described in SAP Help. Use link to reach the relevant section: Archiving in Customer/Vendor Integration

Path:
From SAP help portal (help.sap.com), search for SAP ERP and from here go to SAP Library.
In SAP Library, go to "SAP ERP Cross-Application Functions", then expand "Cross-Application Components" node and click on "Master Data Synchronization". From here, go to following path:
Customer/Vendor Integration > Archiving in Customer/Vendor Integration

7.3.4. Check dependencies with SAP CRM

If you are using SAP CRM and planning to convert from SAP ERP 6.0 to SAP S/4HANA you need to perform the pre-conversion actions described in SAP Note 2285062 - S4TWL: Business partner data exchange between SAPCRM and S/4 HANA, on-premise edition **before** activating the CVI and starting mass synchronization. Please consider referenced notes here (e.g., GUID exchange with CRM).

For more details see section 9.4 CRM.

7.3.5. Contact Person mapping

If you are using Vendors with Contact Persons and planning to convert from a release below SAP ERP 6.0 EHP 5 (SAP_APPL 605) you need to ensure to review the SAP Note 2711712 - How to map vendor contact person to BP for various ECC system release and consider the following the SAP Notes:

2383051 - Development of vendor contact person mapping to business partner
2421613 - Switch - Mapping of vendor contact person to business partner
2638156 - Contact person address changes are not correctly updated to the related BP person

This ensures a proper mapping from Contact Person to Business Partner. Therefore, this is not relevant for systems which do not have vendors with assigned contacts. You can check the existence of such vendors in table KNVK where LIFNR has non-initial values (KNVK-LIFNR <> '').

7.3.6. Activate Business Functions

For the transformation, the Business Functions **CA_BP_SOA** must be active. As a prerequisite Business Function **CA_SUPPLIER_SOA** must be activated first.

CA_BP_SOA contains the switches 'VENDOR_SFWS_SC1' and 'VENDOR_SFWS_SC2' which must be active for the Vendor contact person data to be synchronized with Business Partner contact person data.

Should the Business Function CA_BP_SOA not yet exist in the system, you must create a new Business Function in the Customer namespace with the switches VENDOR_SFWS_SC1 and VENDOR_SFWS_SC2. The new customer-specific Business Function must be of type Enterprise Business Function (G). See SAP Note 1454441 - Development of contact person for vendors.

You can check this with transaction SFW5. In case of the transformation, the business functions activation leads to the selection of the table KNVK with the WHERE condition LIFNR <> SPACE.
You can activate the business function in transaction SFW5. Set Planned Status to True and activate the changes.

Make sure that both switches have “Global status” as On after activation.

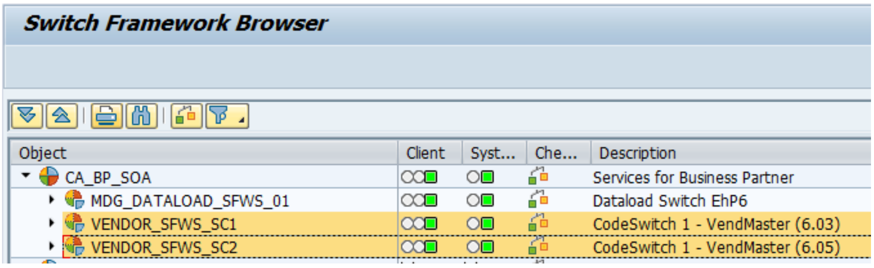


Figure 11: Activate Business Functions.

7.3.7. Check and integrate Customer/Vendor enhancements

If you need to include customer-specific Customer/Vendor fields in transaction BP, it is necessary to integrate these additional fields in the Business Partner and CVI.

The SAP Note 2309153 provides a document that explains how to make customer enhancements to the Customer/Vendor integration in order to integrate additional Customer/Vendor fields in the Business Partner and to use CVI synchronization to update them in the Customer/Vendor

The guide of SAP Note 2309153 refers to example classes that are delivered with SAP Note 2295823. It’s also possible to create and use these classes in an SAP ERP Suite system as of Enhancement Package 6.

Use the links below to access the above-mentioned SAP Notes:
- SAP Note 2309153 - BP_CVI: Guideline Version 1.14 for customer enhancements in CVI (customer/vendor integration) in S/4HANA releases
- SAP Note 2295823 - BP_CVI: Transfer of customer / vendor fields to the business partner - template source code

The general mechanism to include customer enhancements in Business Partner and CVI is the following.

The BDT (Business Data Toolset) is used to enhance the existing screens in transaction BP with the additional required fields, tables and/or checkboxes. The XO (Extensible Objects) framework is used to validate and to store the data in the memory. BAdI implementations within the CVI synchronization collect the data from XO memory and save it to the database, in case additional data is not part of the complex interface structure.

The document provided with SAP Note 2309153 contains further references to documentation describing the technical requirements and processes to include customer enhancements in Business Partner and CVI. You can also access these sources by using the links below.

Topic	**Reference**
BDT (Business Data Toolset)	BDT Developers Manual https://help.sap.com/viewer/8e1936ace52649b28ef5dc48cafe30c6/750%20SP16/en-US/44bd8d5377a0ec23e10000000a174cb4.html
XO Framework (Extensible Objects)	SAP Note 1623809 - Developer documentation for the XO framework
CVI (Customer/Vendor Integration)	SAP Note 956054 - BP_CVI: Customer/vendor integration as of SAP ERP 6.0 Help Portal

Topic	Reference
	https://help.sap.com/viewer/6db8ae6e26e64854bc6f369d2dfd395f/6.18.13/en-US/771dc753b1081d4be10000000a174cb4.html
Easy Enhancement Workbench (EEW)	Help Portal https://help.sap.com/viewer/2eb99edb9d99472d9afa587acddd7a7c/750%20SP16/en-US/12b98d5377a0ec23e10000000a174cb4.html
Business Partner Extensibility	Help Portal https://help.sap.com/viewer/725b6ad626684262b8d74a55fc8ed089/750%20SP16/en-US/a6af8d5377a0ec23e10000000a174cb4.html

7.3.8. Check and adjust CVI/BP Customizing

Please consider the CVI Cockpit (section 7.2 CVI CockpitCVI Cockpit) and the linked CVI Customizing Check (section 7.3.2.2 CVI Customizing – Check) as guiding support for the CVI/BP customizing with helpful checks.

Remark
The screenshot field values in the following chapters are for reference ONLY.

7.3.8.1. Master Data Synchronization

7.3.8.1.1. Function Modules for Data Distribution (CRM)

For CVI/BP - CRM integration related topics please cross-check section 9.49.4 CRMCRM.

7.3.8.1.2. Activate Creation of Post Processing Orders

In the standard system, creation of post processing orders is deactivated for all business processes. For this reason, before you can use the *Post processing Office*, you must carry out this IMG activity.

IMG -> Cross-Application Components -> General Application Functions -> Post processing Office -> Business Processes -> Activate Creation of Post processing Orders

Activate Creation of Postprocessing Orders for component **AP-MD** and Business Processes **CVI_01** (Customer > Business Partner) and **CVI_02** (Vendor > Business Partner). Mark the checkbox to activate the entries.

You can already insert the entries for the business processes CVI_03 (Business Partner > Customer) and CVI_04 (Business Partner > Vendor) without activation checkbox marked.

After the successful synchronization of data, you must activate CVI_03 and CVI_04. See paragraph 7.6 Post Conversion Activities

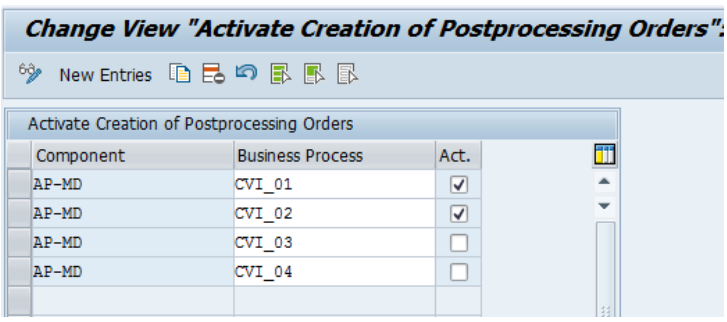


Figure 12: Activate Creation of Postprocessing Orders.

7.3.8.1.3. Activate PPO requests for Platform Objects

Use this IMG activity to define for which platform objects a post-processing request (PPO request) is to be written in the event of a synchronization error. This definition is not direction-specific, meaning a request should always be written when the platform object is used either as a source or as a target object in the synchronization.

IMG -> Cross-Application Components ->Master Data Synchronization -> Synchronization Control -> Synchronization Control -> Activate PPO Requests for Platform Objects in the Dialog

Create a new entry for the synchronization object **BP** (Business Partner) and mark the checkbox **"PPO Active".**

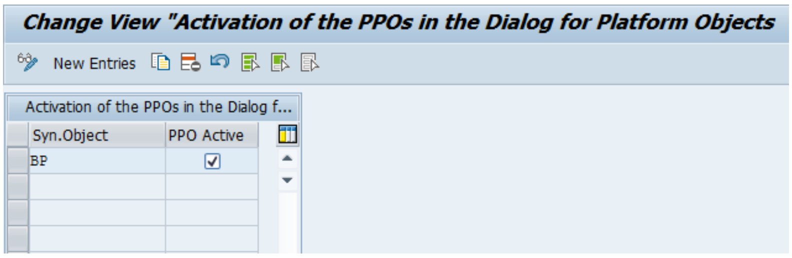


Figure 13: Activation of the PPO's in the Dialog for Platform Objects.

Remark
You can display synchronization objects provided by SAP for the master data synchronization with the following:

IMG -> Cross-Application Components ->Master Data Synchronization -> Synchronization Control -> Synchronization Control -> Synchronisation Objects

For Business Partner, Customer and Vendor the following entries must exist

Syn. Object	Sync. Mode	Extractor Class	Descriptio n	Platform	Block Size
BP	For Synchronous Comparison and Mass Data Loads	CVI_BP_EXTRACTOR	Business Partner	X	50
CUSTOMER	For Synchronous Comparison and Mass Data Loads	CMD_EI_API_EXTRACT	Customer		50
VENDOR	For Synchronous Comparison and Mass Data Loads	VMD_EI_API_EXTRACT	Vendor		50

7.3.8.1.4. Activate Synchronization Options

Using this IMG activity, you can configure the direction in which data is synchronized between the Customer/Vendor and the Business Partner. Data can be synchronized in both directions. This means that you can update data from the Business Partner to the Customer/Vendor and from the Customer/Vendor to the Business Partner.

IMG -> Cross-Application Components -> Master Data Synchronization -> Synchronization Control -> Synchronization Control -> Activate Synchronization Options

Insert new entries for

- Source Object Customer and Target Object BP
- Source Object Vendor and Target Object BP

Activate both entries by marking the activation indicator checkbox.

You can already insert the entries for

- Source Object BP and Target Object Customer
- Source Object BP and Target Object Vendor

without activation checkbox marked.

After the successful synchronization of data, you must activate these entries. See paragraph 7.6 Post Conversion Activities

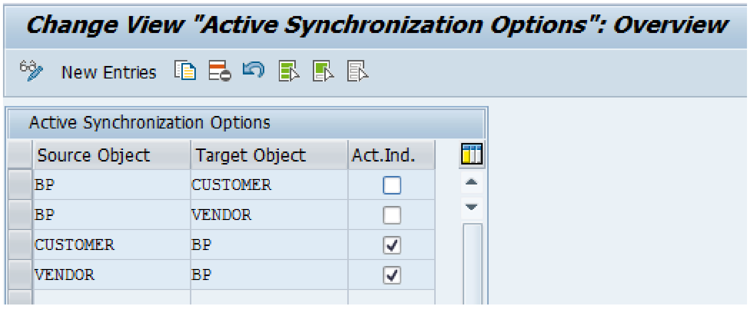


Figure 14: Settings for "Active Synchronization Options" before synchronization.

Remark
A synchronization option is a combination of source synchronization object and target synchronization object. Synchronization options can be maintained with transaction SM30, view **MDSV_CTRL_OPT**. The following entries must exist (predefined):

Source Object	Target Object	Strategy Implementation	Queue Name
BP	CUSTOMER	CVI_STRATEGY_BP_CUSTOMER	MDS_BUPA_CUST
BP	VENDOR	CVI_STRATEGY_BP_VENDOR	MDS_BUPA_VEND
CUSTOMER	BP	CVI_STRATEGY_CUSTOMER_BP	MDS_CUST_BUPA
VENDOR	BP	CVI_STRATEGY_VENDOR_BP	MDS_VEND_BUPA

7.3.8.2. Number Ranges and Groupings

7.3.8.2.1. Overview

A central task for Customer/Vendor integration is the definition and assignment of number ranges for Business Partners.

SAP recommends that you keep the Customer/Vendor number the same when converting to Business Partner (BP). When deciding for this approach please consider following remarks:
When the same number is used for a different Customer and Vendor, you must give one of them a different BP number. Additionally, you should allocate identical numbers to new Business Partners when assigning numbers to Customer/Vendor and Business Partners. If you assign identical numbers, this avoids confusion at the application level (when two different numbers appear for the Business Partner within a transaction). This is not possible in every case, for example, if SAP Business Partners already exist in the system prior to conversion or the number ranges in ECC for customers and vendors overlap.

The following principles should be considered:

- If your currently used number ranges for Customers and Vendors are disjoint, the Business Partner number range should be defined as a mirror image of the Customer/Vendor number ranges.
- If your currently used number ranges for Customers and Vendors are not disjoint, the Business Partner number range should be defined in such a way that most numbers from Customer/Vendor can be reused.
- If Customer/Vendor numeric numbers should be taken over to Business Partner
  - To allow the Customer/Vendor numeric numbers to be taken over to the Business Partner the numeric intervals of the Business Partner number ranges must be set to external during the synchronization phase in ECC.
  - After the successful data synchronization and before the Business Partner becomes the leading object in S/4HANA, the numeric intervals of the Business Partner must be changed back to internal. Additionally, the Customer/Vendor numeric number range must be set to external to allow identical numbers for Customer/Vendor and Business Partner.

The selected account group of the Customer/Vendor master record determines the number assignment of the Business Partner to be created.

If you create the Customer/Vendor and the Business Partner, the following combinations and necessary activities can result relating to the selected account group of the Customer/Vendor and the number assignment of the Business Partner:

Selected Account Group	Activity
You have selected an account group with internal number assignment to which a Business Partner grouping with internal number assignment is assigned.	The system automatically generates the Customer/Vendor number and the Business Partner number.
You have selected an account group with internal number assignment to which a Business Partner grouping with external number assignment is assigned. The number equivalence has been activated.	The system specifies the automatically selected Customer/Vendor number as the Business Partner number for Business Partner processing.
You have selected an account group with external number assignment to which a Business Partner grouping with internal number assignment is assigned.	You manually enter the Customer/Vendor number to be used in Customer/Vendor processing. The system automatically generates an internal Business Partner number.
You have selected an account group with external number assignment to which a Business Partner grouping with external number assignment is assigned. The number equivalence has been activated.	You manually enter the Customer/Vendor number to be used in Customer/Vendor processing. The system automatically specifies the selected Customer/Vendor number as the Business Partner number for Business Partner processing.

Background information and example

The Business Partner in table BUT000, the Customer in table KNA1 and the Vendor in table LFA1 use independent number range objects.
For the sake of simplification, we are focusing in this example on the Business Partner and Customer.
You create each Business Partner in a specific Business Partner grouping. The account group defines the number range of the Customer master record. Both groups determine the number range in which a Business Partner and a Customer are created. The link between these objects must be configured in customizing for the Customer/Vendor Integration (CVI). Before you can assign identical numbers, you have to make sure that the number ranges for the respective Customer/Vendor account group and the Business Partner grouping are identical too.

The following example shows existing Business Partners created with internal numbers and Customer created with internal numbers with overlapping number range 01.

BP Groupings

Grouping	Short Name	Description	Number range	External
0001	Int.No.Assignment	Internal Number Assignment	01	

Intervals Business Partner

NR	From No.	To No.	Nr Status	External
01	0000000001	0999999999	5000	

Account Groups (Customer)

Group	Name	Number Range
DEBI	Customer (general)	01

Intervals Customer

NR	From No.	To Number	Nr Status	External
01	0000100000	0000199999	100010	

Since only To Number can be changed for an internal number range you must:
1. Change the "To Number" for the Business Partner interval to e.g. 0000099999.
2. Create a new Range 02 and mark for external
3. Change the BP grouping number range to 02

Intervals Business Partner

NR	From No.	To No.	Nr Status	External
01	0000000001	0000099999	5000	
02	0000100000	0000199999	-	X

BP Groupings

Grouping	Short Name	Description	Number range	External
0001	Int.No.Assignment	Internal Number Assignment	02	X

Configure CVI to assign the Customer/Vendor numbers to the BP.

Number Assignment for Direction Customer to BP

Group	Grp.	Same numbers
DEBI	0001	

During the synchronization, the new Business Partners are now created from the Customer with the same numbers (External flag marked for the number range).

After S/4HANA go-live and as a post conversion task, you should change the number range again in such a way that new identical numbers are created for Business Partner and Customers by defining a new range for Business Partner and Customer.
1. Create a new BP number range 03
2. Change the BP groupings number range to 03
3. Create new Customer number range 02 (external)
4. Change the account groups range to 02

Intervals Business Partner

NR	From No.	To No.	Nr Status	External
01	0000000001	0000099999	5000	
02	0000100000	0000199999	-	X
03	0000200000	0000300000		

BP Groupings

Grouping	Short Name	Description	Number range	External
001	Int.No.Assignment	Internal Number Assignment	03	

Intervals Customer

NR	From No.	To Number	Nr Status	External
01	0000100000	0000199999	100010	
02	0000200000	0000300000		X

Account Groups (Customer)

Group	Name	Number Range
DEBI	Customer (general)	02

Configure CVI to use same numbers for direction BP to Customer.

Number Assignment for Direction BP to Customer

Grouping	Short Name	Account Group	Name	Same numbers
001	Int.No.Assignment	DEBI	Customer (general)	X

You can use the Excel format below to document the existing settings and your changes.

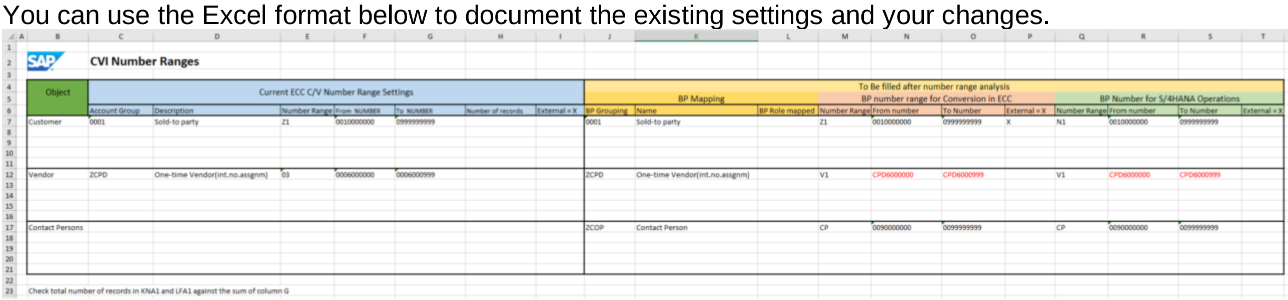


Figure 15: Excel format for documenting settings.

Please find this Excel here.

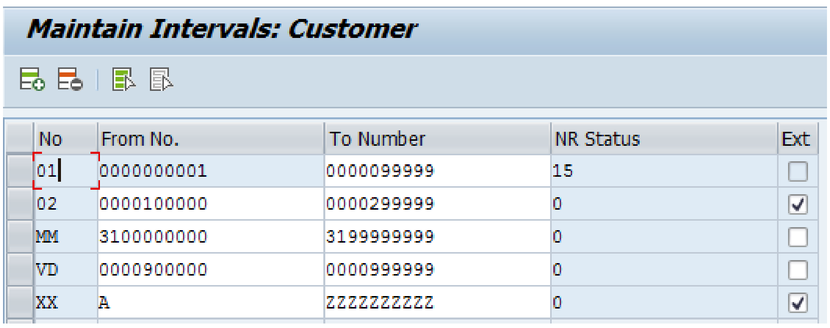
The following paragraphs explain the configuration settings used in the example above more in detail.

7.3.8.2.2. Define Number Ranges for Customer Master Records

In this IMG activity, you define the number intervals of the number ranges for Customer master records. When creating a Customer master record, a unique number which identifies the master record is assigned. The number comes from the number range that is provided for the account group.

Define Number Ranges for Customer Master

IMG -> Logistics - General -> Business Partner -> Customers -> Control -> Define and Assign Customer Number Ranges -> Define Number Ranges for Customer Master



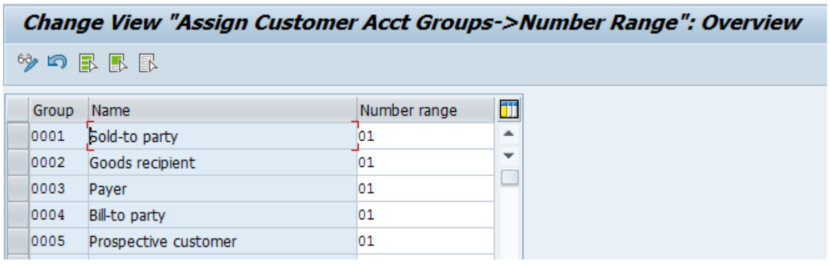
Maintain Intervals: Customer

No	From No.	To Number	NR Status	Ext
01	0000000001	0000099999	15	☐
02	0000100000	0000299999	0	☑
MM	3100000000	3199999999	0	☐
VD	0000900000	0000999999	0	☐
XX	A	ZZZZZZZZZZ	0	☑

Figure 16: Maintain Customer Number Ranges.

Assign Number Ranges to Account Groups (Customer)

IMG -> Logistics - General -> Business Partner -> Customers -> Control -> Define and Assign Customer Number Ranges -> Assign Number Ranges to Account Groups



Change View "Assign Customer Acct Groups->Number Range": Overview

Group	Name	Number range
0001	Sold-to party	01
0002	Goods recipient	01
0003	Payer	01
0004	Bill-to party	01
0005	Prospective customer	01

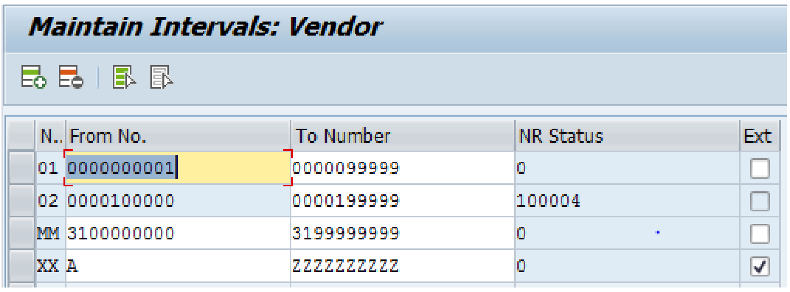
Figure 17: Assign Customer Account Group Number Range.

7.3.8.2.3. Define Number Ranges for Vendor Master Records

In this IMG activity, you define the number intervals of the number ranges for Vendor master records. When creating a Vendor master record, a unique number which identifies the master record is assigned. The number comes from the number range that is provided for the account group.

Define Number Ranges for Vendor Master

IMG -> Logistics - General -> Business Partner -> Vendors -> Control -> Define Number Ranges for Vendor Master Records -> Intervals



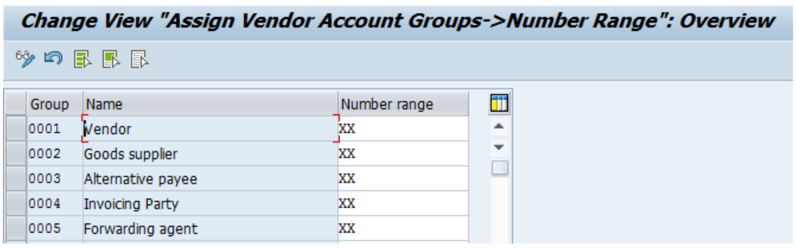
Maintain Intervals: Vendor

N..	From No.	To Number	NR Status	Ext
01	0000000001	0000099999	0	☐
02	0000100000	0000199999	100004	☐
MM	3100000000	3199999999	0	☐
XX	A	ZZZZZZZZZZ	0	☑

Figure 18: Maintain Vendor Numbe Ranges.

Assign Number Ranges to Account Groups (Vendor)

IMG -> Logistics - General -> Business Partner -> Vendors -> Control -> Define Number Ranges for Vendor Master Records -> Intervals



Change View "Assign Vendor Account Groups->Number Range": Overview

Group	Name	Number range
0001	Vendor	XX
0002	Goods supplier	XX
0003	Alternative payee	XX
0004	Invoicing Party	XX
0005	Forwarding agent	XX

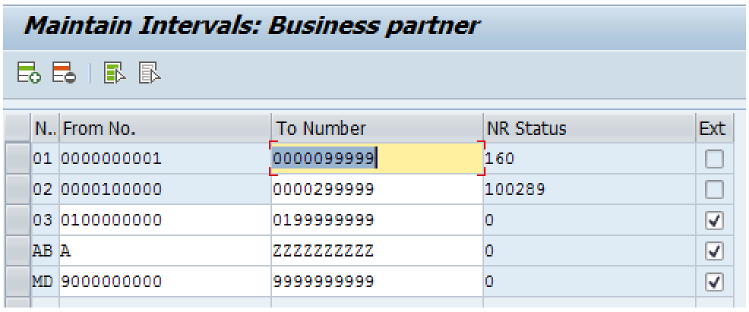
Figure 19: Assign Vendor Account Group Number Range.

7.3.8.2.4. Define Number Ranges and Grouping for Business Partner

In this IMG activity, you define number ranges for Business Partners. The defined number ranges are assigned to groupings in the **Define groupings and assign number ranges** activity.

Define Number Ranges for Business Partner

IMG -> Cross-Application Components -> SAP BusinessPartner -> Business Partner -> Basic Settings -> Number Ranges and Groupings -> Define Number Ranges



Maintain Intervals: Business partner

N..	From No.	To Number	NR Status	Ext
01	0000000001	0000099999	160	☐
02	0000100000	0000299999	100289	☐
03	0100000000	0199999999	0	☑
AB	A	ZZZZZZZZZZ	0	☑
MD	9000000000	9999999999	0	☑

Figure 20: Maintain Business Partner Number Ranges.

For at least one number range which you are using for Customers, the *External Assignment* checkbox may not be selected as the customizing view **Define groupings and assign number ranges** (see following chapter) requires one number range as the standard range for internal number assignment and one as the standard range for external number assignment. Otherwise, the Business Partner will not be created. This means that you must define at least 2 number ranges, if you want to take over the actual Customer numbers to Business Partner numbers: one where the *External Assignment* checkbox is not selected and another one where the checkbox is selected.

