ERP connect and Data connect

Data from your ERP system is stored centrally in CAS genesisWorld

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Contents

1 Introduction

Using the Data connect and ERP connect modules you can synchronize data between a third-party system and data from CAS genesisWorld. This enables data to be managed in more than one system, however, the data is then available in both systems. Any data which has been changed has to be transferred from one system to the other.

Examples of where this would be the case include: the integration of Enterprise Resource Planning (ERP) systems into the central customer and information management solution CAS genesisWorld. Information on documents, appointments, tasks and so on is obtained from CAS genesisWorld, whereas information on receipts, job vacancies, purchases, supplier problems and so on comes from the ERP system. In order to see all the information, data is synchronized between these systems.

How the system are integrated very much depends on the requirements - either with ERP connect or Data connect. The modules differ depending on the data record types which are to be synchronized. The basic principles involved, the configuration and the respective process are all similar.

For the purposes of brevity and clarity this document examines the basic procedures involved using address data records as an example throughout. This will help to give you an overview and serve as a basis for discussion when considering further planning. We will assume that the reader has sufficient knowledge of XML, XSL and Windows registration (Windows Registry).

For the majority of the time, we will be referring to ERP connect, please bear in mind that Data connect processes are often very similar. Where there are differences, we will point these out to you.

In general, throughout this document we will refer to a third-party system, this is the most common user case scenario also known as an integration to an ERP system. Our CAS partners have already developed integrations for various other ERP systems. A CAS partner is usually also responsible for setting up the integration. You will find more information on available integrations and CAS partners in your area on our website at: www.cas-crm.com http://www.cas-mittelstand.de.

1.1 Set up procedure

Using a test environment and pre-prepared files you will be able to follow the procedures as described in this document, or try a similar procedure. In the diagram you will see the steps you have to follow and their contexts.

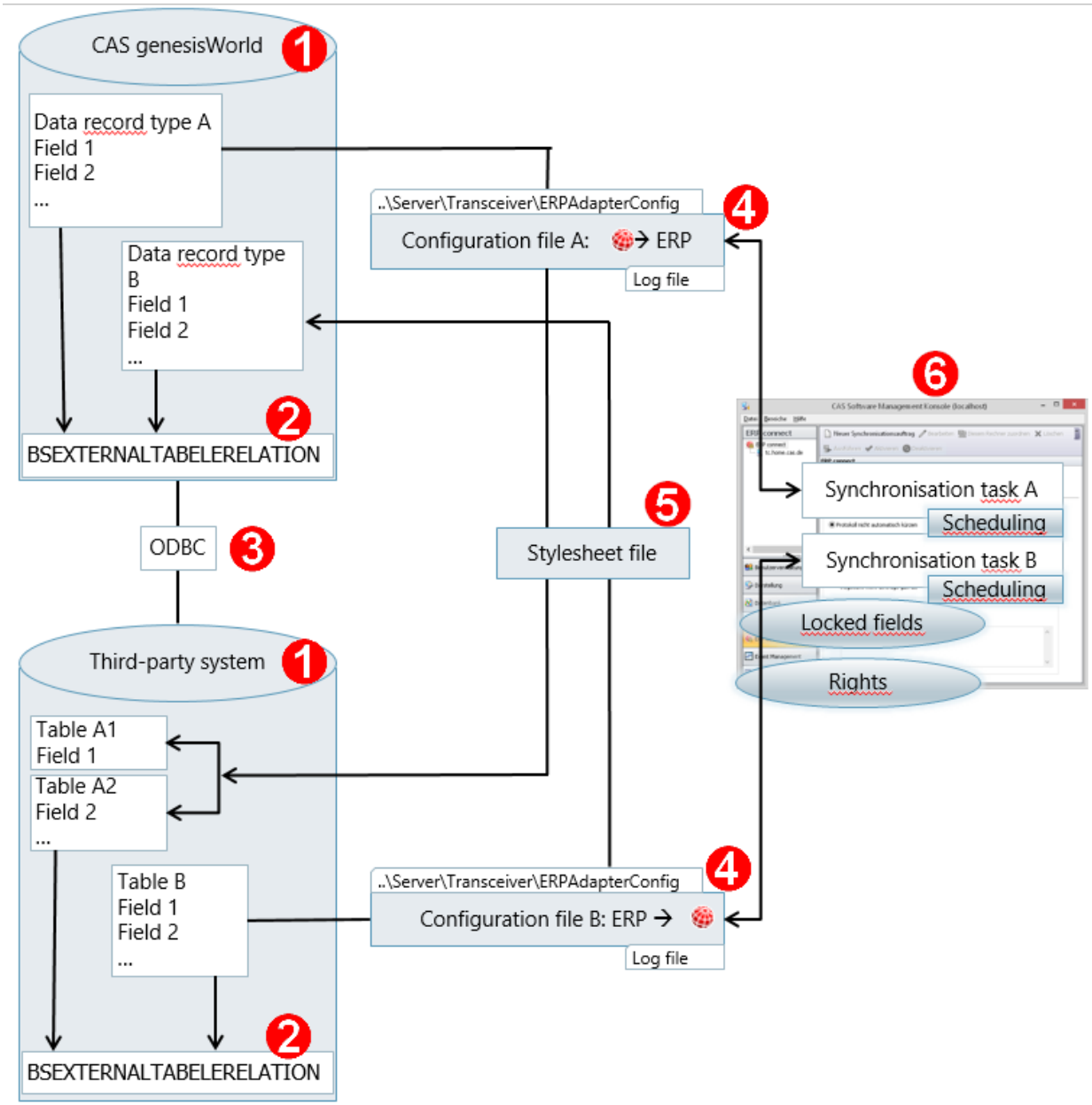
1. CAS genesisWorld and a third-party system are available as sources of data.

Specific data from CAS genesisWorld and from the third-party system should be available and manageable in both systems. Other data, however, should only be manageable in one system or the other. One principle holds for all data and that is: All data should be displayed in as up-to-date a form as possible in both systems.

To ensure this you have to define fields, CAS genesisWorld data record types and suitable data types in the third-party system.

For example, you have to create and manage address data and projects in both the ERP system and in CAS genesisWorld. Data for receipts, products and product groups is only created and managed in the ERP system.

This data is then synchronized between CAS genesisWorld and the ERP system and transferred from one to the other.



❷ For every synchronization in every database the data records which are to be synchronized are listed and logged in the BSEXTERNALTABLERELATION table.

❸ The synchronization between both systems usually occurs via the ODBC interface.

❹ A configuration file is defined for each data record type and each direction of synchronization. The configuration file defines how data in the system is to be synchronized - as well as what criteria the data should comply with. In addition, you should still be able to supplement your data before synchronizing, for example, with links when synchronizing to CAS genesisWorld.

For example, settings for addresses and projects are defined in configuration file A and also in configuration file B. Only the settings in configuration file B are necessary when transferring receipts, products and product groups.

❺ In a stylesheet file the order of fields (field mapping) defines which fields of the data record types you wish to synchronize are transferred to fields in the other system.

1.2 Functions in CAS genesisWorld

❻ You will find the data synchronizing functions for ERP connect and Data connect in the Management Console.

☐ Synchronization tasks are configured in the **ERP connect** area. For every data record type and each direction of synchronization at least one synchronization task has to be available. The configuration files you defined are used as the data source and data target.

You will require 4 synchronization tasks for this example, because addresses and projects are synchronized alternately. For receipts, products and product groups however, you will only need 1 synchronization task each, because this data is only being transferred from the ERP system to CAS genesisWorld.

Using the synchronization task, you can determine whether all or just one part of the data records for a given data record type are to be synchronized, or whether you would rather they be synchronized according to a **schedule**.

With the ERP key field, a data record having an identical value to the ERP key field in CAS genesisWorld is updated with a data record from the third-party system when synchronizing from the ERP system.