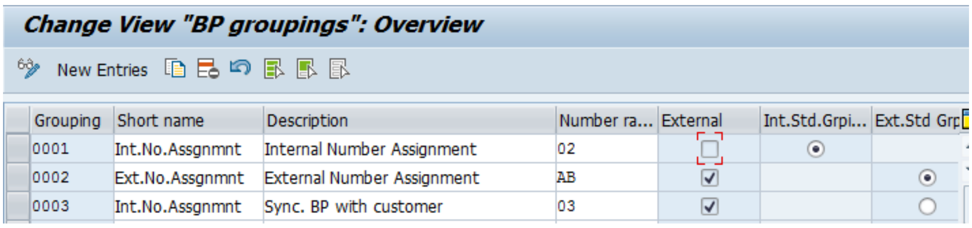
See the example in section 'Overview' above for an explanation on how to adjust the Business Partner number ranges dependent on the Customer and Vendor number ranges.

Each Business Partner must be assigned to a grouping. It determines how an entry is made in the *Business Partner Number* field. If you want to take over the numbers of your Customers from your current system, you must define at least 2 groupings:

- For the 1st grouping, the *Internal Standard Grouping* radio button must be selected.
- For the 2nd grouping the External Standard Grouping radio button must be selected. To this grouping, you must assign the number range which you are using for your actual Customer numbers (which is assigned to the Customer account group).

Define Groupings and Assign Number Ranges

IMG -> Cross-Application Components -> SAP BusinessPartner -> Business Partner -> Basic Settings -> Number Ranges and Groupings -> Define Groupings and Assign Number Ranges



Change View "BP groupings": Overview

New Entries

Grouping	Short name	Description	Number ra...	External	Int.Std.Grpi...	Ext.Std Grp
0001	Int.No.Assgnmnt	Internal Number Assignment	02	☐	◉	
0002	Ext.No.Assgnmnt	External Number Assignment	AB	☑		◉
0003	Int.No.Assgnmnt	Sync. BP with customer	03	☑		○

Figure 21: Maintain Business Partner Groupings.

It is recommended to create a BP grouping for each account group. For simplicity, use the same identifiers. See also the example in chapter 7.3.8.2.8.Example of a typical business requirement

Important

CVI conversion report MDS_LOAD_COCKPIT will assign an internal Business Partner number to contact persons during conversion. The internal number range is the number range assigned to the internal standard grouping. If the assigned internal number range overlaps with the targeted Customer or Vendor number ranges, the number range for contact person must be changed to a new range outside the targeted Business Partner numbers for the Customers and Vendors. Do not share the same number range with other Business Partner groupings. The overlap of the contact person number could cause error – R1124 "Business partner with GUID xxxxx does not exist".

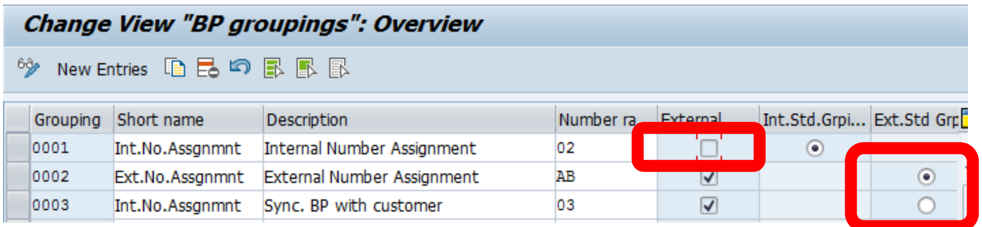


Figure 22: Maintain Business Partner Groupings.

7.3.8.2.5. Define Number Range for Relationships

For internal administration of BP relationships and BP role definitions an internal number is required from the number range interval "01". Respective number range object is “BU_RELNR”.
Note: The number range interval “01” does not need to be assigned to anything (e.g., to any relationship type).

Define Number Ranges (for Relationships)

IMG -> Cross-Application Components -> SAP Business Partner -> Business Partner Relationships -> Basic Settings -> Define Number Ranges

Usually number range interval "01" is shipped with SAP Standard. If it does not exist it has to be maintained, e.g.

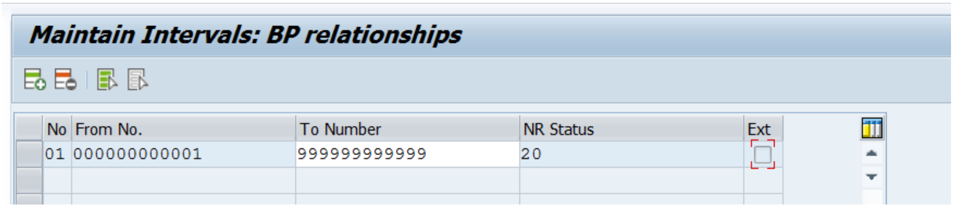


Figure 23: Define Number Ranges: BP Relationships

If the number range interval is missing error message R1 735 (R1735 - Number range interval BU_RELNR for number range object 01 incorrectly maintain.) appears.

7.3.8.2.6. Assign Business Partner Roles to Account Groups

In this IMG activity, you assign BP roles to the account group for the Customer or Vendor master record in which the Business Partner is to be created when processing the Customer or Vendor.

When you process the Customer or Vendor as part of Customer/Vendor Integration, the system creates a Business Partner with the BP roles that are assigned to the respective account group.

To ensure application scenarios are working with new Business Partner master data, it is necessary to convert the Customers/Vendors to Business Partners assigning all necessary roles like General Vendor / General Customer, FI Vendor / FI Customer, Purchase Organization, etc.

For Customers, enter at least BP Roles FLCU00 (company data) and FLCU01 (sales data). For Vendors, enter at least FLVN00 (company data) and FLVN01 (purchasing data).

You can assign more than one BP role to an account group.

Recommendation(s):
SAP delivers following “CVI”-roles for

- customers: FLCU00 (General Data + Company Code Data, FLCU01 (General Data + Sales Data)
- suppliers: FLVN00 (General Data + Company Code Data), FLVN01 (General Data + Purchasing Data)

The recommendation would be to use these standard roles. Usually it is not necessary to add roles for CVI. It is also not recommended to map BP roles to customer/vendor account groups in a 1:1 relationship. Here you find a comparison between BP roles and customer/vendor account groups:

BP Roles	Customer/Vendor Account Groups
Multiple roles can be assigned at the same time	C/V is assigned to 1 Account Group
can be • deleted • restricted (time-dependend) • added • excluded (Prospect and Customer at the same time)	can be switched (e.g. Ship-to -> Sold-to)
Can be time dependent	Not time dependency
Define a “view” on BP master data (other role = other “view” on BP = different fields/entities are available)	restrict the fields that can be displayed/changed
Can control field modification	Usually control field modification (2516606 - BP_CVI: Taking into account the FI-specific field modification of customer and vendor in transaction BP)
Do not control numbering	Control numbering
Control certain functions (e.g. CVI)	Control completely different functions (e.g.usage for partner functions)

Along with field modification mapping to business partner field groups in transaction BP please also check this information:

- SAP Note 2603898 BP_CVI: Composite SAP Note for consideration of FI field modifications (FMOD1) in transaction BP in CVI in SAP S/4HANA
- SAP Note 2848273 CVI_BDT: Find reason for field status (required, hidden etc.) of fields in transaction BP ("Check Visibility Report")
- Blog “Tips and Tricks on Field Modifications in Transaction BP, CVI in S/4HANA” https://blogs.sap.com/2020/06/17/tips-and-tricks-on-field-modifications-in-transaction-bp-cvi-in-s-4hana/

Important:
If you are planning to use SAP Credit Management after system conversion, you can directly assign the Business Partner Role for Credit Management to the relevant Business Partners by assigning the role to the relevant account groups. As a prerequisite, you need to activate the role first. See chapter 9.39.3., Credit ManagementCredit Management, for further information. Otherwise, you need to manually assign the role to each Business Partner after system conversion.

Customer to BP

IMG -> Cross-Application Components -> Master Data Synchronization -> Customer/Vendor Integration -> Business Partner Settings -> Settings for Customer Integration -> Define BP Role for Direction Customer to BP

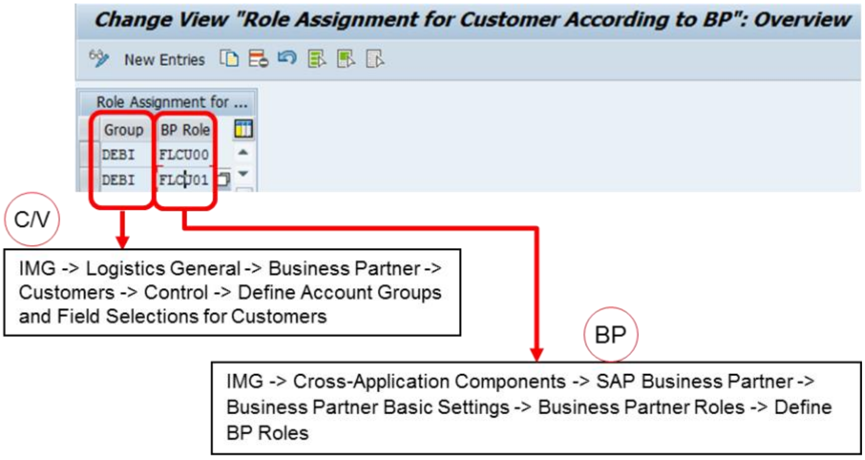


Figure 24: Maintain Role Assignment for Customer.

Vendor to BP

IMG -> Cross-Application Components -> Master Data Synchronization -> Customer/Vendor Integration -> Business Partner Settings -> Settings for Vendor Integration -> Define BP Role for Direction Vendor to BP

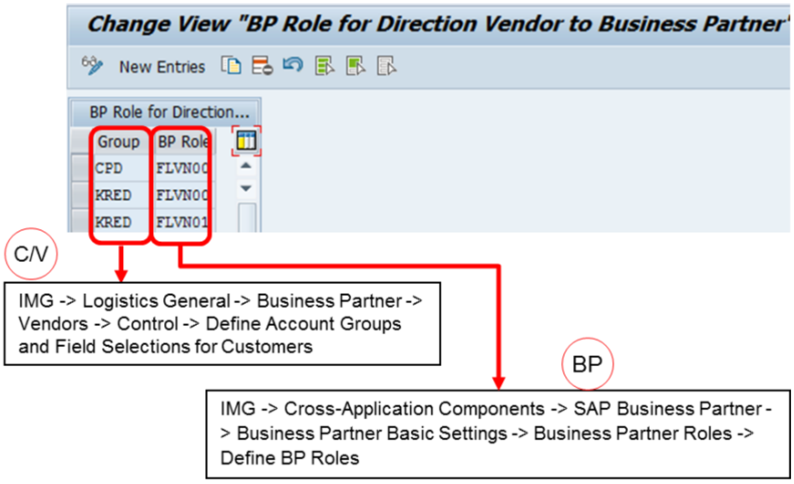


Figure 25: Maintain Role Assignment vor Vendor.

7.3.8.2.7. Number assignments (CVI-Target: Business Partner)

In this IMG activity, you assign the **groupings** for the Business Partner to the **account groups** for the **Customer/Vendor master records** to ensure that when you process Customers/Vendors as part of Customer/Vendor Integration the system also updates the Business Partner at the same time. With this assignment, you choose whether the Business Partner is to be created with a grouping with internal or external number assignment or with identical numbers.

Number Assignment (Customer to BP)

IMG: Cross-Application Components -> Master Data Synchronization -> Customer/Vendor Integration -> Business Partner Settings -> Settings for Customer Integration -> Field Assignment for Customer Integration -> Assign Keys -> Define Number Assignment for Direction Customer to BP

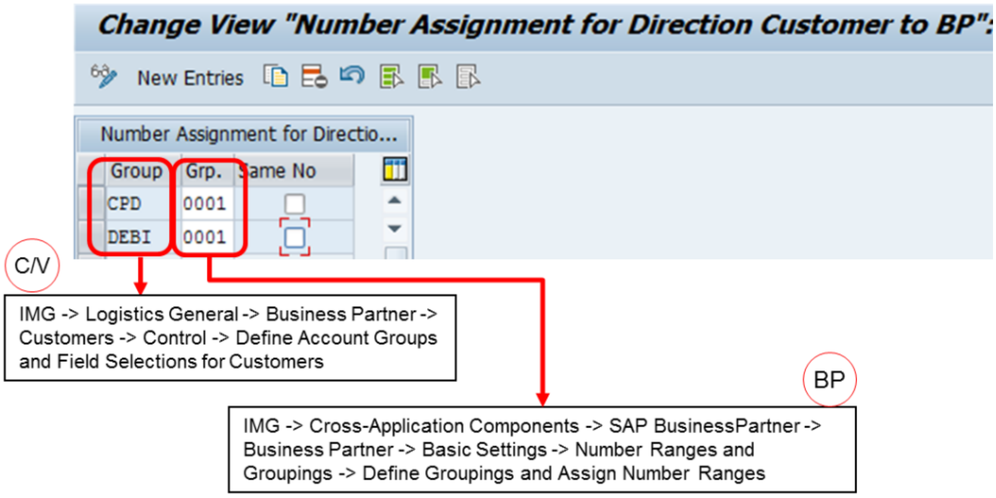


Figure 26: Number Assignment for Customer.

Number Assignment (Vendor to BP)

IMG: Cross-Application Components -> Master Data Synchronization -> Customer/Vendor Integration -> Business Partner Settings -> Settings for Vendor Integration -> Field Assignment for Vendor Integration -> Assign Keys -> Define Number Assignment for Direction Vendor to BP

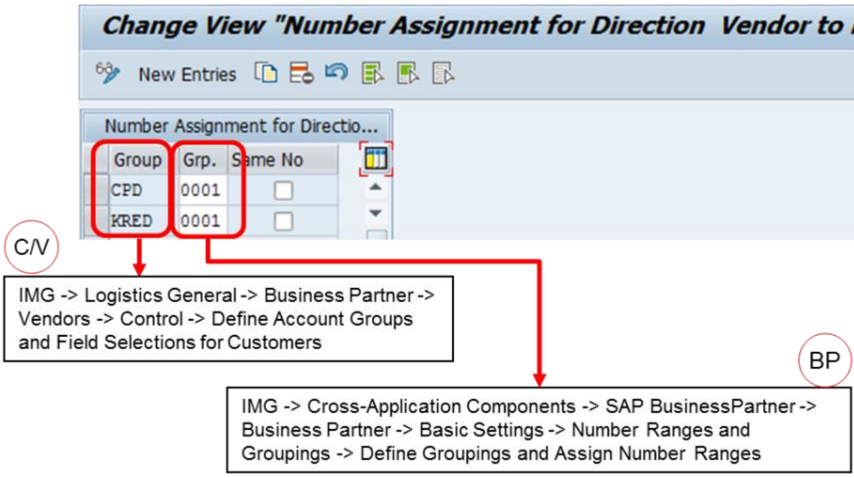


Figure 27: Number Assignment for Vendor.

7.3.8.2.8. Example of a typical business requirement

The following example describes a typical business requirement which can be solved by configuring number ranges and groupings.

Scenario

Current sold-to, ship-to, bill-to and payer Customers have different number ranges and reduced data input fields, and we want to keep the same number ranges in Business Partner

Resolution

1. Define the same number ranges in BP.
2. Create BP Grouping for each Customer account group, and assign the corresponding number range. The same name could be used as BP grouping names if they are available.
3. Map the Customer account groups to the BP groupings between Customer and BP
4. For taking into account the field modifications of customer and vendor in transaction BP please refer to SAP Note 2516606 - BP_CVI: Taking into account the FI-specific field modification of customer and vendor in transaction BP

Please consider also note 2603898 - BP_CVI: Composite SAP Note for consideration of FI field modifications (FMOD1) in transaction BP in CVI in S/4HANA in that context providing a collection of latest explanations, enhancements and corrections regarding this topic.

5. The partner function display in BP screen will be controlled by the existing partner function determination.

Along with field modification mapping to business partner field groups in transaction BP please also check this information:

- SAP Note 2603898 BP_CVI: Composite SAP Note for consideration of FI field modifications (FMOD1) in transaction BP in CVI in SAP S/4HANA
- SAP Note 2848273 CVI_BDT: Find reason for field status (required, hidden etc.) of fields in transaction BP ("Check Visibility Report")
- Blog "Tips and Tricks on Field Modifications in Transaction BP, CVI in S/4HANA" https://blogs.sap.com/2020/06/17/tips-and-tricks-on-field-modifications-in-transaction-bp-cvi-in-s-4hana/

7.3.8.3. Customer Value Mapping (Contact Person)

Attribute value mapping must be maintained and must be equal for every existing Customer instance.

7.3.8.3.1. Activate Assignment of Contact Persons

In this IMG activity, you activate the assignment of contact persons.

You activate the assignment if both of the following statements are true:

- Contact person attributes are to be processed in the Business Partner or in the Customer master record.
- You want to assign attributes to ensure that the contact person is synchronized as part of Customer integration.

See also the information regarding contact person number ranges and grouping in chapter 7.3.8.2.4 Define Number Ranges and Grouping for Business Partner.

IMG -> Cross-Application Components -> Master Data Synchronization -> Customer/Vendor Integration -> Business Partner Settings -> Settings for Customer Integration ->Field Assignment for Customer Integration -> Assign Attributes -> Contact Person -> Activate Assignment of Contact Persons

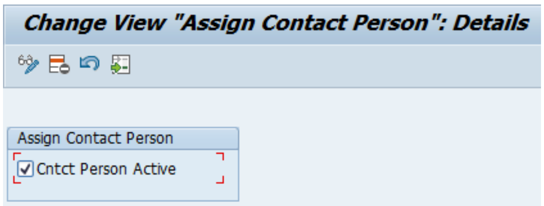


Figure 28: Activate Assignment of Contact Persons.

7.3.8.3.2. Assign Department Numbers for Contact Person

In this IMG activity, you assign the department numbers for the Business Partner to the department numbers for the contact person in the Customer master record.

IMG -> Cross-Application Components -> Master Data Synchronization -> Customer/Vendor Integration -> Business Partner Settings -> Settings for Customer Integration -> Field Assignment for Customer Integration -> Assign Attributes -> Contact Person -> Assign Department Numbers for Contact Person

The values in column **Dept (CVI)** are the values used in Customer master data for contact persons. The values in column **Department (BP)** are used in Business Partner master data for contact persons. Ensure that you have maintained the corresponding values in both areas and that you assigned all values for Customer master to values for Business Partner and vice versa.

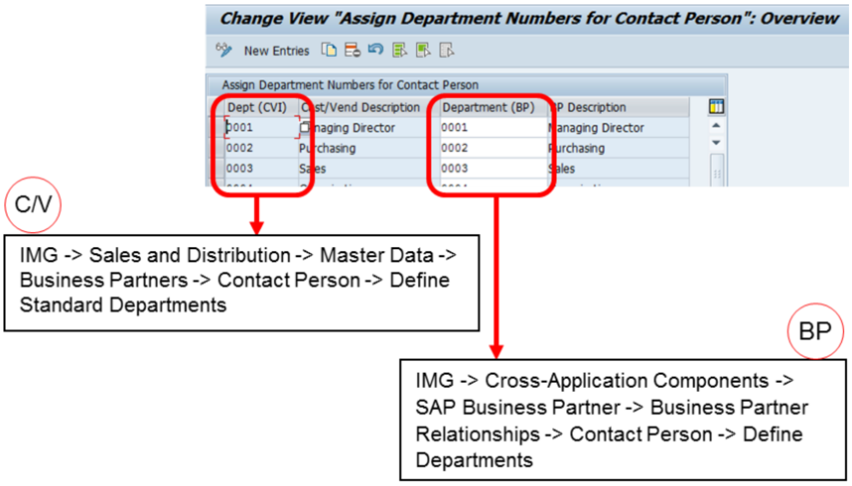


Figure 29: Assign Department Numbers for Contact Person.

7.3.8.3.3. Assign Functions of Contact Person

In this IMG activity, you assign the functions for the Business Partner to the contact person functions in the Customer master record.

IMG -> Cross-Application Components -> Master Data Synchronization -> Customer/Vendor Integration -> Business Partner Settings -> Settings for Customer Integration -> Field Assignment for Customer Integration -> Assign Attributes -> Contact Person -> Assign Functions of Contact Person

The values in column **Function (CVI)** are the values used in Customer master data for contact persons. The values in column **Function (BP)** are used in Business Partner master data for contact persons. Ensure that you have maintained the corresponding values in both areas and that you assigned all values for Customer master to values for Business Partner and vice versa.

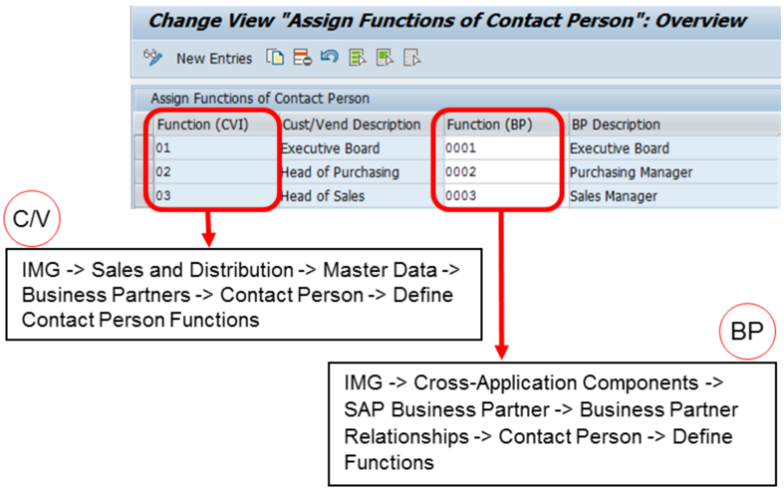


Figure 30: Assign Functions of Contact Person.

7.3.8.3.4. Assign Authority of Contact Person

In this IMG activity, you assign the partner's authority for the Business Partner to the partner's authority for the contact person in the Customer master record.

IMG -> Cross-Application Components -> Master Data Synchronization -> Customer/Vendor Integration -> Business Partner Settings -> Settings for Customer Integration -> Field Assignment for Customer Integration -> Assign Attributes -> Contact Person -> Assign Authority of Contact Person

The values in column **PoAtt (CVI)** are the values used in Customer master data for contact persons. The values in column **Pwr of Att. (BP)** are used in Business Partner master data for contact persons. Ensure that you have maintained the corresponding values in both areas and that you assigned all values for Customer master to values for Business Partner and vice versa.

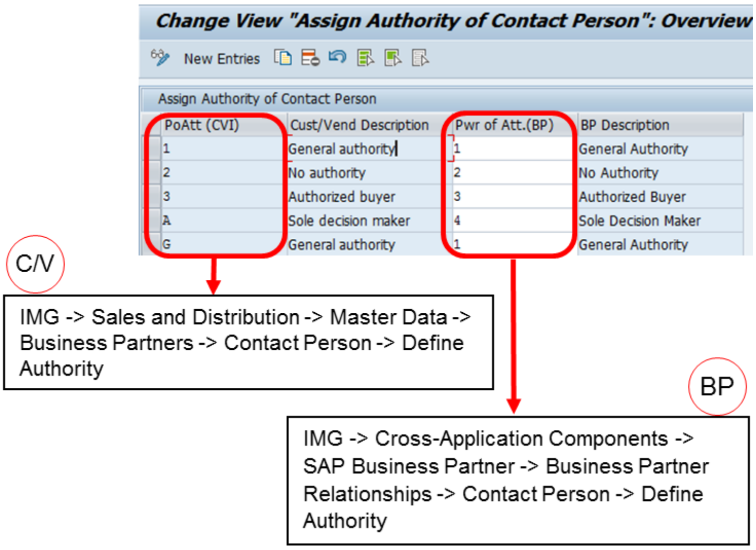


Figure 31. Assign Authority of Contact Person.

7.3.8.3.5. Assign VIP indicator for Contact Person

In this IMG activity, you assign the VIP Indicator for the Business Partner to the VIP Indicator for the contact person in the Customer master record.

IMG -> Cross-Application Components -> Master Data Synchronization -> Customer/Vendor Integration -> Business Partner Settings -> Settings for Customer Integration -> Field Assignment for Customer Integration -> Assign Attributes -> Contact Person -> Assign VIP Indicator for Contact Person

The values in column **VIP (CVI)** are the values used in Customer master data for contact persons. The values in column **VIP (BP)** are used in Business Partner master data for contact persons. Ensure that you have maintained the corresponding values in both areas and that you assigned all values for Customer master to values for Business Partner and vice versa.

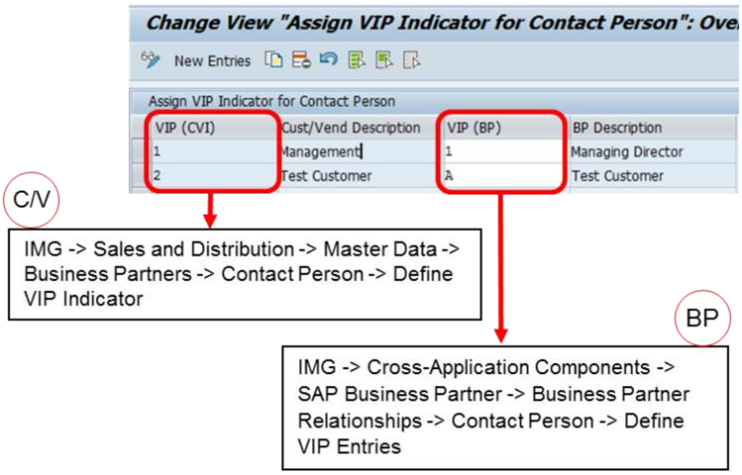


Figure 32: Assign VIP Indicator for Contact Person.

7.3.8.4. Customer Value Mapping

Attribute value mapping must be maintained and must be equal for every existing Customer instance.

7.3.8.4.1. Assign Marital Statuses

In this IMG activity, you assign the marital statuses for the Business Partner to the marital statuses for the contact person in the Customer master record.

IMG -> Cross-Application Components -> Master Data Synchronization -> Customer/Vendor Integration -> Business Partner Settings -> Settings for Customer Integration -> Field Assignment for Customer Integration -> Assign Attributes -> Assign Marital Statuses

The values in column **Marital Status (CVI)** are the values used for Customer master data. The values in column **Mar. Sts (BP)** are used in Business Partner master data. Ensure that you have maintained the corresponding values in both areas and that you assigned all values for Customer master to values for Business Partner and vice versa.

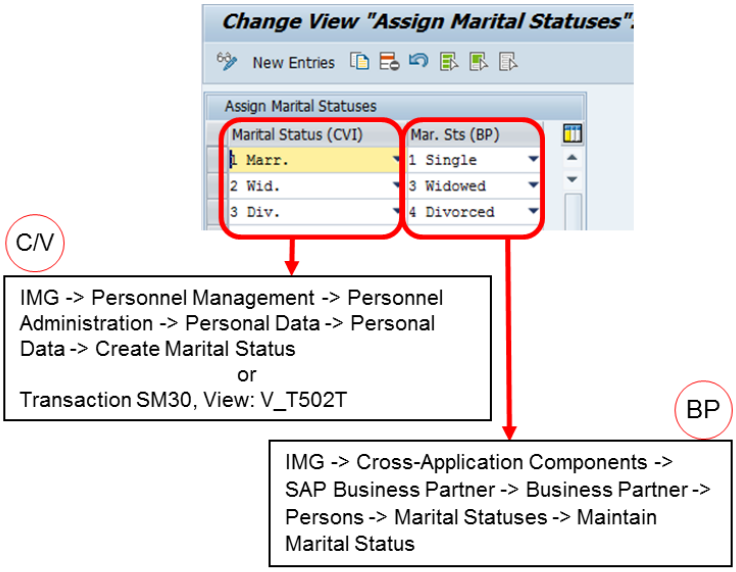


Figure 33: Assign Marital Statuses.

7.3.8.4.2. Assign Legal Form to Legal Status

In this IMG activity, you assign the legal forms for the Business Partner to the legal statuses for the Customer/Vendor master record.

IMG -> Cross-Application Components -> Master Data Synchronization -> Customer/Vendor Integration -> Business Partner Settings -> Settings for Customer Integration -> Field Assignment for Customer Integration -> Assign Attributes -> Assign Legal Form to Legal Status

The values in column **Legal Sts (CVI)** are the values used for Customer/Vendor master data. The values in column **LForm (BP)** are used in Business Partner master data. Ensure that you have maintained the corresponding values in both areas and that you assigned all values for Customer master to values for Business Partner and vice versa.

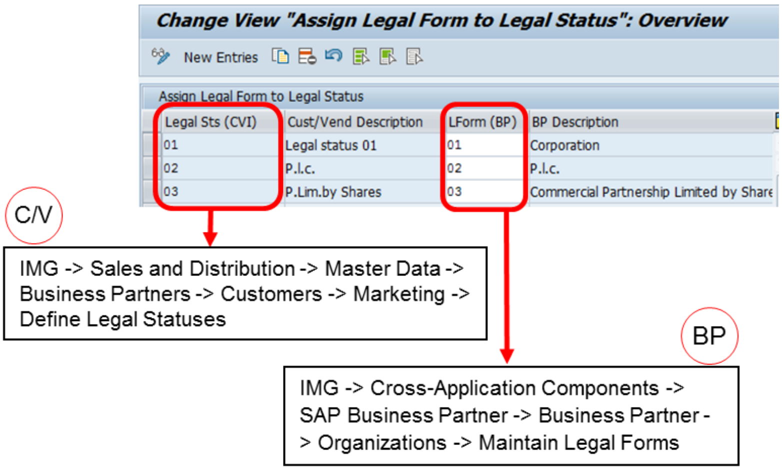


Figure 34: Assign Legal Form to Legal Status.

7.3.8.4.3. Assign Payment Cards

In this IMG activity, you assign the card types of payment cards for the Customer master records to the payment card types for the Business Partner.

IMG -> Cross-Application Components -> Master Data Synchronization -> Customer/Vendor Integration -> Business Partner Settings -> Settings for Customer Integration -> Field Assignment for Customer Integration -> Assign Attributes -> Assign Payment Cards

The values in column **Card Type (CVI)** are the values used for Customer master data. The values in column **Card Type (BP)** are used in Business Partner master data. Ensure that you have maintained the corresponding values in both areas and that you assigned all values for Customer master to values for Business Partner and vice versa.

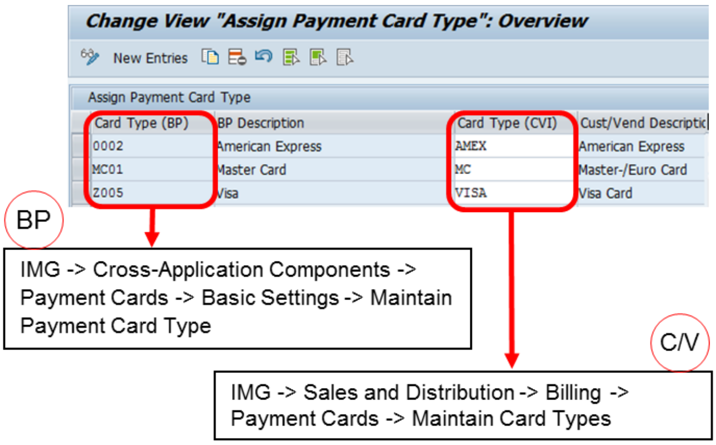


Figure 35: Assign Payment Card Type.

7.3.8.4.4. Assign Industries

In this IMG activity, you assign industry keys for the Customer and Vendor master records to industries for the Business Partner (and vice versa), to ensure that both industry fields are updated correctly in the context of Customer/Vendor Integration.

In Business Partner processing you can store several industries from different industry systems in Business Partners belonging to the category *Organization*. You can name one industry as the standard industry for each industry system.

You can store just one industry in the Customer and Vendor master records.

In this IMG activity, you determine how the corresponding industry in the Customer/Vendor master record is derived from the standard industry for the standard industry system when you process a Business Partner. You also determine from which industry in the Customer/Vendor master record the corresponding industry is created for the Business Partner.

IMG -> Cross-Application Components -> Master Data Synchronization -> Customer/Vendor Integration -> Business Partner Settings -> Settings for Customer Integration -> Field Assignment for Customer Integration -> Assign Attributes -> Assign Industries

Select on the right the Industry System which is marked as *Standard System*.

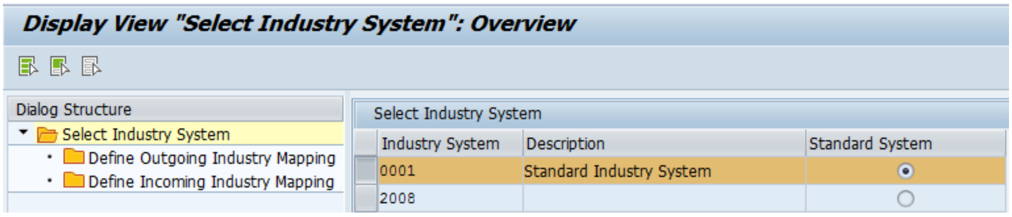


Figure 36: Select Industry System.

Select the options on the left to maintain the industry values for direction Customer to BP and BP to Customer.

Industry mapping for direction Customer/Vendor to Business Partner
Select on the left *Define Incoming Industry Mapping* (double-click) and maintain the corresponding values.

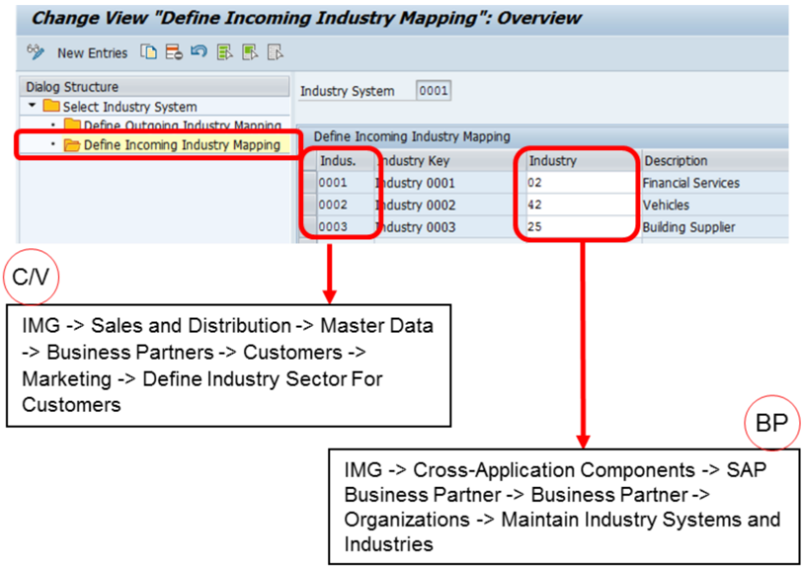


Figure 37: Define Incoming Industry Mapping.

The values in column **Indus.** are the values used for Customer/Vendor master data. The values in column **Industry** are used in Business Partner master data. Ensure that you have maintained the corresponding values in both areas and that you assigned all values for Customer/Vendor master to values for Business Partner and vice versa.

Industry mapping for direction Business Partner to Customer/Vendor
Select on the left *Define Outgoing Industry Mapping* (double-click) and maintain the corresponding values.

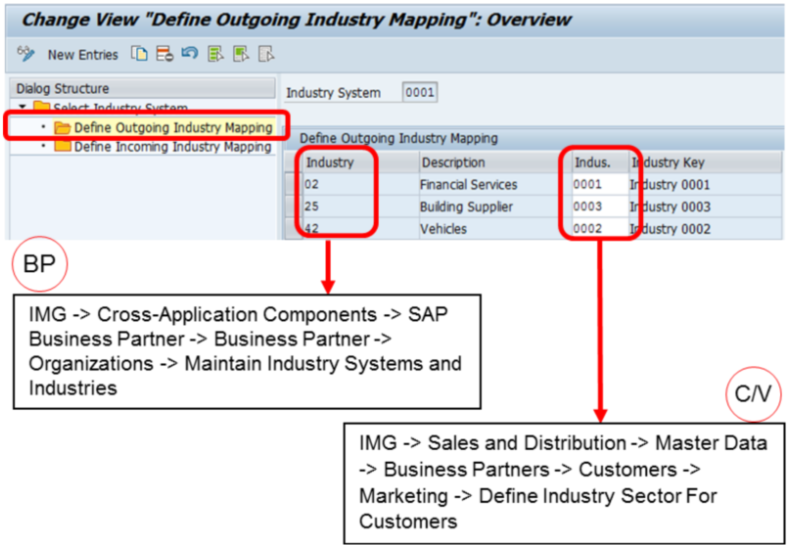


Figure 38: Define Outgoing Industry Mapping.

The values in column **Indus.** are the values used for Customer/Vendor master data. The values in column **Industry** are used in Business Partner master data. Ensure that you have maintained the corresponding values in both areas and that you assigned all values for Customer/Vendor master to values for Business Partner and vice versa.

Tool Support

Using report **FSBP_IND_SECTOR_MAPPING_CHECK** (Check and Set Up Industry Mapping), you can generate Customizing entries for industry assignment in the context of Customer/Vendor Integration, and evaluate existing or missing assignment entries.

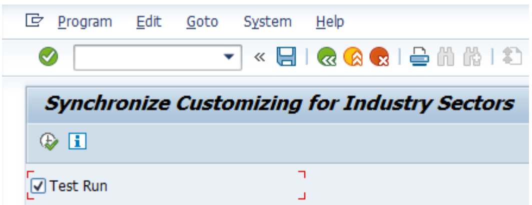


Figure 39: Synchronize Costomizing for Industry Sectors.

If the number of Industry values are low, this report is not required, but useful to get an overview of missing entries.

7.3.8.5. Vendor Value Mapping

7.3.8.5.1. Contact Person

There are no specific settings for Vendor contact person mapping. If the Vendor contact person is used in EHP versions below 5, apply SAP Note 2383051 – Development of vendor contact person mapping to Business Partner.

7.3.8.5.2. Assign Industries

Industry value mapping must be maintained and must be equal for every existing Vendor instance.

The Vendor specific transaction in IMG leads to the same configuration as already described in the previous chapter for Customer configuration (Customer and Vendor share the same IMG table, see chapter 7.3.8.4.4 Assign Industries).

IMG -> Cross-Application Components -> Master Data Synchronization -> Customer/Vendor Integration -> Business Partner Settings -> Settings for Vendor Integration -> Field Assignment for Vendor Integration -> Assign Attributes -> Assign Industries

Ensure, that the configured values are also valid for Vendors.

7.3.8.6. Business Add-Ins (BADIs) for development of own mappings

You can implement Customer-specific mappings like Form of Address from Customer/Vendor to Business Partner using the available BAdIs. Here it would also be possible to create a Business Partner in a different category, for example, person instead of organization. In this case, you must deactivate the enhancement CVI_MAP_TITLE_DIRECT and activate the enhancement implementation CVI_MAP_BP_CATEGORY in the IMG. The implementation is already available. If enhancement CVI_MAP_BP_CATEGORY is activated, the Business Partner Category will be derived based on the title of the customer or the vendor and based on the settings in customizing table TSAD3 (IMG -> Cross-Application Components -> SAP Business Partner -> Basic Settings -> Forms of Address -> Maintain Forms of Address).

IMG -> Cross-Application Components -> Master Data Synchronization -> Customer/Vendor Integration -> Business Partner Settings -> Business Add-Ins (BAdIs)

The table below shows the existing BADI’s and the names of the BAdI definitions.

IMG tree node	BAdI Definition
BAdI: Data Assignment BP <-> Customer/Vendor/Contact Person	CVI_CUSTOM_MAPPER
BAdI: Data Assignment of Bank Details BP -> Customer/Vendor	CVI_MAP_BANKDETAILS
BAdI: Data Assignment of Payment Cards BP <-> Customer	CVI_MAP_CREDIT_CARDS
BAdI: Data Assignment of Form of Address from Customer/Vendor to BP	CVI_MAP_TITLE
BAdI: Defaults for Creating Data from BP to Customer/Vendor	CVI_DEFAULT_VALUES

7.3.8.7. Check Business Partner Address Types

In this activity, you check the existing address types that you need for certain business transactions. The address type and the standard address type are relevant for address determination. The address type **XXDEFAULT** is supplied by SAP. Ensure that this entry exists. If not, create a new entry with name XXDEFAULT.

IMG -> Cross-Application Components -> SAP Business Partner -> Business Partner -> Basic Settings -> Address Determination -> Define Address Types

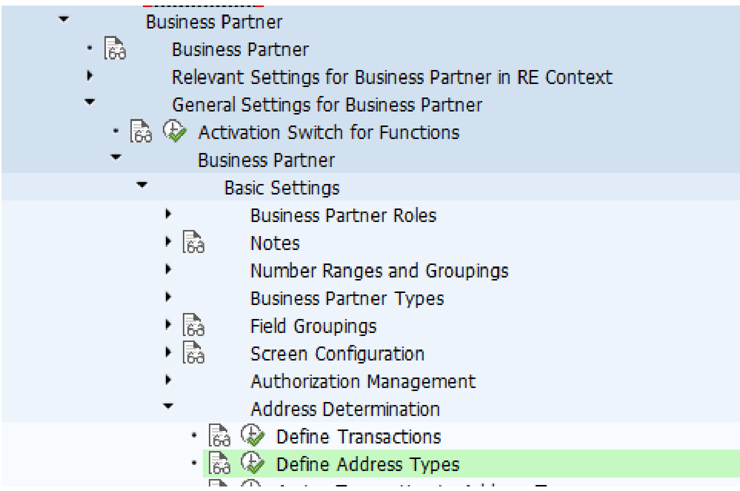


Figure 40: Check Business Partner Addtess Types.

7.3.9. Preparation for linking of Customer and Vendor to a single Business Partner

Currently, even if there is a Customer and a Vendor which refer the same business entity, they are linked to separate Business Partners. Implement the following SAP Note before initial load. After implementation of the SAP Note, the Customer and Vendor will be linked to one Business Partner if they are the same business entity.

- SAP Note 2363892 - Linking Customer and Vendor to a single Business Partner during initial load before upgrade to S/4
- SAP Note 2968536 - Harmonize the behavior for Linking Customer and Vendor to a single Business Partner

As a prerequisite, the following must be given:
The Customer and Vendor must not already be linked to separate Business Partners (that is, either Customer or Vendor should have a Business Partner linked to it, or neither should be linked to a Business Partner, but not both). This solution is applicable only when there is already a link table entry for either Customer or Vendor.

During the process of creating a Business Partner for a Customer or Vendor, it checks whether a Business Partner already exists for that business entity. If yes, then it links to the same Business Partner if the prerequisites above are met.

Technically, it's a BAdI implementation (CVI_MAP_LEGAL_ENTITY) for BAdI CVI_CUSTOM_MAPPER.
The delivered implementation is just a POC which you can use as template for defining your own merge criteria.

Check also SAP Note 954816 - BP_CVI: Transactions for creating/linking BPs. This note provides information for the transactions for manual assignment of Customer/Vendor and Business Partner. The note explains how you can solve the problem, if synchronization fails with message 'Business Partner xxxx already exists' due to a Customer and Vendor with same number representing the same legal entity.

Transactions:

- FLBPD1 - Create BP from Customer
- FLBPD2 - Link BP to Customer
- FLBPC1 - Create BP from Vendor
- FLBPC2 - Link BP to Vendor

Please also check this blog:
SAP S/4HANA Business Partner Conversion – Merge Customer and Vendor into single Business Partner https://blogs.sap.com/2020/08/31/sap-s-4hana-business-partner-conversion-merge-customer-and-vendor-into-single-business-partner/

7.3.10. Preparation for converting HCM Employees to Business Partners

To achieve that the Business Partner is a person and not an organization, there are two possibilities:

1. If the title is maintained correctly at employee vendor, you can use standard BAdI Implementation CVI_MAP_BP_CATEGORY of BAdI CVI_MAP_TITLE.
2. If the title is not maintained correctly you need to create your own implementation of BADI CVI_MAP_TITLE with your own criteria. Please know there is no multiple usage allowed for this BADI. Therefore, you must ensure that any existing coding is executed in your own implementation as well. Standard BAdI Implementation CVI_MAP_BP_CATEGORY needs to be deactivated. Enclosed you will find example coding. This example is based on separate account group (ZEMP) for employee vendors.

```
data: lv_ktokk type ktokk.

select single ktokk into lv_ktokk
  from lfa1
  where lifnr = i_vendor_id.
if sy-subrc = 0 and lv_ktokk = 'ZEMP'.
  c_partner_category = bp_as_person.
endif.
```

In case you want to influence the Business Partner Number you have to implement it in BADI CVI_CUSTOM_MAPPER.

Example for setting the BP Number for Employees like EN concatenated with the employee personal number (LFB1-PERNR) and group BPAB, prerequisite is that BP has external numbering in number range.

MAP_VENDOR_TO_BP

```
  data: lt_company type VMDS_EI_COMPANY_T,
        ls_company type VMDS_EI_COMPANY.

  if I_VENDOR-CENTRAL_DATA-CENTRAL-DATA-KTOKK = 'ZEMP'.
    lt_company = I_VENDOR-COMPANY_DATA-COMPANY.
    loop at lt_company into ls_company where data-
pernr ne space.      "What if more than one Company Code?
      concatenate 'EN' ls_company-data-pernr into C_PARTNER-HEADER-
OBJECT_INSTANCE-BPARTNER. "What BP already exists?
      C_PARTNER-CENTRAL_DATA-COMMON-DATA-BP_CONTROL-GROUPING = 'BPAB'.
      exit.
    endloop.
  endif.
```

For more information, please check these SAP Notes

- 2539457 CVI & employee vendors in wrong BP category
- 2542175 CVI and reuse of existing employee business partner

Additional SAP Notes to check:

- 2880559 Enhancing BAdI interface CVI_MAP_TITLE~IF_EX_CVI_MAP_TITLE with new importing parameters.
- 2000099 CVI fails with error R1231: "Form of address &1 not designated for organizations"

Please check for further important information in section 9.29.2 Employee Replication

7.4. Synchronization

Master data synchronization replicates master data objects in an SAP system that are similar from a business, but not from a technical, point of view, and allows you to integrate different SAP applications seamlessly in your business processes.

There are two synchronization scenarios in master data synchronization:

- Synchronization from the master data maintenance
  When you create and save new master data, the system carries out initial synchronization with the master data object types for which synchronization processes have been activated in the SAP system, and creates the corresponding master data.
  If you change existing master data that has already been synchronized, the system locks this master data and all the corresponding master data of the source object type and the target object type during maintenance. When you save the changed master data, the system generally carries out a delta synchronization with the master data object types for which synchronization processes have been activated in the SAP system and changes the corresponding master data. In some cases, changing existing master data can lead to a delta synchronization having to be carried out.
- Synchronization using the synchronization cockpit
  You use the synchronization cockpit to prepare, perform and check the initial synchronization of master data objects in an SAP system.

As prerequisite you have checked and adapted the customizing and created the Customer/Vendor Integration (CVI) and contact person mapping as described in the previous chapters.

The following chapters describe the initial synchronization of Customer and Vendor master data using the synchronization cockpit.

For more information on master data synchronization see Master Data Synchronization in SAP Help.

7.4.1.Synchronization Cockpit

Using the synchronization cockpit, you can carry out all the steps for master data synchronization in an SAP system, especially:

- Selection, preparation and starting of synchronization runs.
- Monitoring of synchronization runs
- Postprocessing of synchronization errors

To start the Synchronization Cockpit, you can use the following IMG-path or call transaction **MDS_LOAD_COCKPIT**.

IMG -> Cross-Application Components -> Master Data Synchronization -> Synchronization of Mass Data -> Execute Synchronization Cockpit

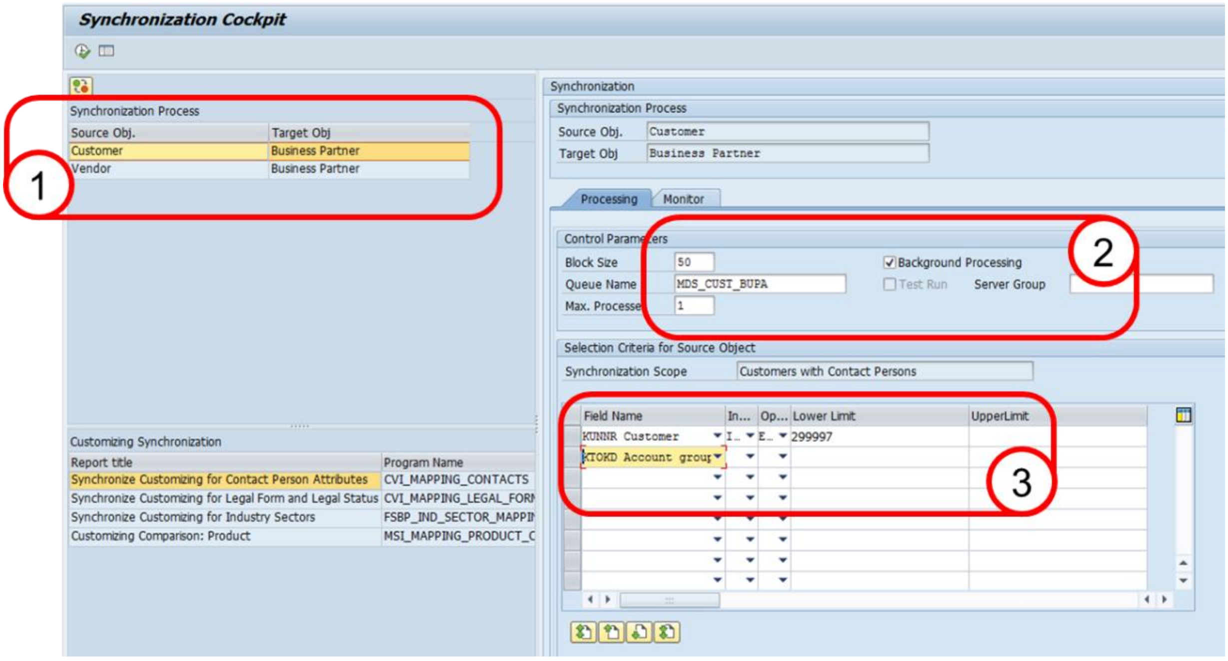


Figure 41: Synchronization Cockpit - Processing.

The screen of MDS_LOAD_COCKPIT is divided in several areas.

1. Synchronization Process

- This subscreen shows the synchronization processes which are available (active). This are the options configured in chapter 7.3.8.1.4, Activate Synchronization Options. You can use the toggle button to switch between the view of activated processes and the view of all synchronization processes available (activated and not activated).
- Select the desired synchronization Process by double-clicking (Customer -> Business Partner or Vendor -> Business Partner)

2. Control Parameters

- Check the queue settings (block size, queue name, max.number of processes). Note, that you need to enter values in this section only if you want to change the default values.

- Customer Example for block size and number of processes: Synchronization (after master data cleansing and solving configuration issues) with 14 Mio. Customer. A block size of 50.000 in combination with 60 dialog tasks for CVI has proved to be a good size in order to optimize the usage of available processes.
- **IMPORTANT**: Queue processing (Checkbox *Background Processing* is activated) triggers dialog tasks and not batch jobs.

3. Selection Criteria for Source Object

- Input parameters can be any combination of account group, Customer/Vendor number and Central deletion flag.
- It is possible to input the selection criteria for source object using an excel file. The format of the excel file can be downloaded by clicking the Download Template button available under selection criteria for source object on the screen.
- To facilitate error analysis, run small batch or even single Customer/Vendor initially, e.g., select 10 to 50 Customers or Vendors.

The following SAP notes needs to be applied

- 2907519 – Master Data Synchronization Tool Revamp
- 2954330 – Performance Improvement of Monitor Tab in MDS_LOAD_COCKPIT
- 2958046 – CVI : MDS_LOAD_COCKPIT does not display Logs of a specific date

After providing your input parameters press F8 to start synchronization.

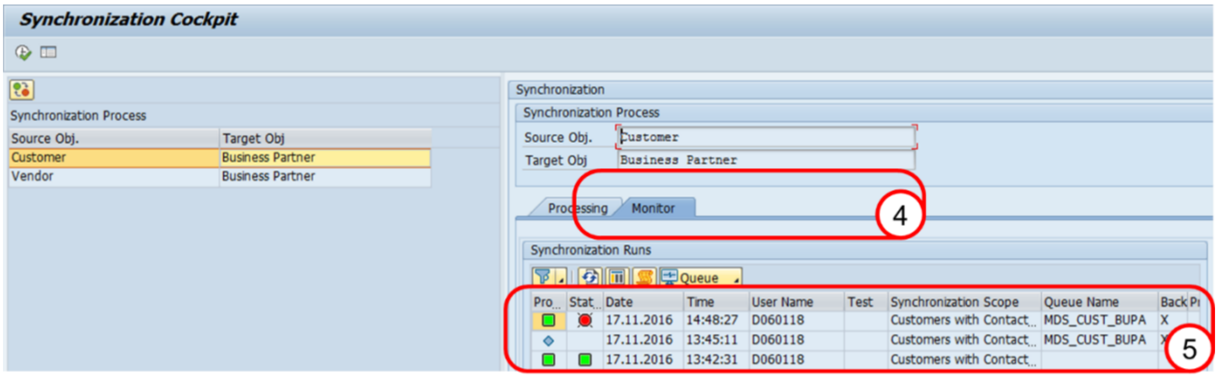


Figure 42: Synchronization Cockpit - Monitor.

4. Monitor

- To view the results, select the monitor tab. It is possible to select and display the logs based on username and date.

5. Status information per Synchronization Run

- Prior to Business Partner creation, MDS cockpit checks the quality of the master data and applies the configured CVI value mappings. For records with quality issues or missing customizing no Business Partner is created until the issues are fixed. Status of run is marked with red light.

7.4.1.1. Prerequisites

In order to avoid error messages from the CVI synchronization, set up CVI and BP customizing properly.

If you have a CRM system, check section 9.4 CRM.