☐ In the **Database** area certain specific fields from the data record type are locked so that they cannot be changed inadvertently CAS genesisWorld.

This help to prevent users from inadvertently changing data which will subsequently be reset at the next synchronization.

For example, the ERP key field is locked for addresses and projects.

☐ In the **User management** area, rights to data record types and where necessary user fields or groups can be set. These rights to data record types are not necessary for the synchronization, but they are necessary for the display and processing of data records and fields.

Addresses and projects are managed in both CAS genesisWorld and in the third-party system, editing rights are available for specific groups of users in CAS genesisWorld.

Receipts, products and product groups are only managed in the third-party system, so users only have **Read** rights. This ensures that new products are available in the third-party system and that changed products are not overwritten by the next synchronization with the third-party system in CAS genesisWorld.

1.3 Essential rights in CAS genesisWorld

The access options and rights for ERP connect and Data connect result from the interplay of various settings:

☐ Administrator rights,

☐ user rights for ERP connect and

☐ Rights to data records types and other detailed rights

If the license for ERP connect or Data connect is not available, then other settings will not be possible. If the license is available, then the following rules will determine how you grant rights:

☐ Only a user with administrator rights can create, delete or change synchronization tasks in the Management Console.

☐ If ERP connect or Data connect has been unlocked for a user, then the user will see receipts displayed in their clients.

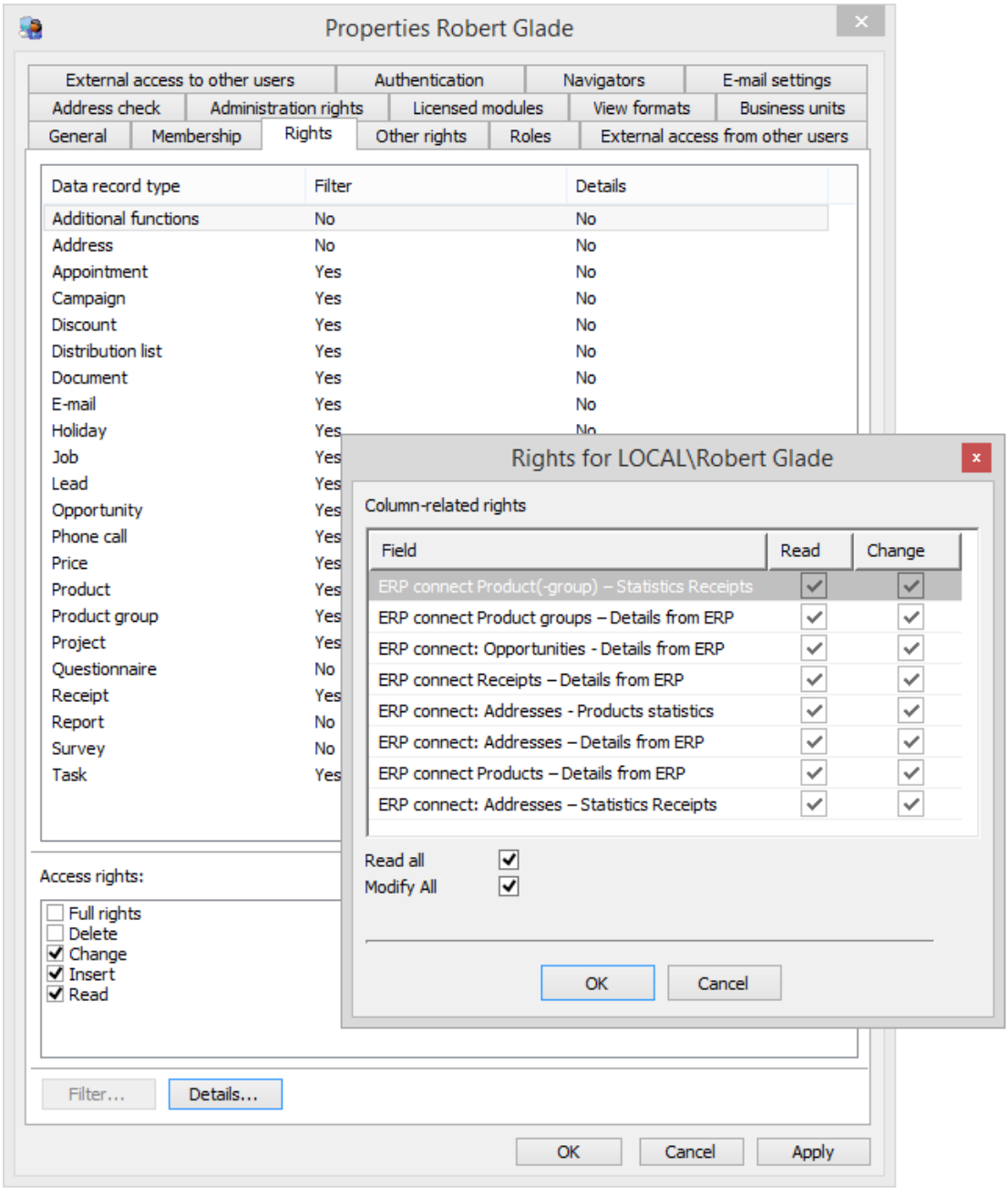
If ERP connect or Data connect has not been unlocked for a user, then receipts will not be displayed in the clients.