For suppressing address checks in CpD related account groups (e.g., for one-time customers) check IMG-node “Activate Field Check Suppression”. It can be accessed from the CVI cockpit item “Suppress Checks” from the “Preparation” phase tab or directly in the IMG:

IMG -> Cross-Application Components -> General Application Functions -> Master Data Synchronization -> Customer/Vendor Integration -> Activate Field Check Suppression

In context of CpD be aware of these notes:

- 2955243 - CPD Account Group Enhancements: Domain and Activate Field Check Suppression screen changes
- 2949716 - CPD Account Group Enhancements in Master Data Consistency Check Report
- 2955121 - CPD Account Group Enhancements MDS_LOAD_COCKPIT BADI (BUPA_SKIP_ADDR_CHCK) Implementation

7.4.1.2. *Suppress certain Checks*

In earlier versions note 2344034 - SAP S/4HANA Automation for Master Data Migration has implemented a BADI implementation to suppress certain country specific checks. With this procedure table T005 has been deleted (entries were saved). To restore the entries, it was required to press the [Complete]-button in CVI_UPGRADE_CHECK_RESOLVE.
Both features have been removed from current version of this note, even CVI_UPGRADE_CHECK_RESOLVE isn´t to be used any more, please use transaction BP_CVI_IMG_CHK "CVI Customizing – Check Report" (section 7.3.2.2 CVI Customizing – Check

Successor of this solution is available by a new IMG-node:

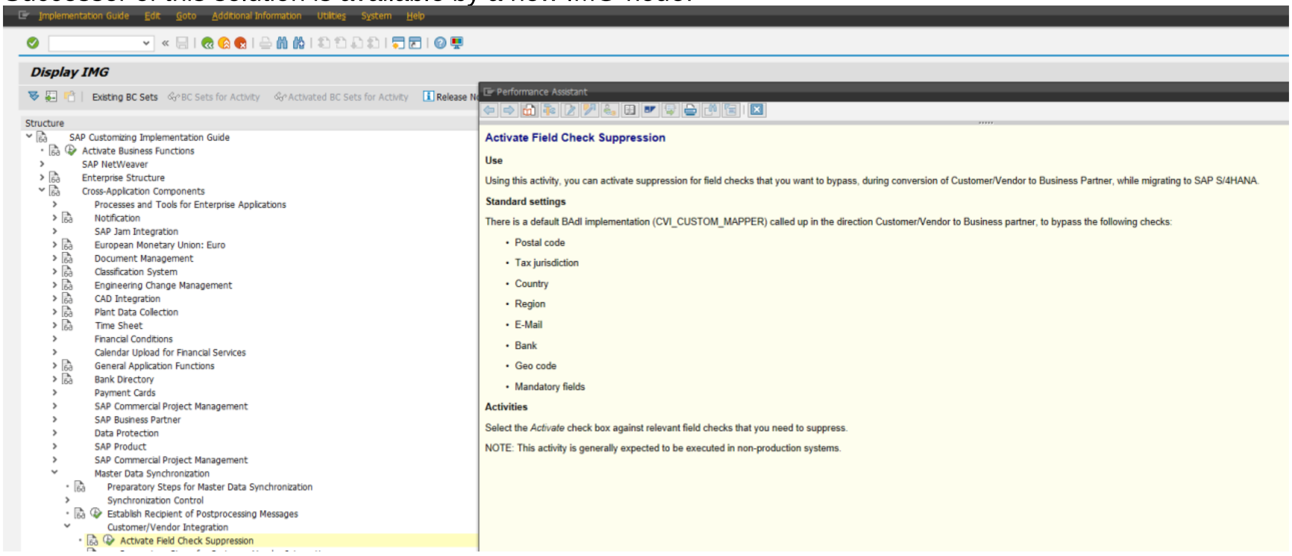


Figure 43: IMG-node "Activate Field Check Suppression"

This feature has been delivered with ECC 6 EHP 8 SP 13. For lower releases and SP stacks it can be made available by installing note 2780288 - S/4 HANA Migration: The BP checks can be suppressed in the direction Customer/Vendor->BP during synchronization from MDS_LOAD_COCKPIT.

It can be accessed from the CVI cockpit item "Suppress Checks" from the "Preparation" phase tab or directly in the IMG:

IMG -> Cross-Application Components -> General Application Functions -> Master Data Synchronization -> Customer/Vendor Integration -> Activate Field Check Suppression

Functionality for suppressing address checks in CpD related account groups (e.g., for one-time customers) has been added, please also check SAP Notes mentioned in above section 7.4.1.1 Prerequisites.

7.4.1.3. *Enable Test Run Capability*

On the Processing tab of Synchronization Cockpit, you find the checkbox 'Test Run' which is greyed in standard. You can enable the test run functionality by implementing SAP Note 2874184 - Information on test run behaviour..

When the test run mode is set from Customer to Business partner or from Vendor to Business partner, transaction MDS_PPO2 will show the logs, but the Business Partner will not be committed to databases.

Attention
Running in test run mode will lead to number range being exhausted because once the internal number is generated it cannot be reverted again and cannot be used again.

Typically, if you run Customer/Vendor to Business Partner for millions of records in test run mode, this may lead to exhausting of number range of objects like Business Partner, Address, Business Partner relationship and possibly some other application number range objects too.

So be cautious when executing test run and be aware of the Customer/Vendor range that you will be providing in the MDS_LOAD_COCKPIT transaction to migrate to Business Partner (preferably run MDS_LOAD_COCKPIT in test run mode for small Customer/Vendor ranges only).

7.4.1.4. Example: Sequence of Runs of MDS_LOAD_COCKPIT

Environment:

Objects to synchronize

- Customers
- Vendors
- Contact Person assigned to customer
- Contact Person assigned to vendor

System landscape

- ERP (ECC to be converted to S/4HANA)
  Customer master created here, to be replicated to CRM

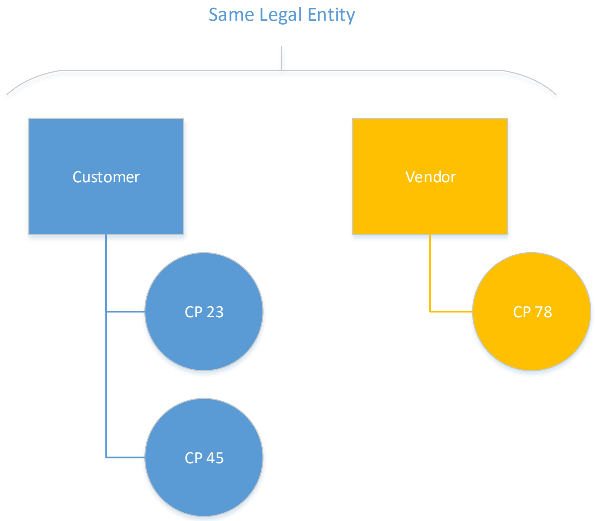
- CRM
  Contact Person created here, to be replicated to ERP (ECC -> S/4HANA)

Target after CVI-sync

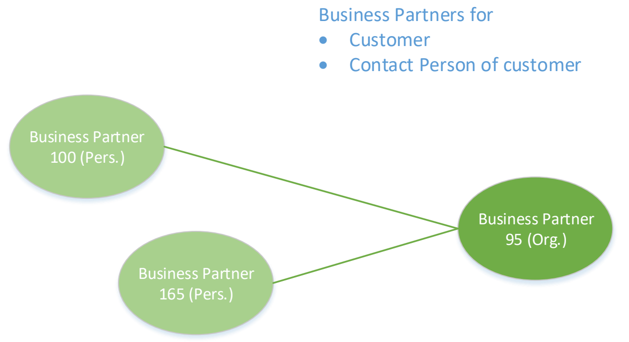
- Customers linked to BP
- Vendors linked to BP
- Customer and Vendor are merged to one BP, if same legal entity
- Contact Person (customer) linked to BP
- Contact Person (vendor) linked to BP
- At merged customer and vendor contact person of customer available as Contact Person at vendor (and vice versa)
  (as this would be standard behavior when a BP (contact person) will be linked to a BP (organization) that is linked to a customer and a vendor)
- As only BP with customer role are replicated to CRM all the Contact Person coming from merged vendor have to be replicated to CRM

Situation before CVI

ECC

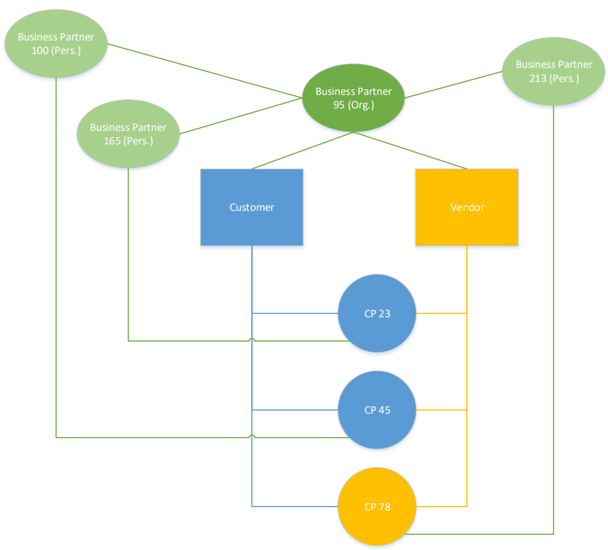


CRM

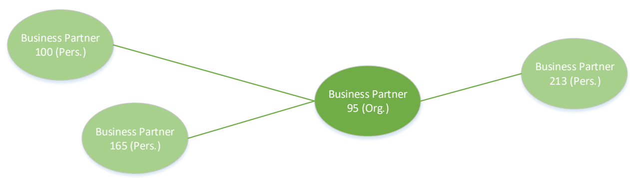


Target Situation after CVI Synchronization

ECC



CRM

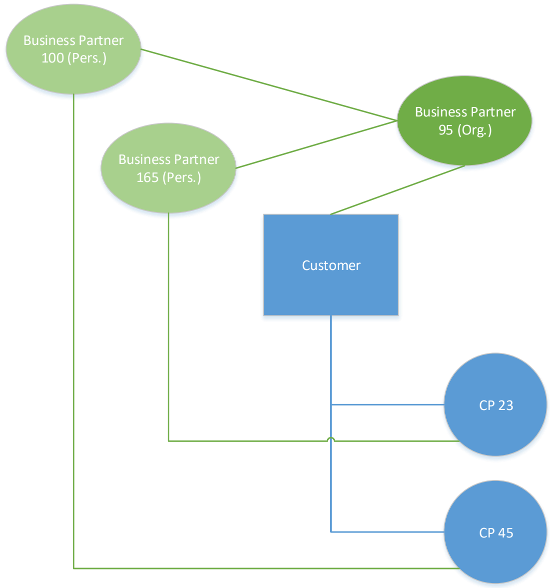


Steps to Achieve Target Situation

1. Switch off CRM-Replication (recommendation)

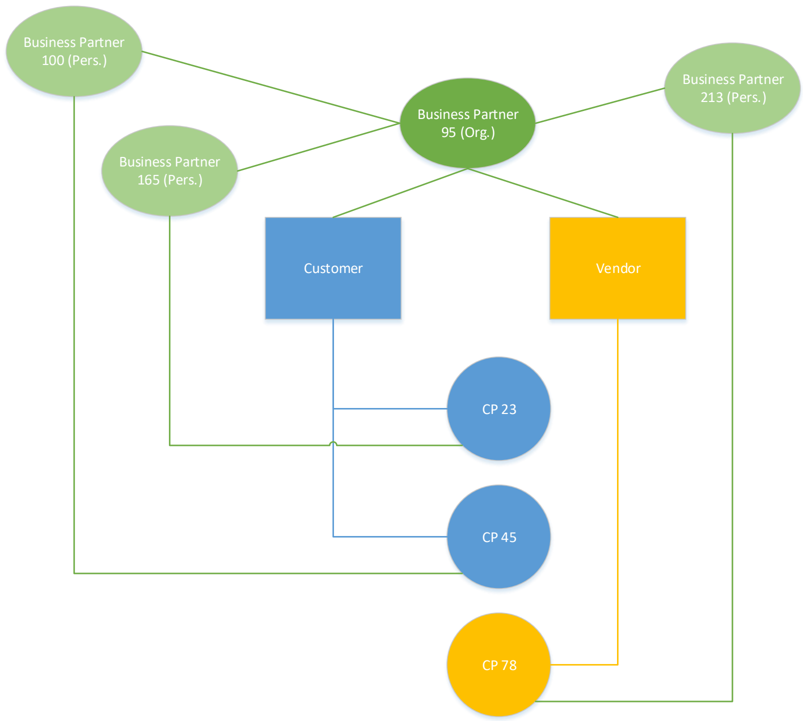
2. MDS_LOAD_COCKPIT:
   Customer -> BP
   Convert all customers to BP.
   All assigned Contact Person
   will be converted in BP as well.

ECC:

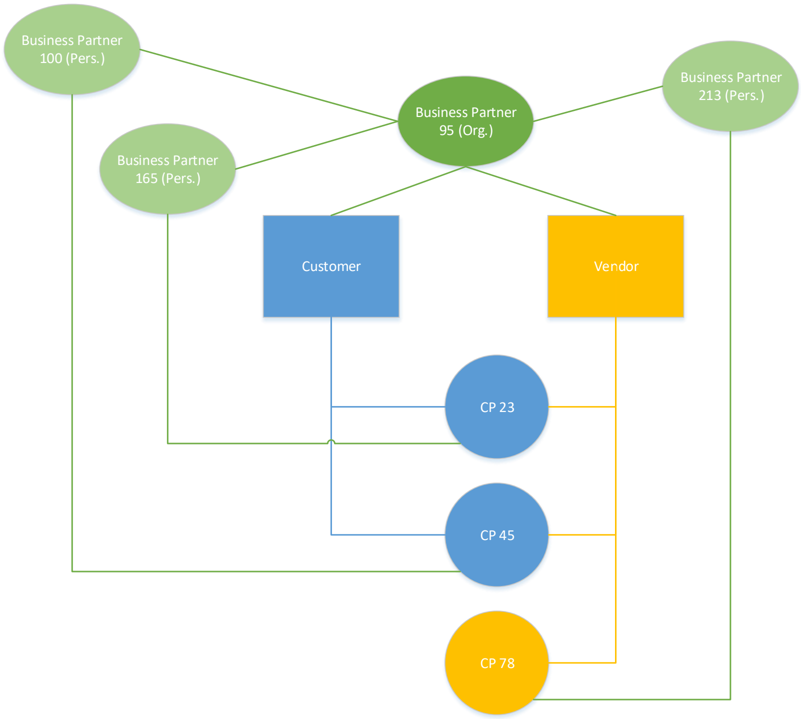


3. MDS_LOAD_COCKPIT: Vendor
   -> BP
   Convert all vendors to BP. All
   assigned Contact Person will
   be converted in BP as well.
   In this step same vendor of
   legal entity as customer will be
   assigned to existing BP from
   step 2

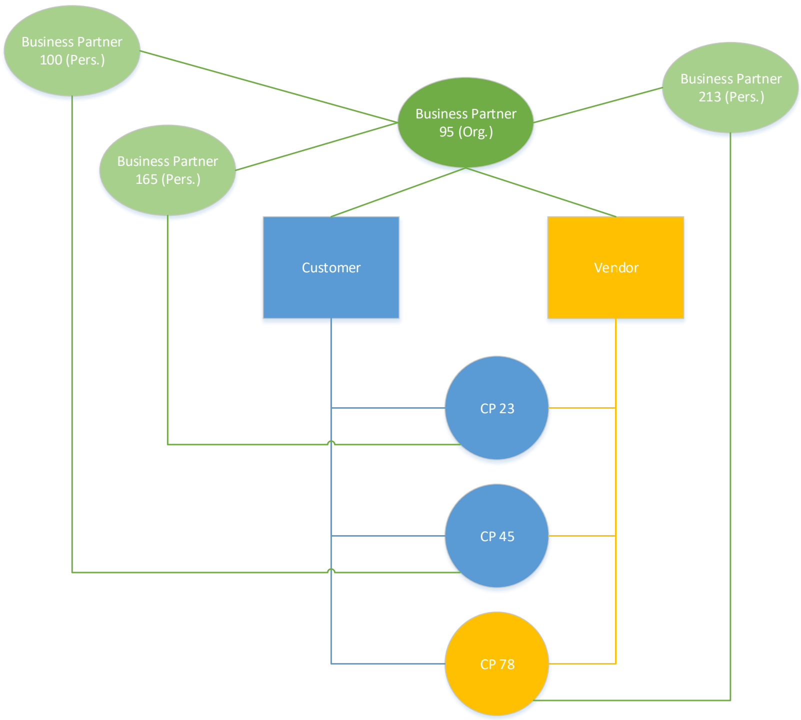
ECC:



4. MDS_LOAD_COCKPIT: BP -> ECC: Vendor
   Select only BP where customer and vendor are merged into. This step is to link the previous customer contact Person to vendor.

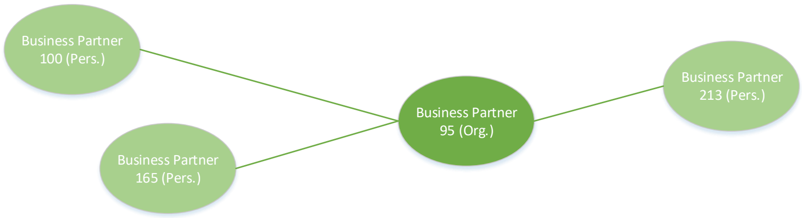


5. MDS_LOAD_COCKPIT: BP -> ECC: Customer
   Select only BP where customer and vendor are merged into. This step is to link the previous vendor contact Person to customer.



6. Switch on CRM-Replication

7. BUPA_SEND: replicate all CRM: Contact Person with their relationships from BP with merged customer and vendor



7.4.2. Post Processing Office (PPO)

After having executed the above steps, it should be checked if post-processing orders have been created, which should be processed. Therefore, use transaction MDS_PPO2 to get the error messages which occurred during the master data synchronization run.

Errors which happen during synchronization are logged and can be displayed and resolved using the Postprocessing Office PPO. In MDS Cockpit select the Monitor tab.

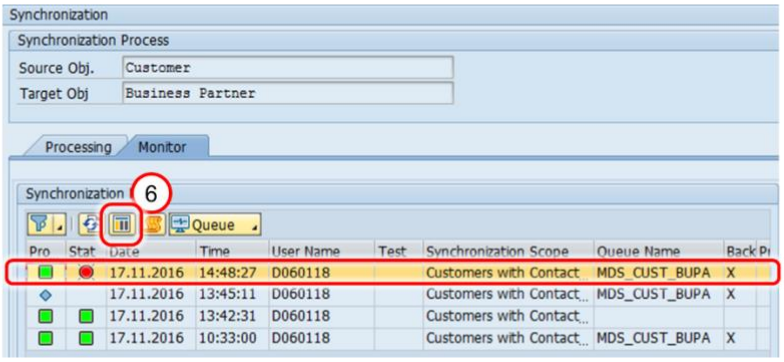


Figure 44: Resolve PPO Error.

To resolve the error, select the line with error status and click the button *Call PPO*. This will navigate to transaction **MDS_PPO2** which displays the corresponding error details.

Alternatively, you can directly call transaction MDS_PPO2 as well as transaction /N/SAPPO/PPO3 (with selection criteria ‘Software Component’ = ‘AP-MD’).

On the Overview screen, double-click the Business Partner or Customer/Vendor number to view the corresponding error messages.

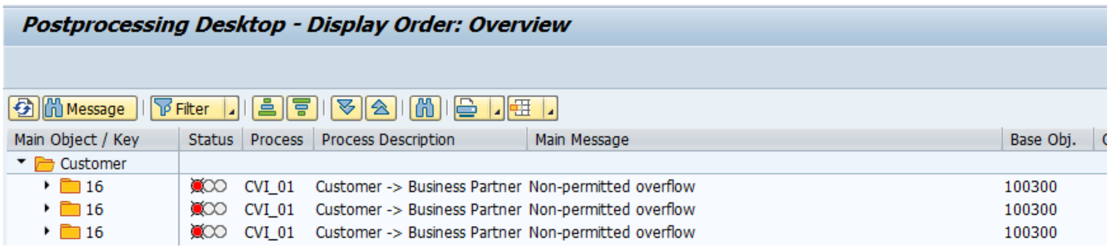


Figure 45: Display PPO Error Message.

If it is a data error (see 1 in figure below),

- Select the source object tab (Customer or Vendor).
- Choose Display or Change option. It opens the corresponding transaction page so that you can view or edit the data.
- Save the changes. The data automatically get synchronized to the target object.

If it is a Customizing error (see 2 in figure below),

- Manually navigate to the corresponding Customizing table/activity and resolve the error.
- Come back to the error entry
- Start synchronization. You have two synchronization options:
  - Individual Synchronization - Synchronizes the selected source and target objects
  - Mass Synchronization - Synchronizes all source and target objects based on the selected error code

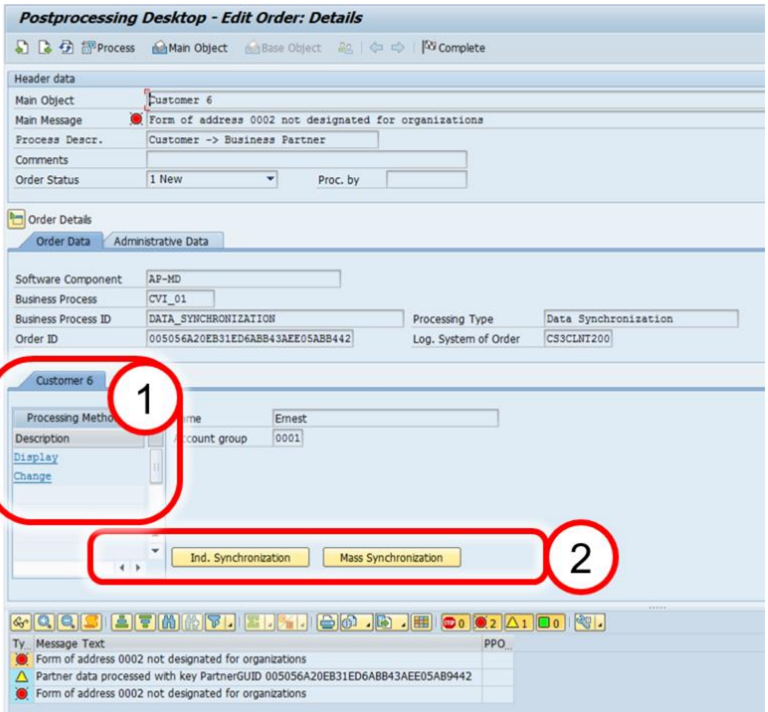


Figure 46: Display PPO Details.

Once the errors are resolved, come back to MDS_PPO2, and manually set the error status by using the **Complete** button.

After resolving synchronization errors, to know if any other errors have occurred, re-execute the MDS_PPO2 report using the date on which you corrected synchronization errors, as the selection criteria.

Go to chapter 7.4.5 Configuration and Master Data Issues to get an overview of common synchronization issues and their resolution.

7.4.2.1. Download PPO messages

For error analysis and documentation, it can be useful to download the list of error messages from PPO. There is no built-in-functionality to download the messages as spreadsheet as in other ALV-views. You can get the messages as spreadsheet by executing the following steps:

1. Go to transaction MDS_PPO2. Enter the selection criteria and press Execute(F8).
2. To change the layout of the output according to your needs (e.g. insert fields Message Class and Message Number), press the small triangle right from the ‘Select layout…’- button and select ‘Change layout…’.
3. Open the print menu by pressing the small triangle right from the ‘Print view’-button and select ‘Print preview of entire hierarchy’.
4. In the preview window select ‘System -> List -> Save -> Local File’ and save the file as text file.
5. Import the txt-file in Excel

7.4.2.2. Technical Background

The following objects can be useful as starting point to understand more in detail the functionality of the synchronization cockpit from a technical perspective.

Function Modules

- MDS_LOAD_START
  Start of mass synchronization
- MDS_LOAD_RESTART
  Restart mass synchronization

Tables

- /SAPPO/ORDER_DAT
  Additional Data for Postprocessing Order
- /SAPPO/ORDER_HDR
  Postprocessing Order - Header Data
- /SAPPO/ORDER_MSG
  Messages for Postprocessing Order
- /SAPPO/ORDER_OBJ
  Related Objects for Postprocessing Order

7.4.3.Example - Resolve Synchronization Errors Using PPO

The following example shows the step by step resolution of synchronization errors for a single Customer. For the Customer example, two different errors are in place:

1. Customizing error
2. Master data error

After synchronization run we get an error message in the monitor of MDS cockpit. We select the entry and choose **Call PPO** which shows us the error message '*Form of address 0002 not designated for organizations*'.

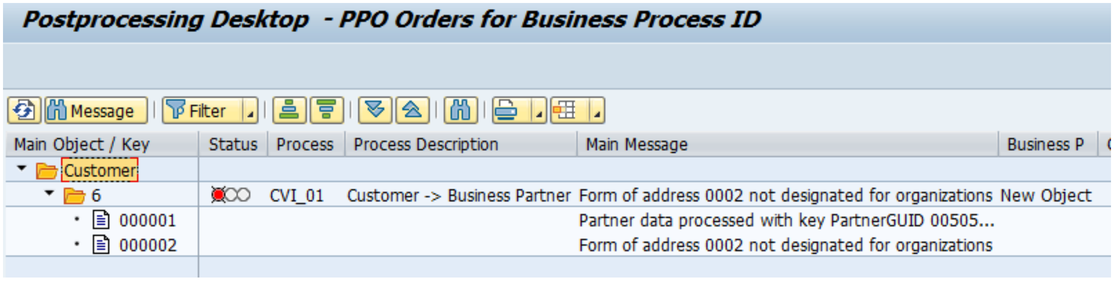


Figure 47: Display PPO Orders for Business Process ID.

This is a typical customizing error. CVI creates new Business Partners of type organization. The form of address is not allowed for organizations.

The respective customizing can be found here:

IMG -> Cross-Application Components -> SAP Business Partner -> Business Partner -> Basic Settings -> Forms of Address -> Maintain Form of Address

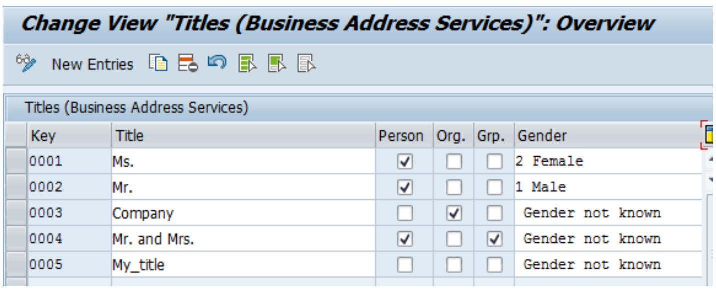


Figure 48 "Maintain Form of Address.

If you would switch on “Org.” e.g., for “Ms.” or “Mr.”, a business partner of category “Organization” would be created. To avoid this, for correction, the BAdI CVI_MAP_BP_CATEGORY can be activated as described in section 7.3.8.6.

After applying the corrections, we return to the error entry in PPO and restart the synchronization by choosing *Individual Synchronization* or *Mass Synchronization*. We decide to start Mass Synchronization, because several entries exist in PPO for this Customer. Obviously, it has been included in several synchronization runs. Remark: Only the latest run will be processed further.

Object Key	Status	Process	Business Process Desc.	Message Text	Note	Agent	Proc. Date	Created (
0000000006		CVI_01	Customer -> Business Partner	Form of address 0002 not designated for organizations				18.11.20
0000000006		CVI_01	Customer -> Business Partner	Form of address 0002 not designated for organizations				18.11.20
0000000006		CVI_01	Customer -> Business Partner	Form of address 0002 not designated for organizations				21.11.20

Figure 49: Mass Synchronization - Object Selection.

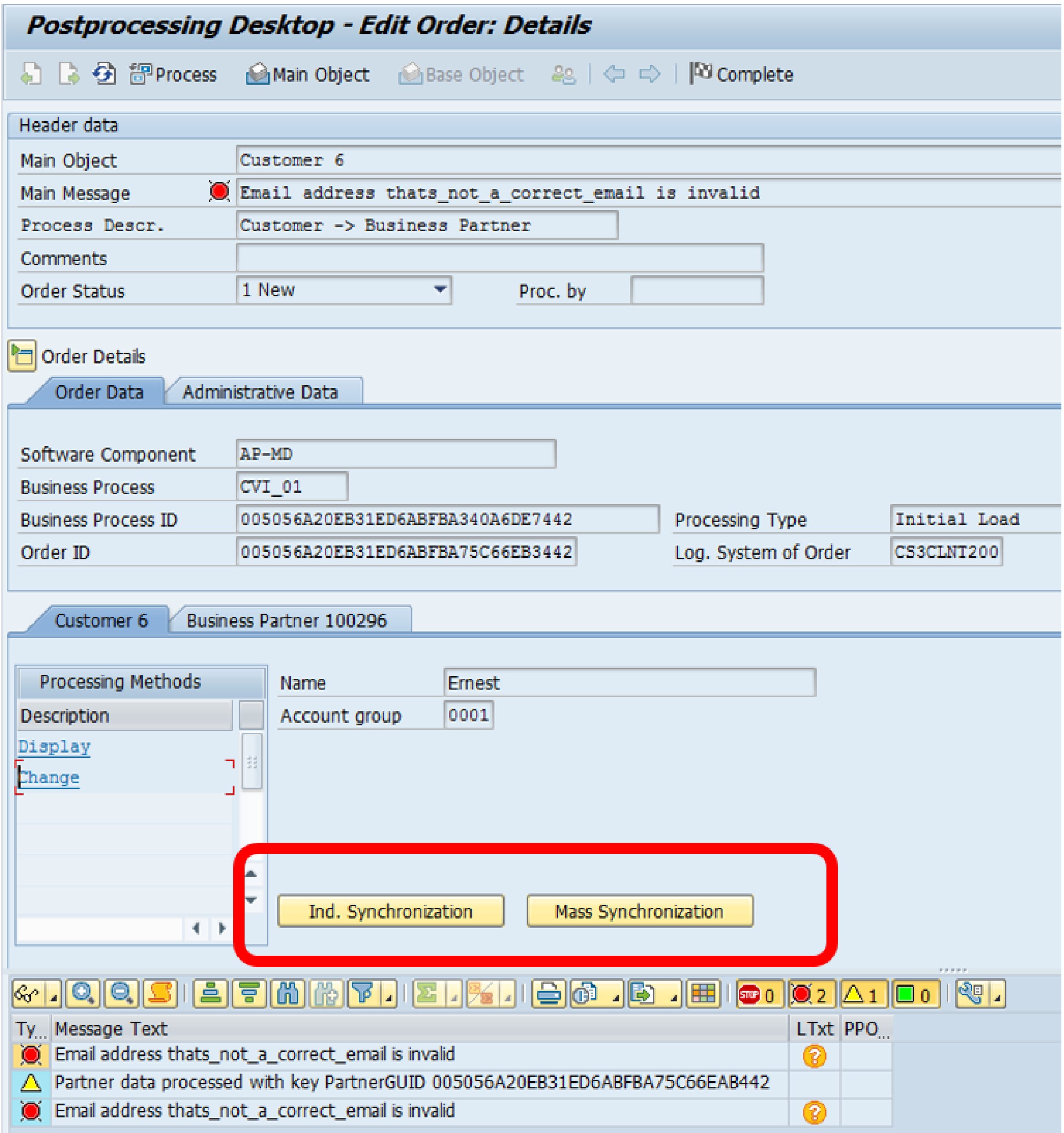


Figure 50: Postprocessing Desktop - Edit Order: Details.

We select all entries and start processing. Go back to MDS cockpit and refresh the monitor tab. We get a second error line in the monitor tab.

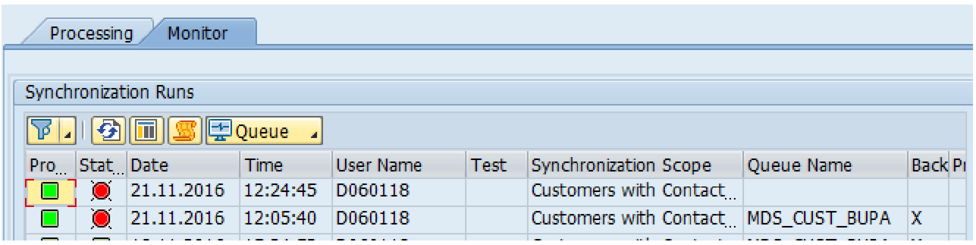


Figure 51: MDS Cockpit - Monitor.

We choose the new entry and open PPO. A new error message is shown: *Email address thats_not_a_correct_email is invalid.*The customizing error has been resolved, but a master data error appears. The synchronization process checks if the format of the email-address is valid. If it is not valid, a PPO-order is created.

We start editing the Customer master data directly from the PPO-order by double-clicking **Change** as processing method from the Customer tab.

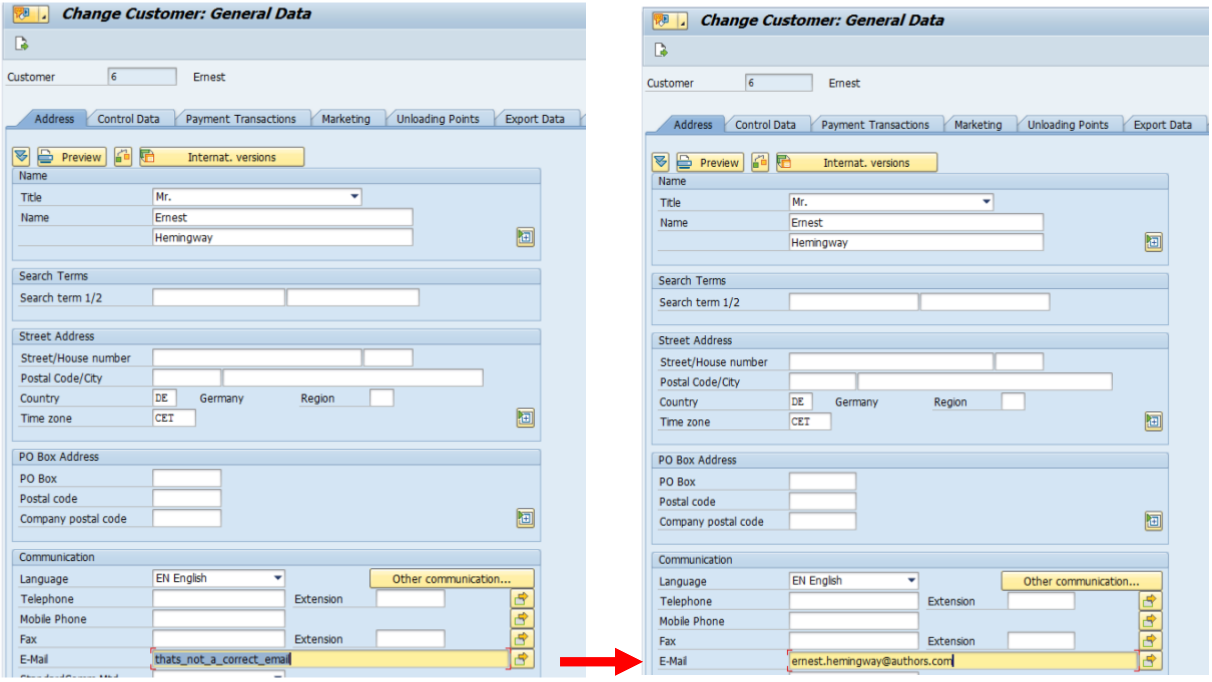


Figure 52: Change Customer: General Data.

After changing the email address and saving the Customer, the data gets automatically synchronized to the target object.

The entries in PPO and the MDS cockpit monitor are not updated. Selecting all entries for this Customer in **MDS_PPO2** still shows three error messages.

Figure 53: PPO Desktop - Edit Order: Overview.

Manually set the error status by using the *Complete* button (after opening the PPO order).

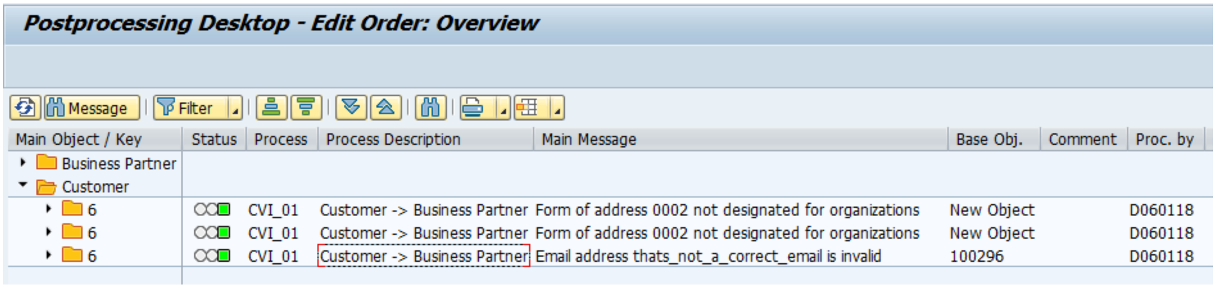


Figure 54: PPO Desktop - Edit Order: Overview.

To validate, that the Business Partner has been created successfully, check the CVI link table **CVI_CUST_LINK** with transaction SE16. An entry for the Customer has been added.

Alternatively use transaction **MDS_LINKS** (= Report **CVI_MAPPING_BP_CUST_VEND**) to check, that a valid link exists.

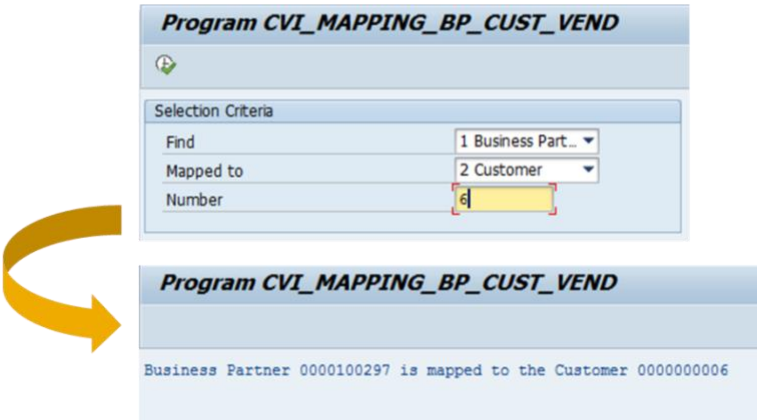


Figure 55: Report CVI_MAPPING_BP_CUST_VEND .

To avoid post processing effort, the customizing settings as well as the master data quality should be checked carefully before starting the synchronization. See chapter 0

Preparation for linking of Customer and Vendor to a single Business Partner.

7.4.4. Check Completion of Synchronization

As described in section 7.3.2.3, the CVI_COCKPIT provides the link to the completeness check transaction CVI_COMPL_CHK (ABAP report CVI_COMPLETENESS_CHECK). Customers, Vendors and Contact Persons which have not yet been converted to Business Partners are listed and it´s possible to download the lists as MS Excel files which can be directly uploaded to MDS_LOAD_COCKPIT for a subsequent run after corrections were made.

The old transaction CVI_PRECHECK_UPGRADE (Report PRECHECK_UPGRADATION_REPORT) to check the completion is obsolete as per SAP Note 2831894 - Obsolete : CVI conversion: Pre-check upgrade report.

7.4.5. Configuration and Master Data Issues

In the following, configuration and master data issues which may occur during the synchronization of Customer and Vendor master data are described. Check your configuration and master data carefully and adjust if necessary. Ensure, you have made all settings described in the previous chapters and you have maintained missing values in the Customer/Vendor or Business Partner Customizing.

Errors may occur due to missing configuration settings, specific master data constellations, or other causes. The non-exhaustive list of possible issues is based on customer project experience and will be updated frequently. Perform CVI conversion in a sandbox with production data at an early stage of the SAPS/4HANA project to identify and resolve possible issues (see also chapter 7.5.2, CVI Conversion Approach: Example).

A collection of synchronization issues can be found in SAP Note 2904137 - PPO Hints for the generic error messages in MDS_PPO2

7.4.5.1. CVI Customizing Issues

7.4.5.1.1. BUPA_TAXN011 - Tax number category does not exist

The root cause for this error is a missing tax number category in view V_TFKTAXNUMTYPEC.
You must maintain in view V_TFKTAXNUMTYPEC the entries for the countries relevant for your system.

IMG -> Cross-Application Components -> SAP Business Partner -> Business Partner -> Basic Settings -> Tax Numbers -> Maintain Tax Number Categories

The standard settings follow a naming convention of two letters and a number:

- The two letters are the ISO code of the country for which the tax number is used.
- The number is a sequential number.

The number controls which *Tax Number* field in the Customer or Vendor master this tax number is used.

For creation of new entries in V_TFKTAXNUMTYPEC you need to select one of the predefined tax types as key. If the tax type does not exist in the system, you must first create a new entry in view V_TFKTAXNUMTYPE using transaction SM30.

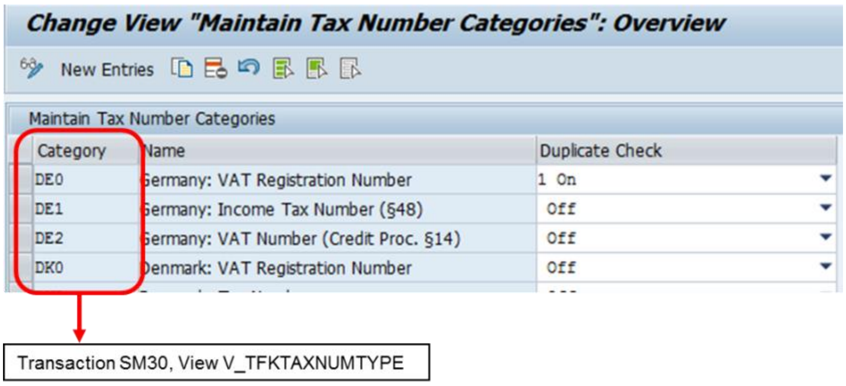


Figure 56: Maintain Tax Number Categories.

See also SAP Notes

- 1006160 - New tax number types for new EU members as of 01.01.2007
- 775919 - Missing tax number categories of business partner

7.4.5.1.2. R11173 - Specify an industry

Root cause for the error message *Specify an industry* is that the industry of the Customer (KNA1-BRSCH) or Vendor (LFA1-BRSCH) has not been configured in the industry system. Please see chapter 7.3.8.4.4 Assign Industries.

You must maintain all industries which are used for Customer/Vendor also for Business Partner and vice versa.

To view and maintain industries in Customer/Vendor customizing:

IMG -> Sales and Distribution -> Master Data -> Business Partners -> Customers -> Marketing -> Define Industry Sector For Customers

To view and maintain industries in BP customizing:

IMG -> Cross-Application Components -> SAP Business Partner -> Business Partner -> Organizations -> Maintain Industry Systems and Industries

To assign Customer/Vendor industries to BP industries and vice versa

IMG -> Cross-Application Components -> Master Data Synchronization -> Customer/Vendor Integration -> Business Partner Settings -> Settings for Customer Integration -> Field Assignment for Customer Integration -> Assign Attributes -> Assign Industries

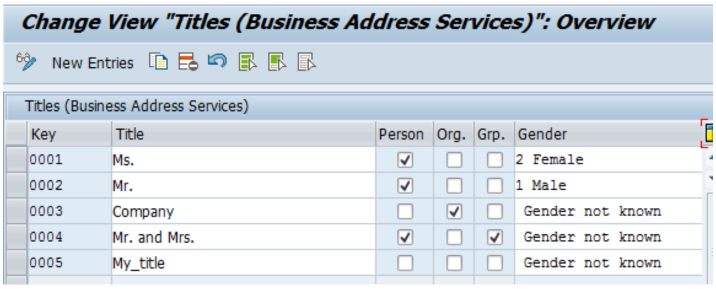
7.4.5.1.3. F2868/F2869 - Address form is not configured for organizations

Root cause for the error message *Form of address xxx not designated for organizations* is incomplete customizing of address forms.

Customer/Vendor does not use different Business Partner categories. In SAP Business Partner, it is necessary to distinguish between the Business Partner categories person, organization, and group. For more details on forms of address see SAP Help Business Address Services.

CVI creates new Business Partners of type Organization. Maintain the address forms valid for organizations and groups.

IMG -> Cross-Application Components -> SAP Business Partner -> Business Partner -> Organizations -> Maintain Industry Systems and Industries



Change View "Titles (Business Address Services)": Overview

New Entries

Titles (Business Address Services)

Key	Title	Person	Org.	Grp.	Gender
0001	Ms.	☑	☐	☐	2 Female
0002	Mr.	☑	☐	☐	1 Male
0003	Company	☐	☑	☐	Gender not known
0004	Mr. and Mrs.	☑	☐	☑	Gender not known
0005	My_title	☐	☐	☐	Gender not known

Figure 57: "Maintain Form of Address.

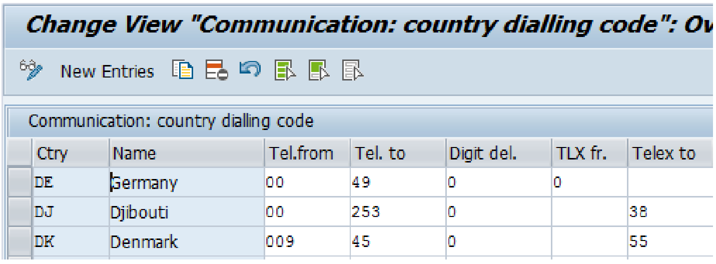
If you would switch on “Org.” e.g., for “Ms.” or “Mr.”, a business partner of category “Organization” would be created. To avoid this, for correction, the BAdI CVI_MAP_BP_CATEGORY can be activated as described in section 7.3.8.6.

7.4.5.1.4. T5002 - Telephone/fax code for country code XX is not maintained

Root cause for error message *Telephone/fax code for country code XX is not maintained* is missing customizing for the country settings.

Maintain the country specific phone numbers.

IMG -> SAP Netweaver -> General settings -> Set Countries -> Define Country Codes



Change View "Communication: country dialling code": Ov

New Entries

Communication: country dialling code

Ctry	Name	Tel.from	Tel. to	Digit del.	TLX fr.	Telex to
DE	Germany	00	49	0	0	
DJ	Djibouti	00	253	0		38
DK	Denmark	009	45	0		55

Figure 58: Define Country Codes.

7.4.5.2. Master Data Issues

Master data issues are often based on master data uploads using wrong data formats, disabled standard checks or using customer reports to maintain/update master data. Other sources are changed configuration settings without adjusting the dependent master data records (e.g. change of transport zones).

7.4.5.2.1. Trading partner xxx assigned to customer yyy doesn’t exist

Root cause for error message *Trading partner xxx assigned to customer yyy doesn’t exist* is that the trading partner specified in field KNA1-VBUND doesn’t exist in table T880 (Similarly for Vendors, LFA1-VBUND).

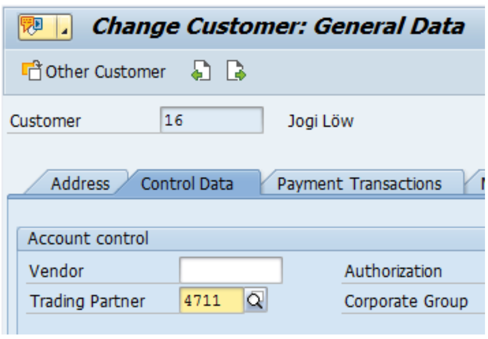


Figure 59: Change Customer General Data – Trading Partner.

This error can happen, for example, if the master data has been uploaded as table dumps and field VBUND has been transferred using a wrong format. Format of the field must be 6-digit numeric (field definition is CHAR 6, but only 6-digit numeric values are allowed).

If the values in field VBUND are wrong change them manually using transactions XD02/XK02 or create a report to automate the correction.

Remark
If IDOCs are used for the master data replication, the master data record will not be posted with the VBUND value in wrong format.

If the format of the values in field Trading Partner is correct but the ID is missing in table T880 maintain the missing entry.

Customizing path:

IMG -> Enterprise Structure -> Definition -> Financial Accounting -> Define Company

7.4.5.2.2. AR102 - Bank Account Key must have length xx

Root cause for error message regarding invalid bank account number is that the bank account number (Customer: KNBK-BANKN, Vendor: LFBK-BANKN) is defined with a length different than specified in the country settings.

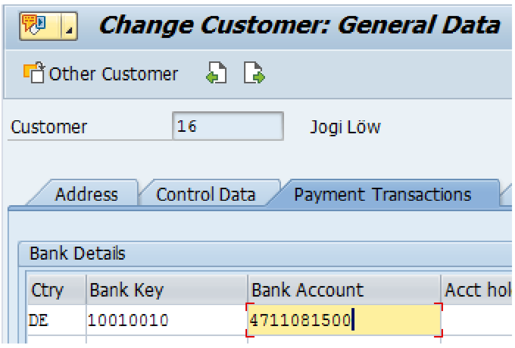


Figure 60: Change Customer General Data – Bank Account.

To ensure the correct posting, length of bank account number must comply with the country-specific settings for bank accounts.

To check the country settings

IMG -> SAP Netweaver -> General settings -> Set Countries -> Set Country-Specific Checks

Change the values manually using transactions XD02/XK02 or create a report to automate the correction.

7.4.5.2.3. AR147 - Bank control key must be two characters long

Root cause for error message regarding invalid bank control key is that the bank control key (Customer: KNBK-BKONT, Vendor: LFBK-BKONT) is defined in a wrong format. It must be two character in length.

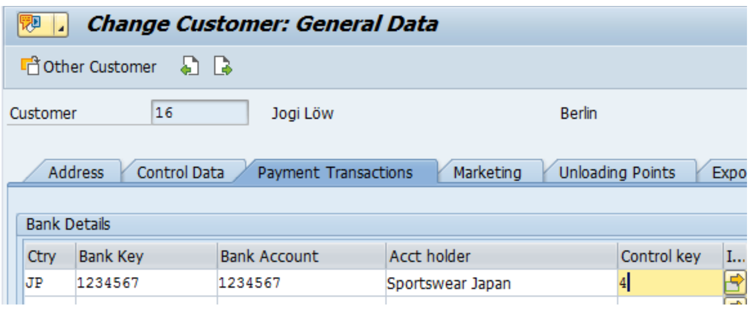


Figure 61: Change Customer General Data – Bank Control Key.

Change the values manually using transactions XD02/XK02 or create a report to automate the correction.

7.4.5.2.4. Bank key xxx doesn't exist for country yy

Root cause for error message regarding missing bank key is that the bank key (Customer: KNBK-BANKL, Vendor: LFBK-BANL) is not defined in bank master data.

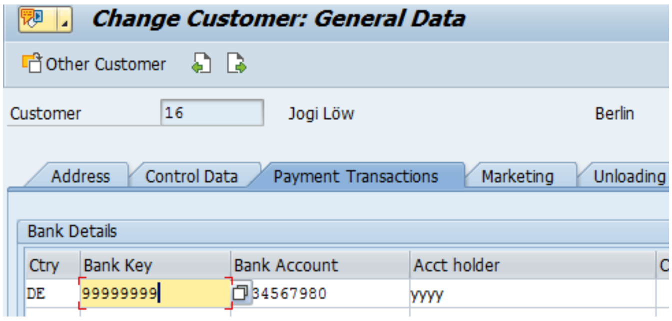


Figure 62: Change Customer General Data – Bank Key.

Reason can also be that either the bank key in Customer/Vendor master data is wrong or the key is missing in bank master.

To change the values in Customer/Vendor master use transaction XD02/XK02 or create a report to automate the correction.

To change the bank master data use transaction **FI01** (Create) or **FI02** (Change).

7.4.5.2.5. Missing account holder

Root cause for error message regarding missing account holder is that the account holder information (Customer: KNBK-KOINH, Vendor: LFBK-KOINH) is not provided, but necessary for the country of the bank.

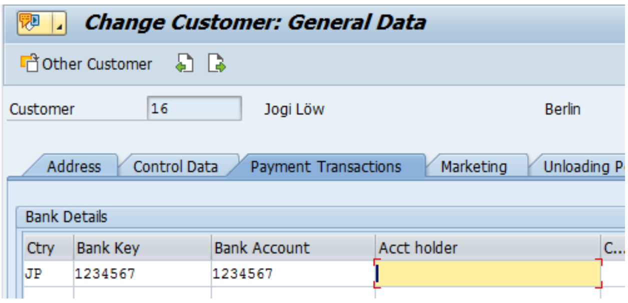


Figure 63: Change Customer General Data –Account Holder.

To ensure the correct posting, an additional check to ensure account holder information exists for every account needs to be performed before master data replication

To change the values in Customer/Vendor master use transaction XD02/XK02 or create a report to automate the correction.

7.4.5.2.6. AM654 - Postal Code (PO Box) must have length xx or yy

Root cause for error message regarding postal code length and PO Box is that postal code (PO Box) format is different from the format defined in the country settings.

Wrong postal code information can be present in tables KNA1/LFA1 as well as in table ADRC.

In tables KNA1/LFA1 the following fields are used:

- PSTLZ
  Postal Code
- PSTL2
  PO Box Postal Code
- PFACH
  PO Box

In table ADRC the following fields are used:

- POST_CODE1
  Postal Code
- POST_CODE2
  PO Box Postal Code
- PO_BOX
  PO Box

To change the values in Customer/Vendor master use transaction XD02/XK02 or create a report to automate the correction.

7.4.5.2.7. AR128/AR129 - Tax Code n is not valid

Root cause for message *Tax Code n is not valid* (n=1 or n=2) are invalid tax numbers in fields STCD1 or STCD2 of either customer (table KNA1) or Vendor (table LFA1) master data.

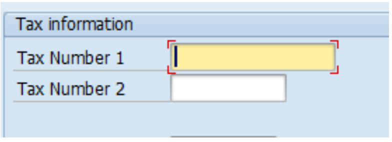


Figure 64: Tax Number.