You can define rights for data record types and fields in the Management Console.

☑ Open the **User Management** module, select a user, click **Properties** and then open the **Rights** tab.

☑ Select **Additional functions** and then click **Details**. In the following window set the data rights for this user for ERP connect or Data connect.

☑ Create rights for data record types and fields such as, for example, receipt read rights for specific users. You can restrict rights, for example, if the data record types are to be imported from the third-party system, see "Functions in CAS genesisWorld" on page 8.



1.4 Important information

You will need a license for ERP connect and Data connect. As usual, the corresponding license has to be entered into the Management Console under **Licenses** and must then be activated for the corresponding user.

Using an ERP connect license you can synchronize data record types, receipts, products, product groups, addresses, projects and opportunities.

Using a Data connect license you can synchronize all the data record types except: receipts, products and product groups. The licenses for Data connect and ERP connect can be used simultaneously, depending on the data record types you wish to synchronize.

ERP connect and Data connect are usually set up on a single application server. This is because this application server performs the synchronization later on, remember to take performance into account. Data is synchronized regularly which helps to relieve pressure on the Application Server.

Alternatively, you can setup multiple Application Servers. The respective synchronization tasks should not have a negative influence on each other. In this way, you can synchronize data record A on an application server with data record B on a second application server. This allows you to distribute the synchronization of lots of data record which should not be dependent upon each other.

For more information on hardware infrastructure and configuration examples see the current system requirements at hilfe.cas.de.

You will find more detailed information on the integration in the SDK documentation for CAS genesisWorld on the **ERP connect** page and subsequent pages which are referenced where necessary. You can access the SDK documentation via a secure Internet page. For more information, ask your CAS partner, or contact us directly.

2 Prerequisites and preparations

Setting up an integration to Data connect or ERP connect is always a custom job, because meeting the expectations and requirements for third-party systems and data often requires special solutions. In individual cases the details can often be customized afterwards. An agile approach with an incremental implementation is possible.

2.1 Data source, integration and transfer database

Data connect and ERP connect offer an integration between CAS genesisWorld and another system with which data can be synchronized between databases. You can differentiate between 2 or 3 data sources, whereby the third data source is only necessary for more complex cases:

- ☐ Data from CAS genesisWorld is usually saved to a Microsoft SQL database.
- ☐ Data from the third-party system does not have to be available in another database.

Microsoft SQL databases are good. Because integration via the included **ERPAdapter** is already possible. In principle, you can integrate all the data sources which can be called via ODBC.

- As a third data source, you can use a transfer database to exchange data. Data from CAS genesisWorld and data from the third-party system are transferred to the database or imported from the transfer database.

When do we recommend using a transfer database?

If the third-party system data cannot be integrated via ODBC, then we recommend you use a transfer database.

The plug-in included in your delivery for the **ERPAdapter** can synchronize individual data record types and offers a 1:1 connection between tables. The procedure is simple, if data is being synchronized between a CAS genesisWorld table (that is for a data record type) and a single table in a third-party system.

The procedure is more difficult if, for example, bank data and addresses from an address table in CAS genesisWorld are being saved to multiple tables in the third-party system. As only one table at a time can be called in the third-party system, multiple synchronizations have to take place and then the data has to be split or merged together again. Errors can occur more frequently in such cases.

Field functions such as, for example, duplicate checking or calculations in formula fields in CAS genesisWorld can also be available in third-party systems. However, this does increase the potential for errors if the necessary fields are constructed in multiple tables.

Thus, we recommend you use a transfer database for more complex synchronizations, this has a number of advantages:

- Data sources without ODBC can be integrated.
- For synchronizations using multiple tables, data is joined and separated in the transfer database before it is synchronized in the respective system.
- If you wish to perform certain functions for specific fields, then these will take place after the synchronization in the respective system once complete data is available.
- Using a transfer database you can interrupt the synchronization at any time, from one side or the other, either from the third-party system side or on the CAS genesisWorld side.

  You can then check for errors on the side which has been deactivated, while on the other side the synchronization can continue. Once you have resolved the problem and the deactivated side has been reactivated, the accumulated data on the active side is then synchronized.

> This document describes the procedure without a transfer database, this makes it easier to describe the basic principles.

2.2 Defining prerequisites

Before you start, you have to define the data you wish to synchronized between both systems.

- ☐ What data record types do you want to transfer to the other system and from where are they located?
- ☐ It is important to list all the data record type fields in each system which you want to transfer.
- ☐ Are NULL values permitted in the third-party system?
- ☐ Data records in CAS genesisWorld and in the third-party system have to have unique identifiers such as keys or names. How are keys portrayed in the third-party system? Can you allocate a key for the transfer direction of CAS genesisWorld to third-part system for new data records?
- ☐ How are countries portrayed in the third-party system? In CAS genesisWorld country names are fully written out and saved as such, so it might be the case that you need to make some transformation changes here for the synchronization to work.
- ☐ Is data from different tables transferred to CAS genesisWorld? This is important in terms of the direction of CAS genesisWorld data to the third-party system, because the data in each synchronization can only be transferred to one table.
- ☐ What happens to deleted or deactivated addresses?

2.3 Test environment

As is usually the case when implementing new software, we recommend you use test data during the bedding in phase of Data connect and ERP connect. A full backup of the third-party system database only has to be integrated, for example, into a suitable Microsoft SQL environment.

If this is not possible, or not desirable, then at least a CSV file with test data should be available. The test data should reflect the structure of the third-party system.

The CSV file is then imported and a new table created from an existing database through the **SQL Server Import/Export Wizard** in the SQL Management Studio.

- ☑ Log on to the SQL Management Studio.
- ☑ Select the database. Now, click **Tasks** in the context menu and then **Import data**.
- ☑ Select **Flatfilesource** as the **Data source**.
- ☑ Select the CSV file and configure the import.
- ☑ Import the file.

The synchronization is then configured using a copy of the database from CAS genesisWorld and a copy of the data or database from the third-party system. If all the necessary XML files have been created and tested, then you just have to copy them to the respective live system folders.

Besides, the ODBC integration is converted to the live environment.

After logging on to the Management Console for the database and the test environment for the Application Server, you can transfer the synchronization tasks to the live system using **Allocate to this computer** in the **ERP connect** area.