Change the values manually using transactions XD02/XK02 or create a report to automate the correction.

7.4.5.2.8. Tax Jurisdiction Code is not valid

Root cause for error message regarding tax jurisdiction code is that the jurisdiction code stored in Customer/Vendor master data (Customer: KNA1-TXJCD, Vendor: LFA1-TXJCD) is different from the format defined in customizing.

To check the customizing

IMG -> Financial Accounting -> Financial Accounting Global Settings -> Tax on Sales/Purchases -> Basic Settings -> Specify Structure for Tax Jurisdiction Code

To change the values in Customer/Vendor master use transaction XD02/XK02 or create a report to automate the correction.

7.4.5.2.9. BUPA_TAX200 - The tax number for tax number category XXX is already maintained

Root cause for error message regarding already existing tax number is double maintenance of VAT registration number.

The VAT registration number is maintained in Customer/Vendor master in field KNA1-STCEG (Customer) or LFA1-STCEG (Vendor) and additionally in the section ‘Other’ in field KNAS-STCEG (Customer) or LFAS-STCEG (Vendor).

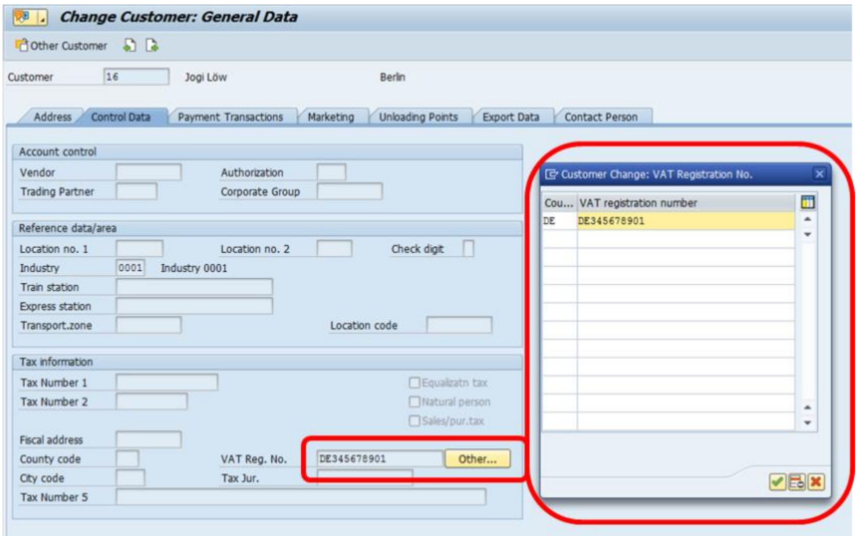


Figure 65: Change Customer General Data – VAT Info.

To change the values in Customer/Vendor master use transaction XD02/XK02 or create a report to automate the correction.
See also SAP Note 2232604 - Error BUPA_TAX200 when replicate vendor or customer to Business Partner.

7.4.5.2.10. Entry in field Tax code n is longer than XX characters

In the mapping methods for Vendor executed in the conversion, the tax number 1 of the Vendor (field LFA1-STCD1) in ECC is mapped to tax code 2 (field LFA1-STCD2) of the Business Partner, if the tax country of the Vendor is Germany (DE).

The field STCD1 is defined with 16 characters and STCD2 with 11 characters. The Function Module BUPA_TAX_NUMBER_CHECK checks the length of these two fields.

If the tax code has more than 11 characters, the error AR103 occurs, because it is possible to enter a tax code with more than 11 characters in the tax code 1 of the Customer/Vendor in ECC.
See SAP Note 2098239 - Entry in field tax code 2 is longer than 11 characters for details.

Change the error message AR103 to a Warning or Info message.

Switch off the error message using transaction **OBA5** to define a new user specific message control. Select Application Area **AR**. In the maintenance view, press *New Entries*. Select message number 103 and select ‘W‘ (or ‘I’) as message type for Online- and Batch Input processing. Save the new entry.

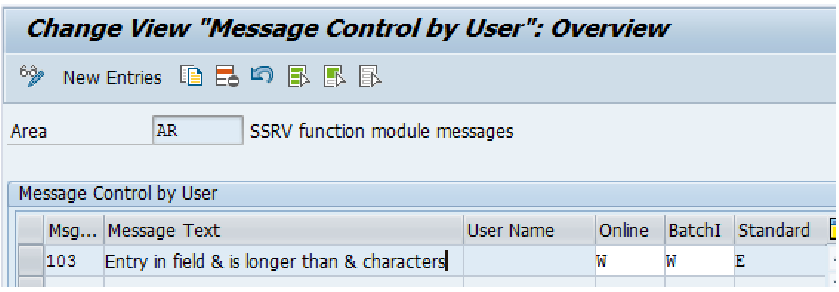


Figure 66: Tax Code Too Long.

Remark
See SAP Note 958424 - BP:Error message for tax code 2 customized for a description how to make messages customizable.

7.4.5.2.11. References to non-existing Customers/Vendors

Root cause for error message regarding non-existing Customers/Vendors are referenced Vendors in Customer master data (KNA1-LIFNR) or referenced Customers in Vendor master data (LFA1-KUNNR) which do not exist.

If IDOCs are used for the master data replication, the master data record will not be posted.

To ensure the correct posting, an additional check for existence of referenced Customer/Vendor should be performed in the source system before master data replication.

To change the values in Customer/Vendor master use transaction XD02/XK02 or create a report to automate the correction.

7.4.5.2.12. Incorrect Credit Card Numbers assigned

Root cause for error message regarding incorrect credit card numbers is a credit card number which does not fit to the settings made in customizing for the credit card type.

Credit cards are stored in table VCNUM. Assignment of credit cards to Customers is stored in table VCKUN. In both tables the field CCNUM is used to store the credit card number.

To check and adjust the customizing of credit card types use Customizing path

IMG -> Sales and Distribution -> Billing -> Payment Cards -> Maintain Card Types

To change the values in Customer/Vendor master use transaction XD02/XK02 or create a report to automate the correction.

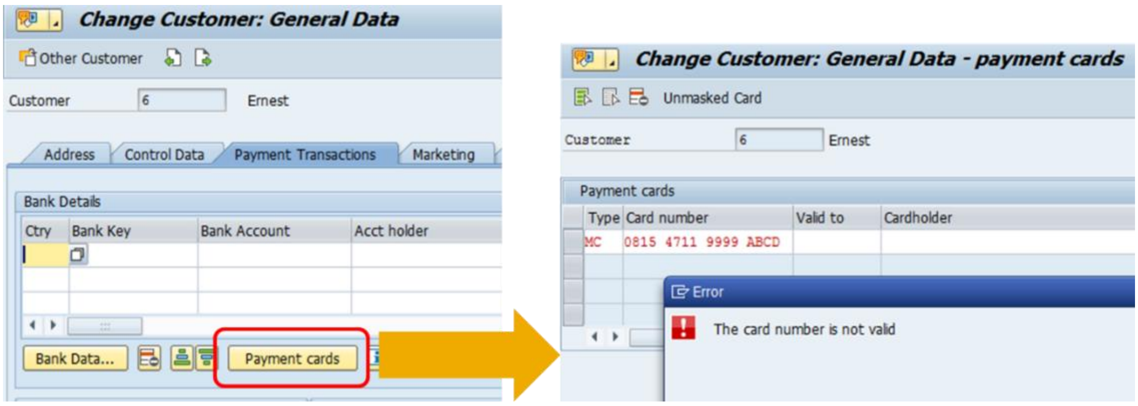


Figure 67: Invalid Credit Card Number.

7.4.5.2.13. BC428 - Inconsistent visiting hours in KNVK table (Non permitted overflow)

Root cause for this error message (Message BC428) is that as soon as visiting hours are used for contact person, a begin and end time has to be defined for the morning and the afternoon time intervals. This error appears if only begin time or end time is maintained.

Fields:

- KNVK-MOAB1
  Morning Interval Begin
- KNVK-MOBI1
  Morning Interval End
- KNVK-MOAB2
  Afternoon Interval Begin
- KNVK-MOBI2
  Afternoon Interval End

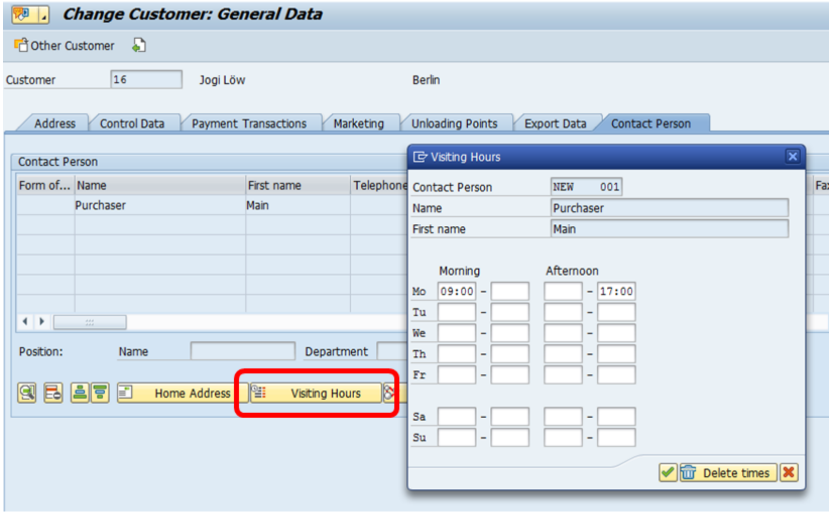


Figure 68: Change Customer General Data – Visiting Hours.

To change the values in Customer/Vendor master, use transaction XD02/XK02 or create a report to automate the correction (e.g. delete the contact hours).

7.4.5.2.14. Missing web address in Customer master

Root cause for error message regarding missing web address in Customer/Vendor master is a communication entry of type HPG (Homepage) without valid URL-address. In general, this error occurs when a communication type has been maintained without identifier.

The communication types and identifiers are stored in table ADR12 using mainly the following fields:

- ADR12-URI_TYPE
  Identifier
- ADR12-URI_SRCH
  Short form
- ADR12-URI_ADDR
  Address

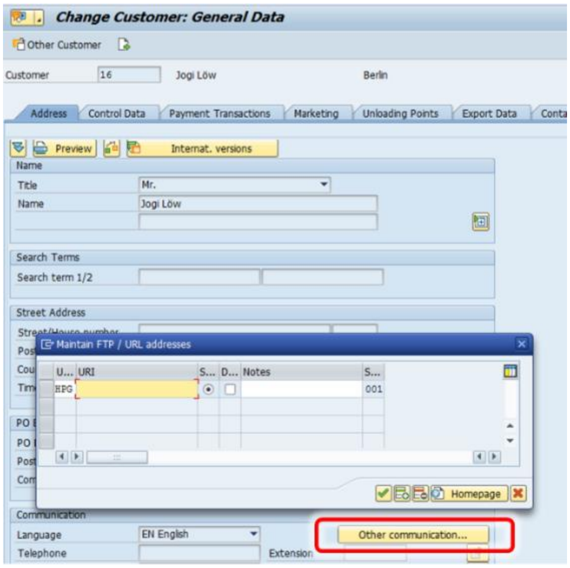


Figure 69: Change Customer General Data – Web Address.

To change the values in Customer/Vendor master, use transaction XD02/XK02 or create a report to automate the correction (e.g. delete all entries without URI-address).

7.4.5.2.15. Business Partner country not defined

Root cause for error message related to an undefined Business Partner country is, that country has not been maintained in Customer/Vendor master but is a mandatory entry in Business Partner.

To change the values in Customer/Vendor master use transaction XD02/XK02 or create a report to automate the correction.

7.4.5.2.16. F2840 - The transport zone XX is not defined for country XX

Root cause for error regarding undefined transport zone is that the country does not have the transport zone anymore which was maintained in Customer/Vendor data.

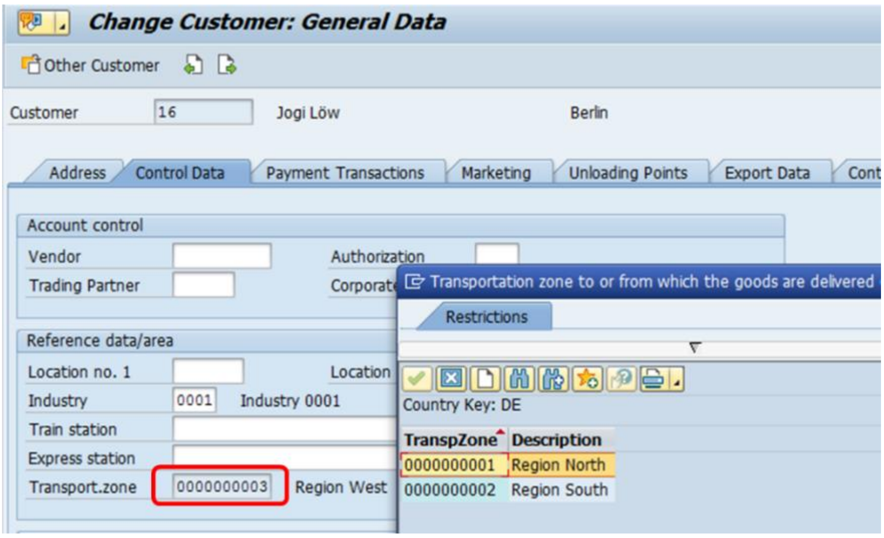


Figure 70: Change Customer General Data – Transport Zones.

Maintenance of transportation zones

IMG -> SAP Netweaver -> Application Server -> Basis Services -> Address Management -> Maintain Transport Zones

To change the values in Customer/Vendor master use transaction XD02/XK02, or create a report to automate the correction.

7.4.5.2.17. The use of the last X characters in field XYZ is restricted (XX of YY)

Root cause for this message are Customer/Vendor name and address data which could cause the fields to be truncated in some scenarios. These scenarios are data transfers with ALE, EDI or printing of the address. In these cases the system only uses the first 35 characters of name fields, of the fields Street, City, District and the first 10 characters of the field ‘Search Term 1’.

If you do not want the address data to be truncated in these scenarios, only use the first 35 characters of the address fields or the first 10 characters of the field ‘Search Term 1’ during maintenance, or abbreviate the texts, if necessary.

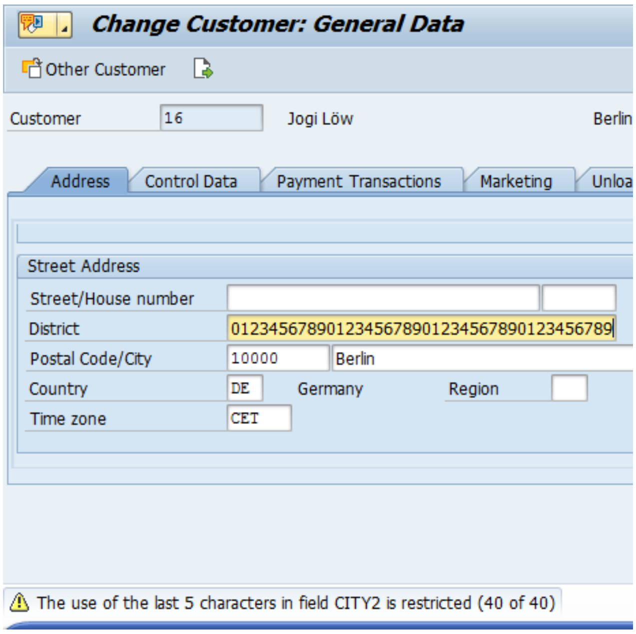


Figure 71: Change Customer General Data – Values Too Long.

To change the values in Customer/Vendor master use transaction XD02/XK02, or create a report to automate the correction.

The message (AM228) can be suppressed via Customizing. Use following path:

IMG -> Cross-Application Components -> Bank Directory -> Change Message Control

Alternatively call transaction **OBA5.** Select Application Area **AM**. In the maintenance view press *New Entries*. Select message number 228 and select '-' as message type for Online- and Batch Input processing. Save the new entry.

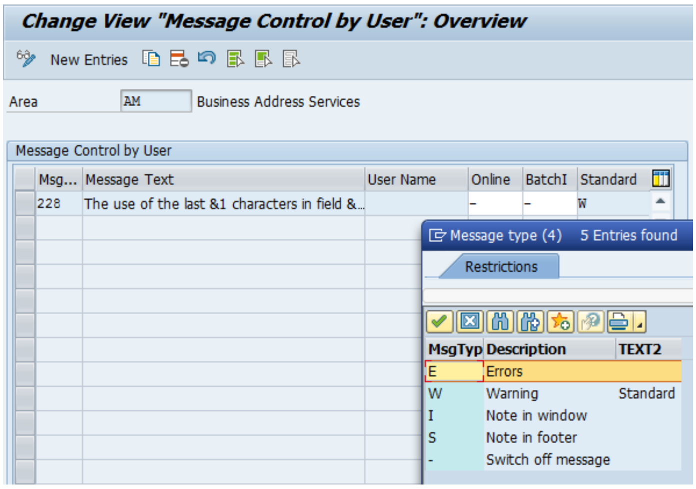


Figure 72: Message Control By User.

7.4.5.2.18. No geocoder for country … maintained in system

This message may arise on a customer or supplier that has no address (and even no country) assigned. This kind of setting can be in use while managing one-time customers / suppliers (CPD).

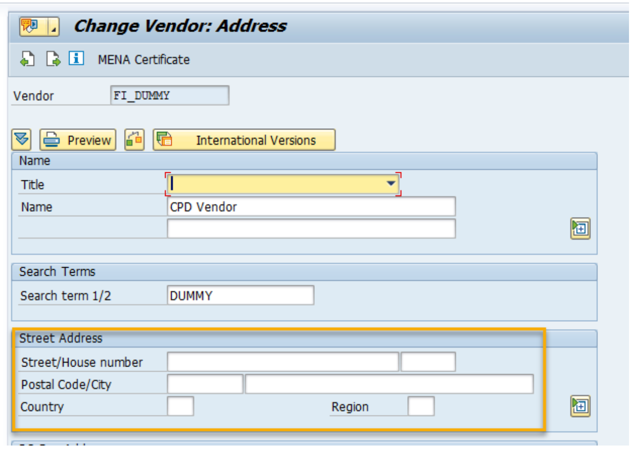


Figure 73: Master data with no address.

Solution consists in assigning (at minimum) a country to allow synchronization or for suppressing address checks in CpD related account groups (e.g., for one-time customers) check IMG-node “Activate Field Check Suppression”. For details and related SAP Notes, please check section 7.4.1.1 Prerequisites.

7.4.5.3. Miscellaneous Issues

7.4.5.3.1. R11124 - Business partner with GUID xxxxx does not exist

Root cause for error *Business partner with GUID xxxxx does not exist* is a wrong number range setting for contact persons.
Do not share the number range for contact persons with other BP groupings. The contact person number range is the internal standard grouping number range. For more details see chapter 7.3.8.2.4 Define Number Ranges and Grouping for Business Partner.
Another cause is an inconsistency in link tables CVI_CUST_LINK and CVI_VEND_LINK. To solve the issue, correction reports should be implemented and run.
974504 - Inconsistencies in link tables of master data sync

7.4.5.3.2. R1908 - Business Partner with GUID xxxxxx already exists

This issue occurs if a corresponding Business Partner to a Customer/Vendor has been created but without an entry in link tables CVI_CUST_LINK or CVI_VEND_LINK exists. Correction report will solve the issue.
SAP Note 2373665 - Missing link in the CVI table for the same number objects

7.4.5.3.3. Lock table overflow

It’s possible to get a lock table overflow during synchronization process. This is due a technical restriction, caused by parameter enque/table_size. If necessary, increase the value of parameter enque/table_size significantly (e.g., 4 - 10 GB, dependent on system configuration and master data volume).
Please note: lock table overflows can cause inconsistencies in link tables of master data as mentioned in “**Error! Reference source not found.Error! Reference source not found. - Error! Reference source not found.**” (ref. to note 974504 - Inconsistencies in link tables of master data sync).

7.4.5.3.4. Update termination error (ADRNR)

The synchronization process can terminate due to the exhausted number range object ADRNR. The creation of new Business Partners also creates a lot of new addresses. Before starting the CVI mass run check the current number object and change it if needed.

Customizing path:

IMG -> SAP Netweaver -> Application Server -> Basis Services -> Address Management -> Maintain Address and Person Number Range

Alternatively call transaction **SNRO** with number range object **ADRNR** or use transaction **SA01**.

7.4.5.3.5. R11244 - Error for validity periods of addresses

There are inconsistencies in addresses. To correct these inconsistencies, check SAP Notes
1064373 - SAP BP:Report to clear address inconsistencies BUT000<->ADR*
865271 - BP_MISC: Report to get the inconsistency with addresses

7.4.5.3.6. AM053 - Specify either address number or address handle

There are inconsistencies in addresses. To correct these inconsistencies, check SAP Notes
1064373 - SAP BP:Report to clear address inconsistencies BUT000<->ADR*
865271 - BP_MISC: Report to get the inconsistency with addresses

7.4.5.3.7. F2810/F4230 - Bank XXX marked for deletion in country YY

The bank key used in Customer/Vendor master data (Customer: KNBK-BANKL, Vendor: LFBK-BANL) is marked for deletion (e.g. with transaction **FI06**).

The message with message number **BF00210** is defined by default as an error, therefore synchronization fails.

Switch off the error message using transaction **OBA5** to define a new user specific message control. Select Application Area **BF00**. In the maintenance view press *New Entries*. Select message number 210 and select '-' as message type for Online- and Batch Input processing. Save the new entry.

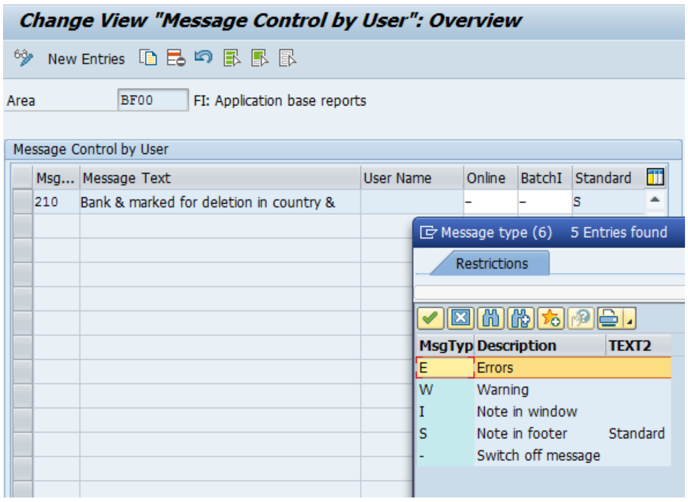


Figure 74: Message Control By User.

7.4.5.3.8. Not all address numbers have been defined

It has been reported, that in some cases no address from ADRC table has been linked to a Customer/Vendor. At the same time, transactions XD02/XK02 try to read address data from ADRC and fail.

To ensure the correct posting, an additional check needs to be performed before master data replication to ensure the assignment of the address number.

Create a report to automate the check and correction.

7.4.5.3.9. Others

The (non-exhaustive) list below shows some other customizing and master data errors not described in the previous chapters. These errors have appeared during previous Customer conversion projects and are listed here for convenience.

To solve the issues, change master data manually or via tools. If the customer accepts the existing data quality due to time or resource constraints, and the check of the error is configuration, bypass check via configuration could be considered as a short-term remedy so that the SAP S/4HANA conversion may start according to schedule. The data errors must be fixed and the data error check should be restored before go-live.

Message Class / Number	Message
AM/129	The transport zone xxxxxx is not defined for country xx
AR/102	VAT Reg.No. XXXXXXXXX must have length 12
AR/103	VAT Reg.No. XXXXXXXXX is longer than 12 characters
AR/104	Bank Key AAA must contain only numbers
AR/191	ISO code XX is not correct in the VAT registration number
AR/196	VAT registration number contains invalid characters
BF00/211	Bank XXX does not exist
FSBP_FS_ATTRIBUTES/015	Company XXX does not exist
GEOCODING/002	Geocoder SAP0: Country specification is incomplete (Customizing)
R1/286	Business partner xxx already exists (see also chapter 0)
R1/1124	Business partner with GUID xxxxx does not exist
T5/002	Telephone/fax code for country code xx is not maintained

7.5. Conversion Process

The Conversion Process to upgrade the ECC system to SAP S/4HANA must be triggered following the S/4HANA Conversion Guide. The Conversion step to be executed by the technical team is part of the system conversion from the ECC system to SAP S/4HANA On-Premise. No additional CVI action is required.

As a prerequisite for the system conversion, the configuration of CVI must be in place and must have been tested. The conversion of all Customer/Vendor master data to Business Partner should preferably be done before the system conversion so that any issues with customizing or master data settings can be anticipated and resolved, as oppose to attempting to perform CVI conversion as part of the system conversion.

7.5.1. CVI Conversion Approach: Key Considerations

Key considerations when planning for the CVI Conversion (Business Partner synchronization) are:

- No Downtime
- Not in critical path in the SAP S/4HANA conversion process
- No last-minute surprise in effort or time

CVI requires high quality master data to be converted. The quality checks cannot be switched off on the cockpit level. This way the customer is forced to run a master data quality project for Customer and Vendor master. If not started in advance, that can be a serious roadblock for upgrade.

There are other factors influencing the time and effort for CVI Conversion and which can conflict with the targets mentioned above.

- BP/CVI/Pre-Check Know-How
- Customer/Vendor/BP number ranges
- BP Customizing consistency including field attributes
- Customer/Vendor/Business Partner Data consistency
- Customer/Vendor Enhancements (Extensions – can be complex and time consuming)
- Data volume

Customers should start immediately to run CVI in current system to avoid any delay in the SAP S/4HANA Conversion project.

7.5.2. CVI Conversion Approach: Example

1. For the following steps, use the transaction CVI_COCKPIT to perform the systematic sequence of tasks. Maintain and track the progressive status of the CVI Conversion in this transaction.
2. Perform CVI conversion in a sandbox with production data in an early stage of the SAP S/4HANA project.
   - Identify all data errors before the production CVI conversion and decide the error resolution. Certain master data errors could need a custom program to correct existing master data. If the errors have no

impact on the business process, workaround measures could be implemented via configuration to relax the data validation. For example, title Mr. is used for a Customer and the system expects Company.
– Assess the CVI conversion process runtime in the production environment. If the required conversion time is long enough to impact the SAP S/4HANA conversion schedule, the CVI conversion could be done in advance following the steps below. Otherwise, the CVI conversion could be done with the SAP S/4HANA Conversion.