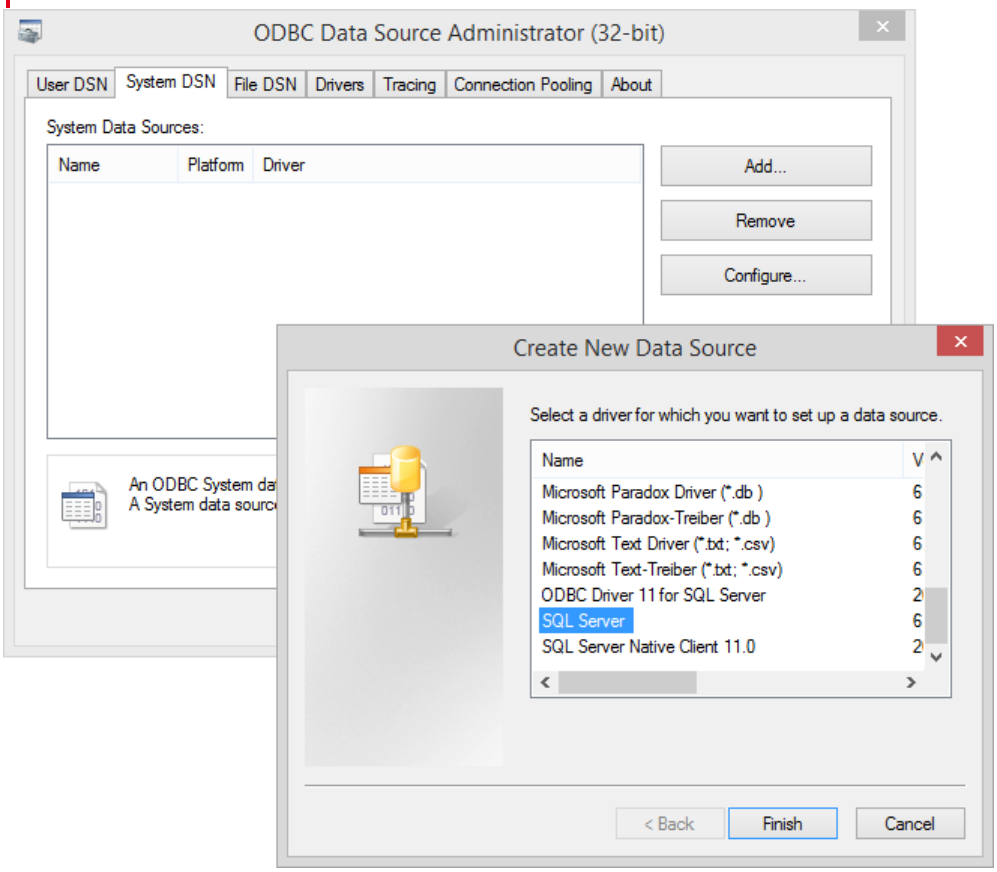
Please take the size of the database, the number of users and the frequency of synchronization into consideration, see "Important information" on page 10. You should install your own Application Server for the synchronization.

2.4 ODBC integration

An ODBC (Open Database Connectivity) interface is setup for the connection between the CAS genesisWorld database and the third-party database. In a test environment, you should setup the interface between the copied databases.

☑ Start the **ODBC data sources administrator** for 32 bit.

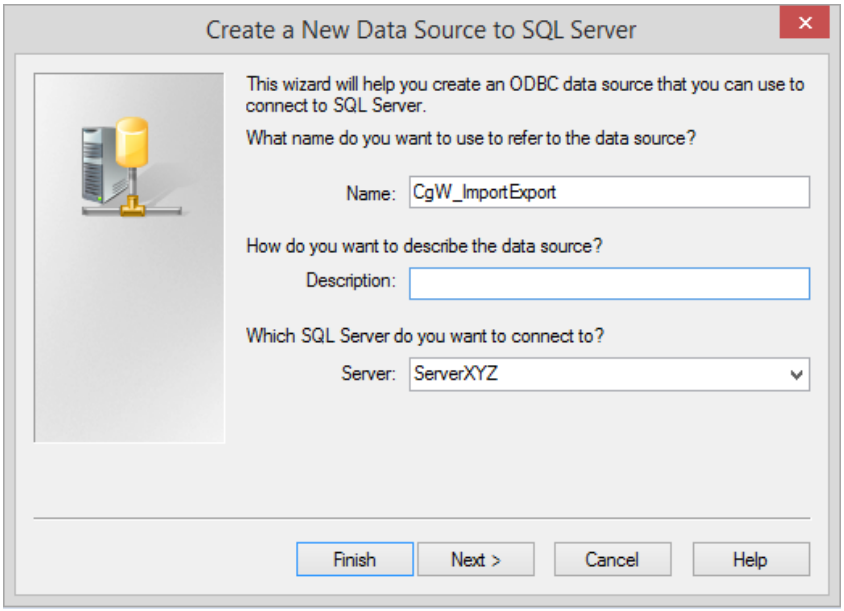
Use the 32 bit variant otherwise the interface will not work.



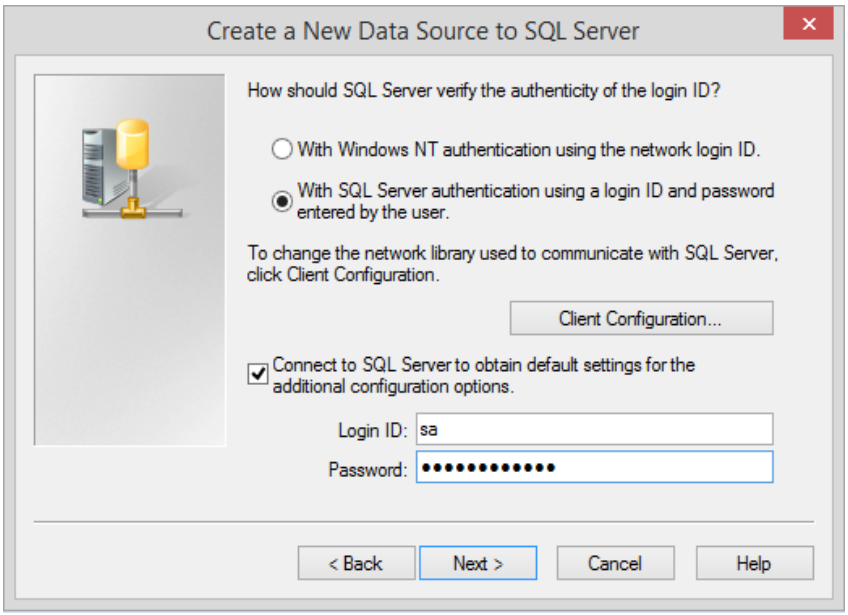
- ☑ On the **System DSN** tab click **Add** to create a new data source.
- ☑ You can select, for example, **SQL Server** as the driver, whereby the respective version of the database system is possible for each driver.

> If any problems occur while synchronizing, then the solution could be to use another driver.

- ☑ Clicking **Finish** opens a wizard which you can use to continue.
- ☑ Select a name for the connection.
- ☑ Enter the Microsoft SQL Server using the CAS genesisWorld database.



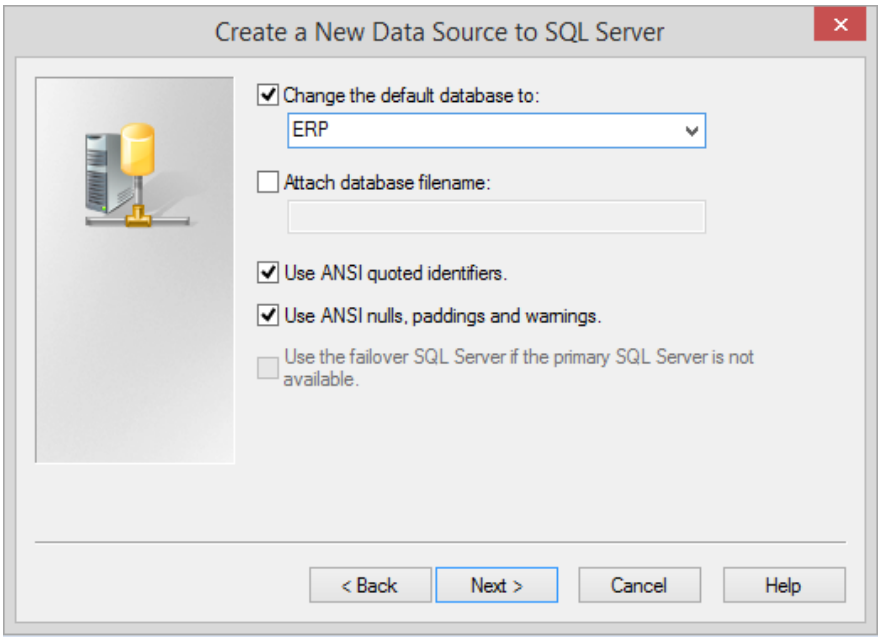
- ☑ Now, you can enter the user you. You will need an authentication for the Microsoft SQL Server, for example, with the **sa** user account.