3. Configure CVI in ECC production system ONLY for the synchronization direction 'Customer/Vendor-to-Business Partner'
4. Run the Load Tool in the CVI cockpit, (which calls the transaction MDS_LOAD_COCKPIT preferably during a quiet time to avoid any disruption to business transactions. Though no downtime is needed.
5. Run the Post Processing and Completeness Check steps in the CVI_COCKPIT transaction to identify any Customers/Vendors/contact persons not converted, evaluate and resolve the errors before running the Load Tool (MDS_LOAD_COCKPIT) step again for those unconverted objects.
6. The users will continue to use the ECC Customer/Vendor maintenance transaction to create the Customer/Vendor master data before the SAP S/4HANA conversion, and the CVI will create the Business Partners in background.
7. Lock the BP transaction in the ECC system to prevent user usage before converting the ECC system to SAP S/4HANA.
8. Convert the ECC system to S/4HANA.
9. Activate the CVI in the Business Partner-to-Customer/Vendor direction in the S/4HANA system.

7.5.3. Bypassing CVI Pre-check during SUM run (for Proof of Concept use ONLY)

During an SAP S/4HANA Proof of Concept (POC) test in a sandbox environment, if the Customer/Vendor master data quality is poor and there is not enough time to correct the data, the CVI pre-check during the SUM run could be bypassed by following the steps described in the SAP Notes below.

Important
Bypassing the checks isn't recommended by SAP and should only be made in exceptional cases for testing purposes in sandbox environments.

During the actual SAP S/4HANA conversion, it is not advisable to bypass this check as ideally these errors need to be corrected. Corrections can be done manually or with other customer specific reports dependent on the source of error. These are key tools supporting the identification of errors and the correction of errors:

- Customizing check transaction CVI Customizing – Check Report (transaction code BP_CVI_IMG_CHK) either directly or via the CVI cockpit as "Automated Customizing" on the "Preparation" phase tab or „Preupgrade Customizing Checks" on the "Upgrade Preparation" phase tab. Please check SAP Note 2891455 - New Customizing Check Report for SAP S/4HANA Master Data Migration (BP<->CVI).Please check SAP Note 2891455 - New Customizing Check Report for SAP S/4HANA Master Data Migration (BP<->CVI).
- Completeness Check transaction (transaction code) lists not yet synchronized customers, vendors and contact persons. It can be started either with transaction code CVI_COMPL_CHK or from CVI Cockpit from the "CVI Load" phase tab.
- The Post Processing Office helps to find errors during CVI synchronization. Errors can be corrected, and synchronization can be repeated. The Post Processing Office can be accessed through CVI cockpit on the "CVI Load" and the "Upgrade Preparation" phase tab.
- Master Data Consistency Check report (transaction code CVI_PRECHK). Although this report is considered for early detection and correction of most common master data consistency errors in the preparation phase, it´s still useful in later phases before conversion. Next to individual master data record correction, you could also do mass corrections, e.g., setting some constant values just to avoid synchronization errors during a PoC in a sandbox.

Implement the following SAP Notes before executing the MDS_LOAD_COCKPIT transaction to bypass few of the mandatory checks, which are basically used to synchronize the Customer/Vendor data to Business partner (see chapter 7.4.1 Synchronization Cockpit):

- SAP Note 2336018 - BP_S4HANA : Suppress Mandatory BP field groups checks via MDS_LOAD_COCKPIT transaction
- SAP Note 2345087 - BP_BAP: Missing values in required entry fields cause posting termination in mass processing

Also consider switching off further checks including court specific checks as described in section 7.4.1.2 Suppress certain Checks.

7.5.4. Tips and Tricks

- Performance MDS_LOAD_COCKPIT: creating a single Business Partner consumes reasonable time. Although SAP has improved the performance of it the full load could exceed given times for synchronization. MDS_LOAD_COCKPIT provides the option to run the synchronization in parallel processes. It is highly recommended to use this option. Based on some experiences the database performance isn't the bottleneck. So more than 10 processes in parallel do not slow down DB performance.
- Usually, the number ranges used by BP are not buffered in SAP-Standard. Each single process generated a new number from NRIV. This could lead, e.g when using massive parallel processing, to parallel locks on the number ranges. This can be prevented when using buffering for number ranges.

7.6. Post Conversion Activities

After the successful initial load of Business Partners and completed system conversion, some settings need to be changed to ensure, that Business Partner is the leading object. You must adjust the system to synchronize newly created or changed Business Partners back to Customer/Vendor.

Since S/4HANA 2020 there is transaction BP_CVI_IMG_CHK (CVI Customizing Checks for Synchronization) helping you to check customizing for CVI in S/4HANA. It does consistency checks and lets you directly jump to the respective customizing. It corresponds to the same transaction in ECC as described in section 7.3.2.2 CVI Customizing – Check but focuses on S/4HANA as in S/4HANA the Business Partner is the leading object and synchronization direction is from Business Partner to Customer/Vendor. It can be started via transaction code BP_CVI_IMG_CHK and can be found here in customizing:

IMG -> Cross-Application Components -> Master Data Synchronization -> Business Partner (CVI) -> Customizing Checks -> Business Partner Customer/Supplier Integration Checks

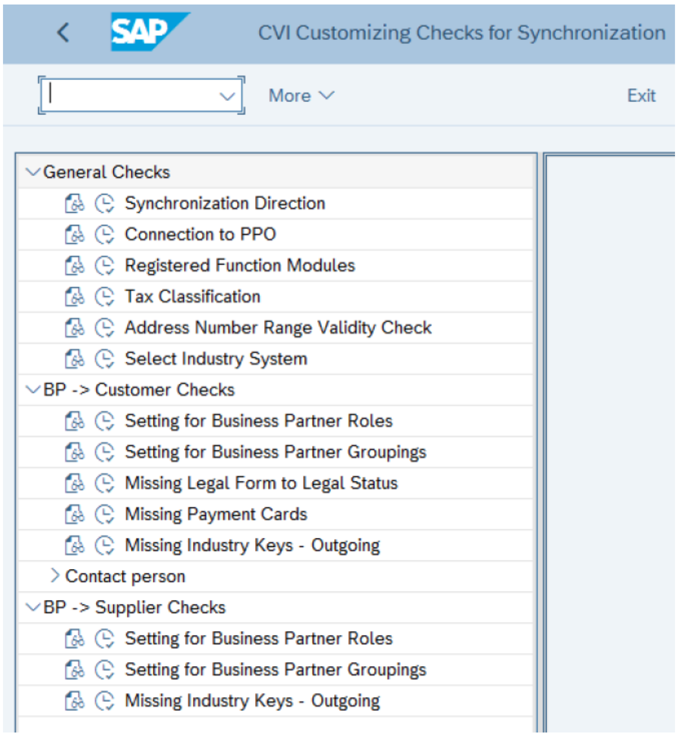


Figure 75: Transaction BP_CVI_IMG_CHK for checking CVI customizing in S/4HANA

7.6.1. Activate Creation of Post Processing Orders (Direction BP to Customer/Vendor)

In the standard system, creation of post processing orders is deactivated for all business processes. In paragraph 7.3.8.1.2 Activate Creation of Post Processing Orders post processing orders for the processes

Customer/Vendor to Business Partner (CVI_01 and CVI_02) have been enabled. Now the direction Business Partner to Customer/Vendor must be activated.

IMG -> Cross-Application Components -> General Application Functions -> Post processing Office -> Business Processes -> Activate Creation of Post processing Orders

Activate Creation of Postprocessing Orders for component **AP-MD** and Business Processes **CVI_03** (Business Partner > Customer) and **CVI_04** (Business Partner > Vendor). Mark the checkbox to activate the entries.

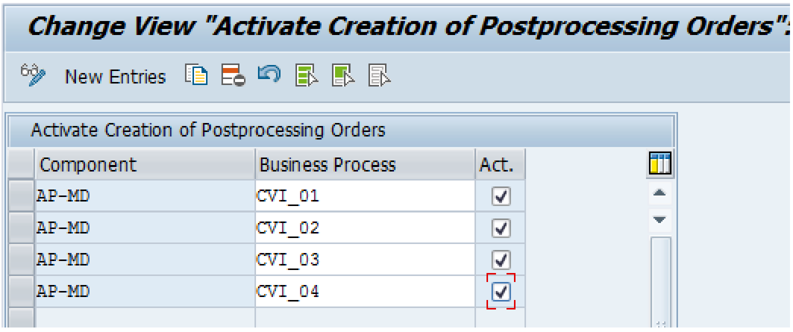


Figure 76: Activate Creation of Postprocessing Orders.

Remark
After completing the system conversion to S/4HANA, maintenance of Customers/Vendors is only possible using the Business Partner transaction. Therefore, business processes CVI_01 and CVI_02 are no longer in use. Customizing entries can remain but will not be used.

Attention	Before performing the conversion to S4/HANA via SUM, it is crucial to resolve the Postprocessing Orders listed in the Post Processing Office since they are not covered by the SUM pre-check. For that, transaction MDS_PPO2 can be used. (see also chapter 7.2.3) Otherwise, data inconsistency will occur.

7.6.2. Activate Synchronization Options (Direction BP to Customer/Vendor)

Using this IMG activity, you can configure the direction in which data is synchronized between the Customer/Vendor and the Business Partner. Data can be synchronized in both directions. This means that you can update data from the Business Partner to the Customer/Vendor and from the Customer/Vendor to the Business Partner.

In chapter 7.3.8.1.4 Activate Synchronization Options you activated the options for direction Customer/Vendor to Business Partner. Now, you need to activate the direction Business Partner to Customer/Vendor.

IMG -> Cross-Application Components -> Master Data Synchronization -> Synchronization Control -> Synchronization Control -> Activate Synchronization Options

If not already done in preparation phase, insert new entries for

- Source Object BP and Target Object Customer
- Source Object BP and Target Object Vendor

Activate both entries by marking the activation indicator checkbox.

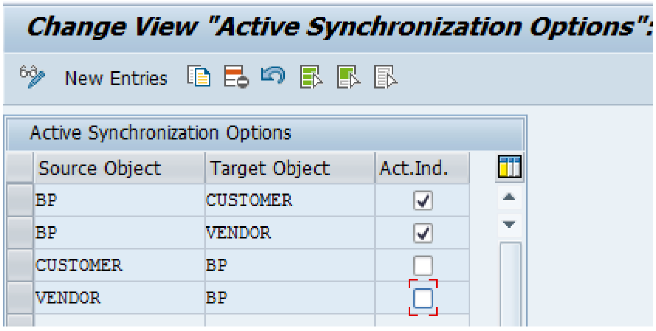


Figure 77: Active Synchronization Options.

Remark
After completing the system conversion to S/4HANA, maintenance of Customers/Vendors is only possible using the Business Partner transaction. Therefore, synchronization options Customer -> Business Partner and Vendor -> Business Partner are not any longer in use. Customizing entries can remain but will not be used.

7.6.3. Set BP Role Category for Direction BP to Customer

In this IMG activity, you define which BP role categories enable Customer/Vendor integration in the direction from the Business Partner to the Customer/Vendor. You can determine how the system creates a corresponding Customer/Vendor in Financial Accounting when you process a Business Partner.

The BP role categories entered in this IMG activity are Customer-based. This means that the system considers Customer/Vendor integration when it processes Business Partners with a corresponding BP role. In the IMG activity, you define whether the Business Partner role assigned to the BP role category is a mandatory or optional Customer/Vendor Business Partner role.

In the case of mandatory Customer/Vendor Business Partner roles the system automatically creates corresponding Customers/Vendors. In the case of optional Customer/Vendor Business Partner roles you can determine whether you want to create a corresponding Customer/Vendor during Business Partner processing.

BP to Customer

IMG -> Cross-Application Components -> Master Data Synchronization -> Customer/Vendor Integration -> Business Partner Settings -> Settings for Customer Integration -> Set BP Role Category for Direction BP to Customer

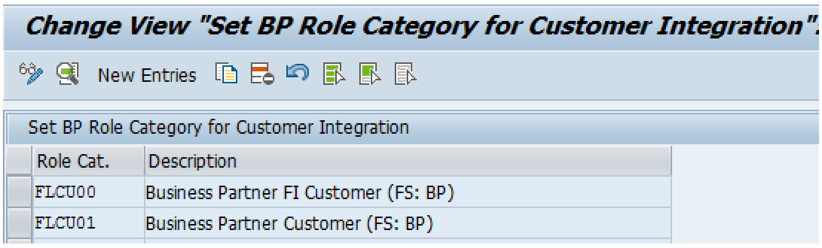


Figure 78: Set Business Partner Role for Customer Integration.

On the overview screen, you have to assign a Business Partner role category. The system creates a Business Partner with the relevant account group in the BP roles that are assigned to this account group.

BP to Vendor

IMG -> Cross-Application Components -> Master Data Synchronization -> Customer/Vendor Integration -> Business Partner Settings -> Settings for Vendor Integration -> Set BP Role Category for Direction BP to Vendor

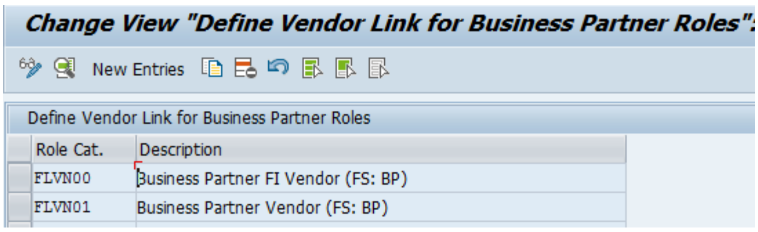


Figure 79: Define Vendor Link for Business Partner Roles.

On the overview screen, you must assign a Business Partner role category. The system creates a Business Partner with the relevant account group in the Business Partner roles that are assigned to this account group.

7.6.4. Number assignment (CVI-Target: Customer/Vendor)

In this IMG activity, you assign account groups for the Customer/Vendor master record to Business Partner groupings, to ensure that the Customer/Vendor is updated at the same time as the Business Partner is processed as part of Customer/Vendor integration. With this assignment, you can choose whether the Customer/Vendor master record is created with an account group with internal or external number assignment or with identical numbers. In case you are using same numbers you need to adjust the number ranges for business partners and customer / vendor as described in chapter 7.1.8.2. Number Ranges and Groupings

Assign the same intervals for Business Partner and Customer/Vendor. Set the Customer/Vendor number assignment to external to ensure that newly created Customer/Vendor will have the same numbering as the corresponding Business Partner. Set the flag “Same number”.

Number Assignment (BP to Customer)

IMG -> Cross-Application Components -> Master Data Synchronization -> Customer/Vendor Integration -> Business Partner Settings -> Settings for Customer Integration -> Field Assignment for Customer Integration -> Assign Keys -> Define Number Assignment for Direction BP to Customer

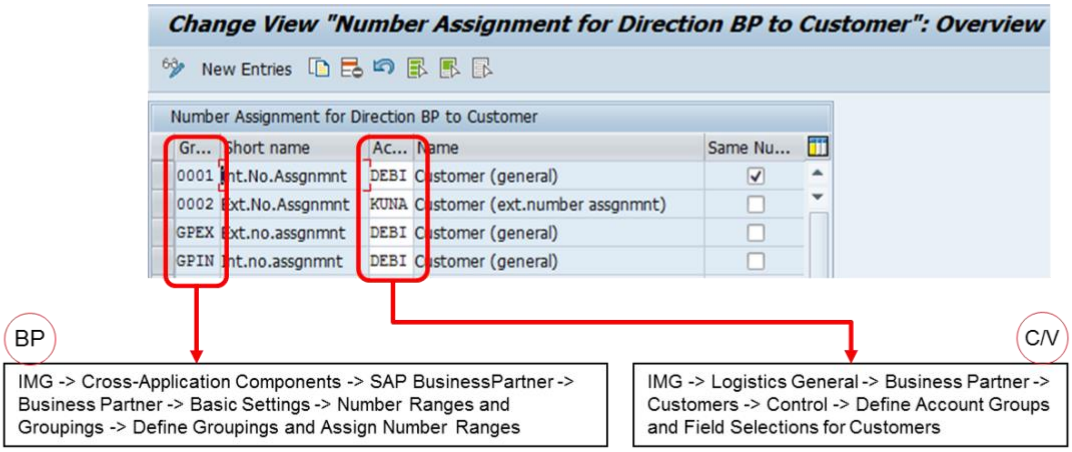


Figure 80: Number Assignment for Direction Business Partner to Customer.

Number Assignment (BP to Vendor)

IMG -> Cross-Application Components -> Master Data Synchronization -> Customer/Vendor Integration -> Business Partner Settings -> Settings for Vendor Integration -> Field Assignment for Vendor Integration -> Assign Keys -> Define Number Assignment for Direction BP to Vendor

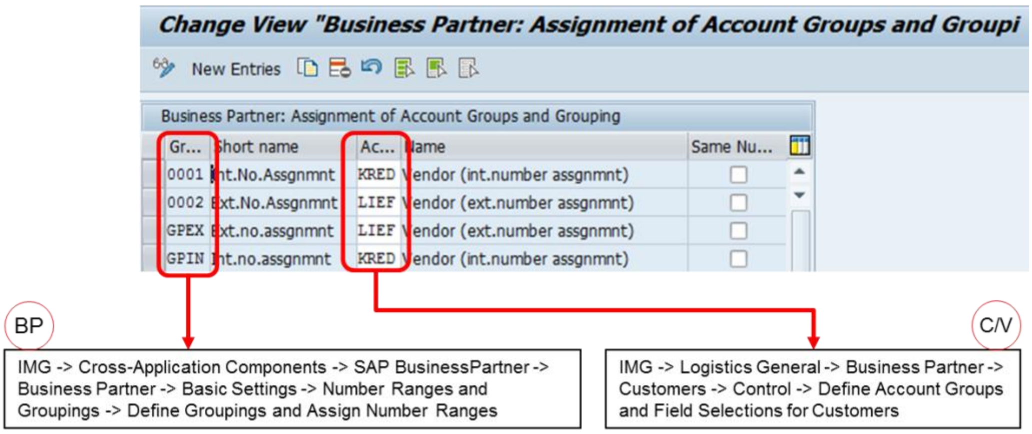


Figure 81: Assignment of Account Groups and Groupings.

7.6.5. Change Field Status of Account Groups

After system conversion, the transactions to create or maintain Customer and Vendor cannot be used anymore and are redirected to Business Partner transaction BP.

Future settings regarding field status of Customer and Vendor master records can be configured using the corresponding Business Partner settings. To make sure that the field status settings defined in customer and vendor master records are considered in transaction BP, implement SAP Note 2516606 - BP_CVI: Taking into account the FI-specific field modification of customer and vendor in transaction BP / 2603898 - BP_CVI: Composite SAP Note for consideration of FI field modifications (FMOD1) in transaction BP in CVI in S/4HANA

Further helpful hints in handling this topic:

Along with field modification mapping to business partner field groups in transaction BP please also check this information:

- SAP Note 2603898 BP_CVI: Composite SAP Note for consideration of FI field modifications (FMOD1) in transaction BP in CVI in SAP S/4HANA
- SAP Note 2848273 CVI_BDT: Find reason for field status (required, hidden etc.) of fields in transaction BP ("Check Visibility Report")
- Blog "Tips and Tricks on Field Modifications in Transaction BP, CVI in S/4HANA" https://blogs.sap.com/2020/06/17/tips-and-tricks-on-field-modifications-in-transaction-bp-cvi-in-s-4hana/

For finding field group and data set, in transaction BP place the cursor into the field you want to get information about. Enter OK-Code BDT_ANALYZER in transaction field. After this a Pop-Up will appear where you can get all technical information as of field group, data set, etc.

For further field status analysis, you can use transaction CVI_CHECK_VISIBILITY. If in transaction BP an input field is mandatory, display-only, hidden or optional and you expect a different field status for this field group, or you wish to change it, this transaction can show you the reason for the field status.

7.6.6. Industry Mapping

You need to maintain the industry mapping for the direction Business Partner to Customer/Vendor. The configuration steps are already described in chapter 7.3.8.4.4 Assign Industries, 'Industry mapping for the direction Business Partner to Customer/Vendor'.

Check, that you maintained valid values as described in the above-mentioned paragraph.

7.6.7. General Mapping Checks

Ensure that all the values you maintained for value mapping in CVI Customizing are available in Business Partner Customizing. Double check your settings for Contact Person, Customer and Vendor. See chapters 7.3.8.3 Customer Value Mapping (Contact Person), 7.3.8.4 Customer Value Mapping and 7.3.8.5 Vendor Value Mapping for reference.

7.6.8. Tipps and Tricks

- Over the time the PPO could contain a huge number of entries. In non-productive systems you may use transactions from package /SAPPO/ORDER to clean up the PPO. Please consider note 2776860 - program /SAPPO/DELETE_ORDERS is obsolete and deletion of PPO orders are not supported.

8. IMPACT ON CUSTOM CODE

There is some impact on custom code related to CVI/BP in S/4HANA.

All Batch Input and CALL TRANSACTION statements must be reimplemented with API CL_MD_BP_MAINTAIN.

Only one exceptional case for CALL TRANSACTION is usable, when just calling the transaction without any parameter for calls to those old transactions, which are automatically re-directed to the proper transaction for these old transactions:

FD01, FD02, FD03, FK01, FK02, FK03, MAP2, MAP3, MK01, MK02, MK03, V-03, V-04, V-05, V-06, V-07, V-08, V-09, V-11, VAP1, VAP2, VAP3, VD01, VD02, VD03, XD01, XD02, XD03, XD05, XK01, XK05, XK06, XK07, XK02, XK03.

The exception is not valid old transactions where re-direct doesn´t work:

FD06, FK06, MK06, MK12, MK18, MK19, VD06, XD06, XD0, V+21, V+22, V+23, MAP21, FD0

The listing of the above-mentioned old transactions can be found in the central note 2265093 – S4TWL – Business Partner Approach.

The ECC corresponding Customer/Vendor master data table fields are populated in SAP S/4HANA via Business Partner to Customer/Vendor CVI.

Instead of writing a direct write statement or a custom code on the tables mentioned in piece list SI_MD_BP or for creating or updating the Business Partner master data you must use the available API (CL_MD_BP_MAINTAIN), IDOC or BP SOA Service as described in SAP Note 2417298 - Creation of Business Partner with Customer and Supplier Roles.

9. IMPACT ON SURROUNDING SYSTEMS / OTHER APPLICATIONS

9.1. Interfaces

9.1.1. General Information

The following interfaces for Business Partners still work in an SAP S/4HANA side-by-side implementation

- CIF interface for Business Partner, e.g., SCM-EWM, SCM-TM
- Middleware for Business Partner synchronization, e.g., CRM
- BW report on Customers and Vendors (for BW extractors always check note 25002020 - S4TWL - BW Extractors in SAP S/4HANA)

Any external application creating or updating the Business Partner Master Data must use IDOC or BP SOAP Service as described in SAP Note 2417298 - Creation of Business Partner with Customer and Supplier Roles.

Please also consider following notes:

- SAP Note 2506041 - S4TWL - API RFC_CVI_EI_INBOUND_MAIN is not supported from the release S/4 HANA OP 1709 FPS2 and in Cloud Edition 1805 onwards
- SAP Note 2650140 - RFC_CVI_EI_INBOUND_MAIN to become obsolete.

For creation of business partners in the same system, the API ABAP Class CL_MD_BP_MAINTAIN can be used.

Batch Input as a technology to maintain customer master and supplier master data will not be supported in S/4HANA. Since SAP S/4HANA follows the "Business Partner first" approach, Batch Input programs will cease to work as classical customer and supplier transactions have been made obsolete. For details and alternatives check SAP Note 2492904 - S4TWL - Batch Input for Customer Master/Supplier Master.

You can navigate to transaction BP from another application within the system by calling by the function module (FM) BUP_PARTNER_MAINTAIN.

See also chapter 6.2. Migration / BP update.

9.1.2. IDocs DEBMAS/CREMAS in S/4HANA

These both IDoc-types are still available in S/4HANA. The inbound processing has been redesigned to support CVI-synchronization from BP to Customer/Vendor (see note 2417298 - Integration of Business Partner with Customer and Supplier Roles).
Restrictions have to be considered as the IDocs only cover Customer or Vendor Part (e.g. merging of customer and vendor to same BP is not supported). Also due to the changed API (supporting sync BP-> C/V) some technical restrictions exist (ref. to note 2479954 - DEBMAS/CREMAS IDocs in SAP S/4HANA Business Partner).

Notes:

- IBAN only: If the IDocs contain IBAN only (no bank ID, bank account, just IBAN) the MM-Switch MM_SFWS_SC2 (Business Function LOG_MM_CI_2) has to be activated for both IDoc types to process these (ref. to KBA 1664137 - IBAN field is not getting updated by CREMAS / DEBMAS Idoc).
- You are trying to use the DEBMAS/CREMAS IDOCs to replicate Business Partner (Customer/Vendor) with Bank Account information with only IBAN and without Account Number, but the Bank Account information is not replicated. Solution: Implement this SAP Note: 2754287 - DEBMAS/CREMAS IBAN without Bank Account Number functionality
- For custom logic in DEBMAS/CREMAS in S/4HANA please check SAP Note 2630068 - Handling custom logic in DEBMAS/CREMAS in S/4 HANA

9.2. Employee Replication

SAP S/4HANA customers may also be using SAP ERP HCM on-premise and like to continue to use SAP ERP HCM. SAP HCM can be run in either a separate instance or single instance with SAP S/4HANA. The integration among both on-premise instances (SAP HCM with SAP S/4HANA on-premise) will be available via ALE in case SAP HCM is running on separate instance. In case SAP HCM is running in the same instance as SAP S/4HANA on-premise, then the integration is automatically given as part of so-called Compatibility Mode.

The new data model in S/4HANA is based on Business Partners (BP). A BP must be assigned to each employee. **Employee master data is not part of CVI**. They will need to be created as Business Partners with role 'Employee' and 'Vendor'.

After conversion to SAP S/4HANA, the migration report /SHCM/RH_SYNC_BUPA_FROM_EMPL must be executed before productive use of the system. Due to customizing dependencies, the report cannot be executed in technical downtime.

For more details, please refer to the following SAP Notes:

- 2340095 - S4TWL - Conversion of Employees to Business Partners (check the attachments according to intended S/4HANA target release, e.g., "Integration Guide - OP 2020.pdf").
- 2713963 - FAQ: CVI - Customer Vendor Integration for system conversion to SAP S/4HANA
- 2409229 - Employee Synchronization Report: FAQ

Mandatorily please check for the New Employee Business Partner Model in S/4HANA. It was introduced with S/4HANA 2020 on-premise. E.g. it allows to properly reflect concurrent and global employment of BPs in role Employee (see details in the link). In order to get the new model, it needs to be switched on, check "Integration Guide - OP 2020.pdf" for details.

For any preparing or existing CVI/BP configurations in ECC please be especially aware of "Integration Guide - OP 2020.pdf", section 3 "Conversion from SAP ERP to SAP S/4HANA" and your ECC CVI target model design (SAP Note on page 18). If you want to go for the New Employee Business Partner Model in S/4HANA, check for using this implementation SAP Note:

- 2539457 - CVI & employee vendors in incorrect BP category: If CVI is active, BP is created in Person category during Vendor creation or conversion.

These options via the following SAP Notes then are not recommended:

- 2542175: If CVI is active, Employee BP is reused during Vendor creation or conversion (instead of creating new BP for the Vendor). From the note: "However, this SAP S/4HANA data model has restrictions and we therefore not do recommend it."
- 2869343: If CVI is active, Employee BP is reused despite potential restrictions during Vendor creation or conversion. From the note: "This is not desired by default because this data model may have restrictions regarding the data currentness of the employee business partner if you use or will use concurrent employment or a country reassignment (CE/GE) in HR, and we therefore do not recommend it."

Please also check section 7.3.10 Preparation for converting HCM Employees to Business Partners.

For releases S/4HANA 1809 FPS02 – 1909 (all FPS, SPS), additional detailed information and 'how to' could also be found in the cookbook: SAP S/4HANA Cookbook Employee Business Partner Integration as of SAP S/4HANA 1809 FPS02. This cookbook doesn´t reflect changes which were introduced with S/4HANA 2020.

For personal data handling topics please review this SAP Note:

- 2959779 FAQ: Personal Data handling of Employee Business Partners

9.3. Credit Management

Credit Management (FI-AR-CR) is not available as part of SAP S/4HANA. The functional equivalent in SAP S/4HANA is SAP Credit Management (FIN-FSCM-CR). You must migrate FI-AR-CR to FIN-FSCM-CR.

The migration contains amongst others Business Partner related steps (e.g. Activating the Business Partner Role for Credit Management).

For details see SAP Note 2270544 - S4TWL - Credit Management. A detailed task list including business partner related steps is attached to the note.

9.4. CRM

Note 2285062 – S4TWL: Business partner data exchange between SAPCRM and S/4HANA, on-premise edition provides an overall introduction how to handle adaptations in the various CVI-phases. This note contains links to further notes and information.

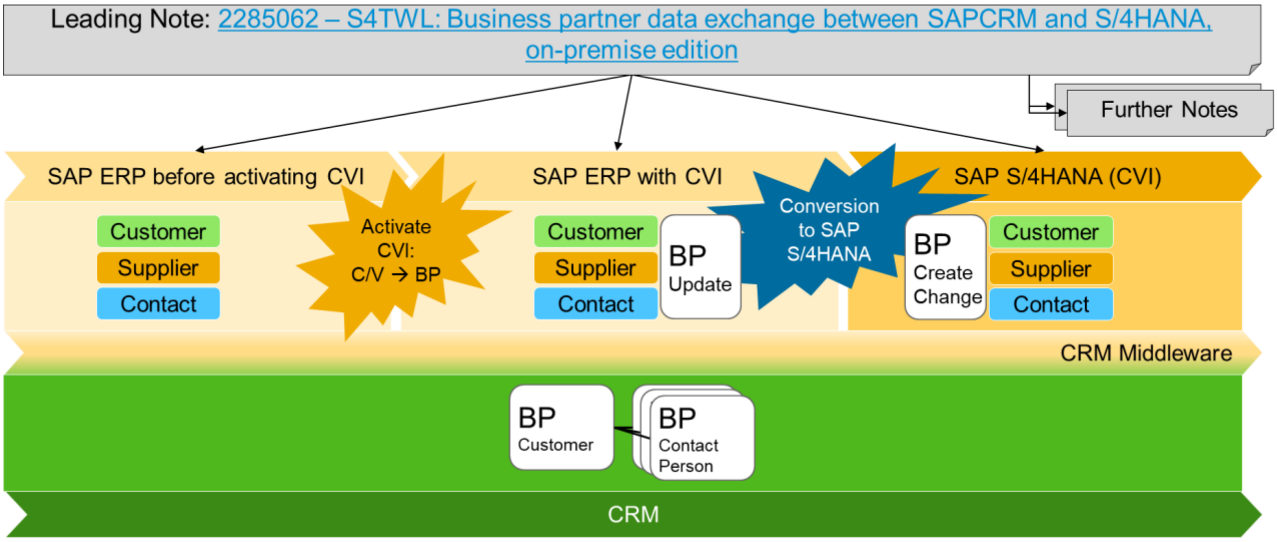


Figure 82: Phases for SAP CRM Integration in SAP ERP 6.0 and SAP S/4HANA

It also contains important and mandatory steps to be executed **before** activating the CVI and starting mass synchronization- Please considers following cross referenced notes:

- 2283695 – Synchronization cockpit generates business partners with wrong GUIDs by ignoring SAP CRM mapping tables
- 2420959 – Address GUID RFC BADI for CVI_MAPPER

Important

It is imperative that the BAdI's are implemented before the Customer Vendor Integration (CVI) is activated and the mass synchronization of Customer or Vendor master data for the generation of Business Partners is started. If you start the synchronization before the implementation, the mapping between Business Partners that is used in an integration scenario with SAP CRM is irretrievably lost.

A check report is provided to examine whether the BAdI implementation is available in your system (note 2304337 - Description note for Pre Check Class for Badi implementation CVI_MAPPER. In addition, a check report is available that identifies any existing inconsistencies (if you have been using an active CVI already) or any inconsistencies that appear after mass synchronization.

For more information about the preparation steps as well for the steps after system conversion, please refer to the latest version of the above-mentioned SAP Note.

Phases:

- ECC, before activating CVI
  - check consistency and completeness of SAP CRM mapping tables containing BP-GUIDs from SAP CRM (CRMKUNNR, CRMPARNR, CRMLIFNR)
  - implement notes 2283695 – Synchronization cockpit generates business partners with wrong GUIDs by ignoring SAP CRM mapping tables, 2420959 – Address GUID RFC BADI for CVI_MAPPER,
- ECC, activating CVI and mass synchronization with MDS_LOAD_COCKPIT
  - Before MDS_LOAD_COCKPIT: deactivate CRM Middleware
  - Mass synchronization with MDS_LOAD_COCKPIT: GUIDs from before mentioned tables are used

- After MDS_LOAD_COCKPIT: Change setup and reactivate CRM Middleware
  Decide for a leading object (Customer or BP) and use note 1808119 – Creating or Changing ECC customer results in two queues in CRM
  If BP becomes leading object follow instructions from note 1968132 – Business partner replication between CRM and ECC with active CVI
- After MDS_LOAD_COCKPIT: Check for any inconsistent GUIDs with report from note 2304337 – Description note for Pre Check Class for Badi implementation CVI_MAPPER

- S/4HANA (after SUM), BP is leading object
  - Execute steps from note 2283810 – Customizing settings for business partner data exchange between SAP S/4HANA, on-premise edition and SAP CRM in downtime after S/4HANA conversion. Please be also aware of note 2882755 - Addendum to note 2283810, if you do not want to exchange business partner, customer master, and vendor master data in SAP S/4HANA.
  - Consider these 2 notes for any restrictions: 2231667 – Restrictions for integration of SAP S/4HANA, on-premise edition with SAP CRM, partially resolved with 2324473 – Integration of SAP CRM with SAP S/4HANA: resolved restrictions

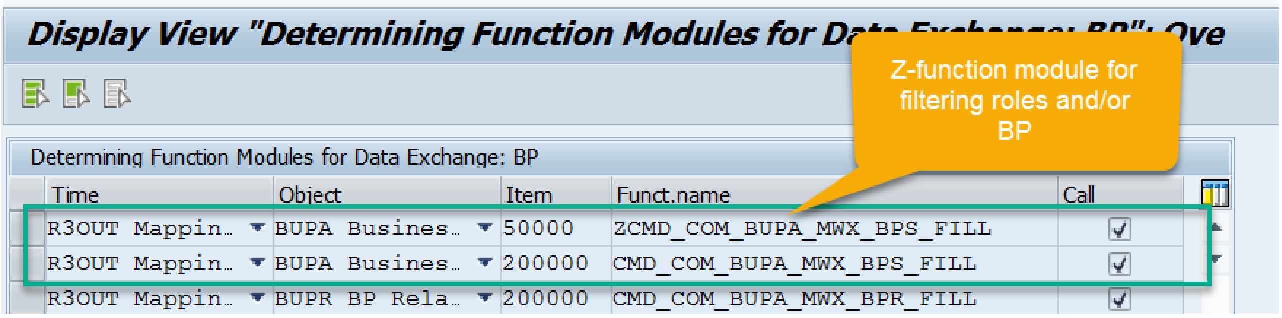
A detailed description is presented in openSAP course "Key Functional Topics in a System Conversion to SAP S/4HANA" (please refer to week 3, unit 5).

See also the following list of SAP Notes related to SAP CRM and CVI:

- 2231667 – Restrictions for integration of SAP S/4HANA, on-premise edition with SAP CRM
- Partially resolved with 2324473 – Integration of SAP CRM with SAP S/4HANA: resolved restrictions
- 1808119 - Creating or Changing ECC customer results in two queues in CRM
- 1968132 - Business partner replication between CRM and ECC with active CVI
  ECC 617 only. For lower releases please apply SAP Note 2545498 - Incorrect Business partner GUIDs between ERP and CRM with Active CVI
- 2283695 - Synchronization cockpit generates business partners with wrong GUIDs by ignoring CRM mapping tables
- 2654430 - Data exchange between the CRM and S4 is not possible as Guid of the Business partners are different in both the systems for the old business partners.
- 2748477 - Mapping of CRM GUID to S4 BP GUID not considered in FM - COM_BUPA_MWX_FILTER_MAIN
- 2624257 - Vendor creation results in inconsistent guids between main tables and CRM mapping table
- 2704424 - Customer creation results in inconsistent guids between main tables and CRM mapping table.
- 2545498 - Incorrect Business partner GUIDs between ERP and CRM with Active CVI
- 2283810 - Customizing settings for business partner data exchange between SAP S/4 HANA, on-premise edition and SAP CRM

BP Role Filtering

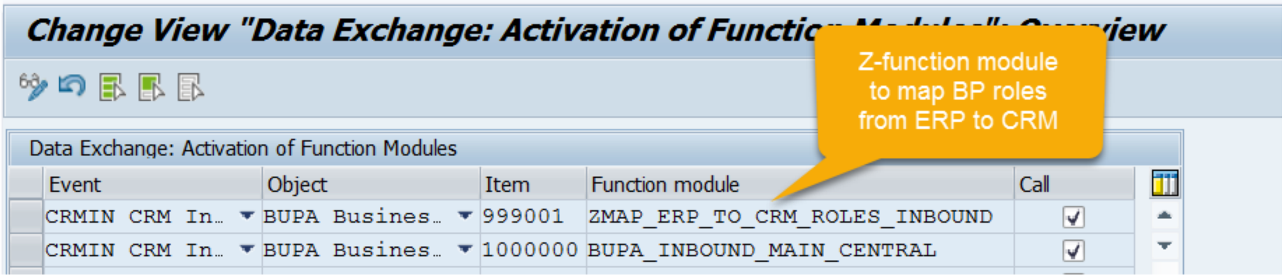
If there is a need to filter out roles or complete business partner for replicating from SAP ERP 6.0 to CRM a Z-function module has to registered in SAP ERP 6.0 in table COM_BUPA_CALL_FU (transaction COM_BUPA_CALL_FU). It has to entered at event R3OUT / object BUPA before the main function module to prepare BP data is called, e.g.



Reasons to filter roles and/or BP, e.g.:

- Vendor roles are not required in CRM
- BP that are not assigned to any customer master (e.g. “pure” vendors) are not required in CRM

BP Role Mapping (Tipps&Tricks):
If a role mapping from SAP ERP 6.0 (ECC and S/4) to CRM is required, an own Z-function module has to be registered in CRM in table CRMC_BUT_CALL_FU (transaction BUPA_CALL_FU). This Z-function module has to be registered directly before function module “BUPA_INBOUND_MAIN_CENTRAL”, e.g.:



Please note: check chapter “9.7 MDG (embedded in S/4)” for the reason not doing it in SAP ERP 6.0 outbound event CRMOU.

9.5. Industry Solution – Utilities (IS-U)

The Utilities Industry Solution cannot use MDS_LOAD_COCKPIT to convert C/V to BP. Please refer to the SAP Notes below:

- 2344100 - S4TWL - CVI Integration for SAP ISU
- 2354282 - S4 PreChecks IS-UT: Reports for the conversion for transition of the SAP Utilities Industry Solution to S/4 HANA
- 2364509 - Report REU_CVI_CUST_LINK does not process all records
- 2202282 - S4TC IS-UT Master Check for S/4 System Conversion Checks

Please note that reports REU_CVI_CUST_LINK & REU_CVI_EKUN_TO_BUT0ID need to be run to ensure CVI to be completed. You have also to keep in mind delta synchronization will not be triggered every time you create a new customer. Therefore, those programs need to be launched for all unsynchronized entries anytime you need to have CVI completed for a given technical conversion step.

Following note contains a comprehensive FAQ regarding IS-U and CVI:

- SAP Note 2792765 - FAQ: IS-UT upgrade S4

9.6. Industry Solution – Retail (IS-R)

For the Retail Industry Solution please refer to these SAP Notes:

- 2310884 - SAP S/4HANA conversion for site master
  Especially, have a look at the attachments of the note.
- 2451504 - CVI Customizing Check Report for Customers/Vendors assigned to Sites
- 3074379 - Retail Sites Exclusion from Customer Vendor Integration (CVI) Cockpit
- 3112307 - Retail Sites Exclusion from Customer Vendor Integration (CVI) Cockpit - Documentation

9.7. MDG (embedded in S/4)

As per current experience please consider:

- MDG itself is using existing functionality to map and prepare data of Business Partner to be displayed. E.g., it uses event CRMOU of CRM-middleware. Every active function module will be called. This has to be considered in particular when own Z-function modules shall be registered. With this background event CRMOU is not appropriate e.g., to map BP roles from S/4 to CRM.

9.8. SAP Cloud for Customer (C4C)

For integration to SAP Cloud for Customer please find the supported integration scenarios per S/4HANA release in this note: 2293815 - S/4HANA Enterprise Management: Information about Integration Scenarios with SAP Cloud for Customer. The ERP AddOn CODERINT is not used in S/4HANA anymore as the integration is part of the S/4HANA core. In case of an upgrade the ERP AddOn will be deinstalled.

A describing document "S/4HANA Conversion with Integration to SAP Cloud for Customer" from an S/4HANA conversion validation can be found here:
https://www.sap.com/documents/2018/09/925c68a9-1d7d-0010-87a3-c30de2ffd8ff.html
or as blog here:
https://blogs.sap.com/2018/09/20/s4hana-conversion-with-integration-to-sap-cloud-for-customer/

10. ADDITIONAL INFORMATION

10.1. SAP Notes

Below is an overview of useful SAP Notes. The ones which are mentioned in this document are marked in column 'Link in Document'. See especially SAP Note 2265093 - S4TWL - Business Partner Approach.

Topic	SAP Note	Title / Description	Link in Document
BP Master Note	2265093	S4TWL - Business Partner Approach	x
New Implementation / Migration	2239701	SAP Rapid Data Migration for SAP S/4HANA, on premise edition	x
	2287723	LSMW in SAP S/4HANA on-premise edition	x
	2324208	Permitted Payee : DDIC changes	x
	2331298	S/4 HANA Option to Load RFC Functions not available in BP Load program	x
	2312529	Error in ALE inbound while receiving the data for DEBMAS	x
Enhancements	2309153	BP_CVI: Guideline Version 1.14 for customer enhancements in CVI (Customer/Vendor integration) in S4HANA releases	x
	2295823	BP_CVI: Transfer of Customer / Vendor fields to the Business Partner - template source code	x
	1623809	Developer documentation for the XO framework	x
	2565693	BP_BCL: Customer-specific validation of central BP data does not work in certain cases	
MDS_LOAD_COCKPIT Synchronization	2513118	MDS_LOAD_COCKPIT creates CVI_CUST_LINK/ CVI_VEND_LINK entries in test run mode	
	2701228	PPO improvements for mds_load_cockpit	
	2780288	S/4 HANA Migration: The BP checks can be suppressed in the direction Customer/Vendor->BP during synchronization from MDS_LOAD_COCKPIT	
	2906882	Checks are not suppressed after the SAP Note 2780288	
	2898039	BP CVI: Incorrect error handling during mass synchronization of vendors to business partners	
	2923695	Inconsistent CVI links created due to error while creating BP during synchronization.	

Topic	SAP Note	Title / Description	Link in Document
	2907519	Master Data Synchronisation Tool Revamp	
	2954330	Performance Improvement of Monitor Tab in MDS_LOAD_COCKPIT	
	2958046	CVI : MDS_LOAD_COCKPIT does not display Logs of a specific date	
	2955619	MDS_LOAD_COCKPIT excel upload rows count	
	2386600	CVI: incorrect error handling in BP Synchronization with Contact Person	
	2446456	CVI: Contact Person Business Address mapping is not always correct	
	2763205	Customer contact person communication change not reflected to Business Partners	
	2777401	Contact person business address not getting updated when an address is changed	
	2804399	Synchronization to BP fails post test run execution.	
	2647788	Simulation functionality in Business Partner	
	2786293	CVI: During Business partner mapping to Customers/Vendors, contact persons are not mapped correctly.	
Linking / Mapping	974504	Inconsistencies in link tables of master data sync	x
	1958471	CVI_VEND_CT_LINK table has inconsistent entries (SAP Note mentioned in 974504)	
	2831298	Inconsistency in CVI_VEND_CT_LINK table.	
	2798554	CVI_OTH: Views for tables CVI_CUST_LINK and CVI_VEND_LINK with BP ID	
	954816	Transactions for creating/linking BPs	x
	1306639	BP_CVI: Optnl creation of BP from cust./vend. w/ active CVI	
	2383051	Development of Vendor contact person mapping to Business Partner (current status of SAP Note: Pilot)	x
	2363892	Linking Customer and Vendor to a single Business Partner during initial load before upgrade to S/4	x

Topic	**SAP Note**	**Title / Description**	**Link in Document**
Business Functions	1454441	Development of contact person for Vendors (see prerequisites and side effects)	x
Restrictions	2214213	SAP S/4HANA, on-premise edition 1511: Restriction Note (limited number of fields in BP)	x
Checks & Tools	2832085	New Central Cockpit for Customer Vendor Integration (CVI) to Business Partner	x
	2823648	Information on Pre-requisite SAP Notes for Business Partner CVI Synchronization	x
	2820678	CVI SAP_APPL TCI	x
	2891455	New Customizing Check Report for SAP S/4HANA Master Data Migration (BP<->CVI)	x
	2211312	S4TC SAP_APPL: Pre-Conversion check for Business Partner (check class)	
	~~2210486~~	~~Obsolete : Conversion report: Documentation of checks and IMG activities plus Z-report to use BP-check-class~~	~~x~~
	956054	BP_CVI: Customer/Vendor integration as of ERP 6.00	x
	2344034	S/4HANA Automation for Master Data Migration (CVI_UPGRADE_CHECK_RESOLVE)	x
	2345087	Prerequisite for 2344034: Missing values in required entry fields cause posting termination in mass processing	x
	2336018	Prerequisite for 2344034: Suppress Mandatory BP field groups checks via MDS_LOAD_COCKPIT transaction	x
	2874184	Information on test run behaviour.	x
	2743494	2743494 - Prevalidation: Master Data Consistency Check	x
	2780288	S/4 HANA Migration: The BP checks can be suppressed in the direction Customer/Vendor->BP during synchronization from MDS_LOAD_COCKPIT	x
	2891522	CVI_COCKPIT: Navigation to new customizing check report	X
	2861108	CVI_COCKPIT: CVI_LOAD Table entries and Documentation	X

Topic	SAP Note	Title / Description	Link in Document
	2812309	CVI_COCKPIT: CVI_LOAD Stage	X
	2850361	Delivery of texts (DE/EN) for language-dependent objects of TCIs for customer/vendor integration (SAP Note 2818292)	X
	2850537	Central Customer Vendor Integration(CVI) Cockpit - Interface note	X
	2942339	Prevalidation: Master Data Consistency Check V2 - DDIC creation	X
	2891951	Enhancements to Prevalidation: Master Data Consistency Check Report	X
	2949093	Enhancements to Prevalidation: Master Data Consistency Check Report - Authorization Object	X
	2949094	Prevalidation: Master Data Consistency Check Report -Authorization Object: DDIC	X
	2958796	Vendor data is not getting saved from Prevalidation: Master Data Consistency Check Report	X
	2996762	Industry checks are not getting performed in Master Data Consistency Check (Tcode : CVI_PRECHK)	X
	2968936	Master Data Consistency Check Report - Address Cleansing based on Data Quality Management (DQM): DDIC Creation	X
	2957924	Master Data Consistency Check Report - Address Cleansing based on Data Quality Management (DQM)	X
	2807124	Mismatching parameter for interface IF_ADDRESS_COMM_CHECK	
	2749015	Country specific checks for communication data	
	2832840	Documentation Update for BaDI Suppression Checks	
	2872225	CVI_BDT: Unit tests for reports CVI_CHECK_VISIBILITY and CVI_CHECK_VISIBILITY_BUPR	
BP Corrections	2326148	Classification Functionality on Business Partner Customer / Vendor side.	

Topic	SAP Note	Title / Description	Link in Document
	2484379	Returns Vendor Functionality	
Mass Maintenance	2346269	Mass Maintenance Functionality of Customers/Vendors using XD99 and XK99	x
Interfaces/DEBMAS/ CREMAS IDocs	2417298	Creation of Business Partner with Customer and Supplier Roles	X
	2506041	S4TWL - API RFC_CVI_EI_INBOUND_MAIN is not supported from the release S/4 HANA OP 1709 FPS2 and in Cloud Edition 1805 onwards	X
	2479954	DEBMAS/CREMAS IDocs in SAP S/4HANA Business Partner	x
	2754287	DEBMAS/CREMAS IBAN without Bank Account Number functionality	x
	1664137	IBAN field is not getting updated by CREMAS / DEBMAS Idoc	x
Employee	2340095	S4TWL - Conversion of Employees to Business Partners	x
	2323301	Customizing document - Synchronization of Business Partner for SAP HCM Employee Role	x
	2792166	Same number for BP and employee → Consider referenced notes	
	2475550	HCM Employee Handling in BP transaction - DDIC Report	x
	2475604	HCM Employee Handling in BP transaction	x
	2463565	Behavior of transaction BP in S/4HANA system with respect to Employee data from HR system	x
	2507610	Exception raised while calling S/4 method due to mismatch in returning parameter.	x
	2539457	CVI & employee vendors in wrong BP category	x
	2542175	CVI and reuse of existing employee business partner	x
	2000099	CVI fails with error R1231: "Form of address &1 not designated for organizations"	x

Topic	SAP Note	Title / Description	Link in Document
	2880559	Enhancing BAdI interface CVI_MAP_TITLE~IF_EX_CVI_MAP_TITLE with new importing parameters.	x
	2959779	FAQ: Personal Data handling of Employee Business Partners	x
CRM	2285062	S4TWL: Business partner data exchange between SAP CRM and S/4HANA	x
	2283810	Customizing settings for Business Partner data exchange between SAP S/4 HANA, on-premise edition and SAP CRM	x
	2882755	Addendum to note 2283810	x
	1968132	Business partner replication between CRM and ECC with active CVI (ECC 617 only)	x
	2526204	Restricting the replication of vendor BP's from ECC to CRM	x
	2283695	Synchronization cockpit generates business partners with wrong GUIDs by ignoring SAP CRM mapping tables	x
	2420959	Address GUID RFC BADI for CVI_MAPPER	x
	2304337	Description note for Pre Check Class for Badi implementation CVI_MAPPER	x
	1808119	Creating or Changing ECC customer results in two queues in CRM	x
	2231667	Restrictions for integration of SAP S/4HANA, on-premise edition with SAP CRM	x
	2324473	Integration of SAP CRM with SAP S/4HANA: resolved restrictions	x
	2654430	Data exchange between the CRM and S4 is not possible as Guid of the Business partners are different in both the systems for the old business partners.	x
	2704424	Customer creation results in inconsistent guids between main tables and CRM mapping table.	x
	2624257	Vendor creation results in inconsistent guids between main tables and CRM mapping table	x
	2748477	Mapping of CRM GUID to S4 BP GUID not considered in FM - COM_BUPA_MWX_FILTER_MAIN	x
	2545498	Incorrect Business partner GUIDs between SAP ERP 6.0 and CRM with Active CVI	x

Topic	SAP Note	Title / Description	Link in Document
Credit Management	2270544	S4TWL - Credit ManagementS4TWL - Credit Management	X
Time Dependency	2379157	S4TWL - Business Partner BUT000/Header Level Time Dependency (--> To include in precheck, if BP is in use and time dependency for BUT000 is activated)	X
Field Control	2603898	BP_CVI: Composite SAP Note for consideration of FI field modifications (FMOD1) in transaction BP in CVI in S/4HANA	X
	2848273	CVI_BDT: Find reason for field status (required, hidden etc.) of fields in transaction BP ("Check Visibility Report")	x
	2516606	BP_CVI: Taking into account the FI-specific field modification of customer and vendor in transaction BP	x
TAX Errors	1006160	New tax number types for new EU members as of 01.01.2007	X
	2098239	Entry in field tax code 2 is longer than 11 characters	x
	958424	BP:Error message for tax code 2 customized	X
	2445162	CVI: BP Tax number DE5 mapping is incorrect for Vendors	
	2317896	Field taxnumber of stcd5 is filled during synchronization.	
	2299895	Wrong CVI mapping of chinese tax number	
	2527465	CVI fails for tax catagories AR1D and AR1Z for country Argentina	
	2463731	Chinese Golden Tax Number: Tax-Type CN5 mapping with STCD5	
	1751648	Missing Tax Number Category Argentina Localization	
	1382602	Vat Registration number for Switzerland mapped incorrectly	
	1128784	Error:VAT registration number was already edited for country	
	1041155	Migration problem for Switzerland VAT registration number	
	2232604	Error BUPA_TAX200 when replicate Vendor or Customer to Business Partner	X

Topic	SAP Note	Title / Description	Link in Document
	2766031	Tax number check and tax number entry (STCEG) in FI after EU withdrawal	
IS Utilities	2344100	S4TWL - CVI Integration for SAP ISU	x
	2354282	S4 PreChecks IS-UT: Reports for the conversion for transition of the SAP Utilities Industry Solution to S/4 HANA	x
	2202282	S4TC IS-UT Master Check for S/4 System Conversion Checks	X
	2792765	FAQ: IS-UT upgrade S4	X
Retail	2310884	SAP S/4HANA conversion for site master	X
	2814283	S4 Precheck doesn't exclude Contact Persons for site master	X
	3074379	Retail Sites Exclusion from Customer Vendor Integration (CVI) Cockpit	X
	3112307	Retail Sites Exclusion from Customer Vendor Integration (CVI) Cockpit - Documentation	X

10.2. Documentation

Below is a list of links to further resources.

- S/4HANA Simplification Item Catalog
- Conversion Guide for SAP S/4HANA 2021
- SAP Help: Introduce Business Partner Approach
- SAP Help: Customer Vendor Integration
- SAP Help: Master Data Synchronization
- SAP Note 2265093 S4TWL - Business Partner Approach
- SAP Note 2340095 S4TWL – Conversion of Employees to Business Partners
- SAP Note 2713963 FAQ: CVI - Customer Vendor Integration for system conversion to SAP S/4HANA
- SAP Note 2823632 Consulting Note for Business Partner Approach and CVI Process

11. LIST OF FIGURES

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