☑ One you have done this, enter the **Default database**. This is the database which you want to connect to the third-party system.

Finally, the connection or interface is created.

☑ We recommend you test the connection.



2.5 Creating log files

During the design stage, log files can be very useful when searching for errors. Log files are issued via two registry keys.

☑ You can create a new DWORD value **ShowXMLMessage** using the following two paths and then set the value of each to **1** (hexadecimal).

HKEY_LOCAL_MACHINE\Software\Wow6432Node\CAS-Software\Genesis\1.0\Transceiver

HKEY_LOCAL_MACHINE\Software\Wow6432Node\CAS-Software\Genesis\1.0\DBMS\<Mandantenname>\Transceiver

Once the values have been entered, then for each synchronization, multiple text files will be created in the following folder:

%TEMP%\genesisWorld\Transceiver\<Sourcesystem>_<Datatype>\<Sourcekey>__<n>.xm

> If the synchronization has been configured successfully, then you will need to deactivate the registration key. Otherwise, lots of unnecessary data will be produced.

The synchronization log will contain an entry informing you that the log files have been created.

 The log is displayed in the **ERP connect** area of the Management Console, if you have marked a synchronization task on the left in the navigator and you have clicked the **Log** button.

The log in the Management Console refers to a respective synchronization tasks and any changes to settings or status and so on that may have taken place. In the log files on the other hand, XML messages are displayed, for example, the results of transformations or the allocation of names for the ERP system.

Log files are created for each synchronization direction. Log file names are made up of the GUID and a prefix of _1 to 4. The different prefixes of the file name refer to the interim result of the synchronization. The change files have a fixed structure which enables you to localize and limit errors quickly. CAS Partners will find more information in the SDK documentation under **ERP connect** on the **Viewing XML messages from the last synchronization** page.

2.6 Setting up the meta-table

For the synchronization you have to ensure that the **BSEXTERNALTABLERELATION** meta table is available in the third-party system.

- The keys for the data records for the data record types you wish to synchronize are defined in CAS genesisWorld and in the third-party system.
- In addition, the time stamp includes information about when a data record was synchronized with the respective other system.

The table completed or updated with each synchronization.

This table is already contained in CAS genesisWorld database. The table has to be created in the third-party system. CAS Software offers a Microsoft SQL script for this which is started as a third-party system database query.

```
CREATE TABLE [BSEXTERNALTABLERELATION] (
[GGUID] binary (16) NOT NULL,
[InsertTimestamp] datetime NULL,
[UpdateTimestamp] datetime NULL,
[TableGUID] binary (16) NULL,
[TableName] varchar (40) NULL,
[ExtSystem] varchar (20) NULL,
[ExtKey] varchar (255) NULL,
[Operation] varchar (1) NULL,
[OpTimestamp] datetime NULL ,
  Constraint PK_GUID_BSEXTERNALTABLERELATION Primary Key
CLUSTERED(GGUID)
```

```
))
GO

CREATE INDEX IDX_BSEXTTABRELTableGUID ON
dbo.BSEXTERNALTABLERELATION(TABLEGUID)
GO

CREATE INDEX IDX_BSEXTTABRELTableName ON
dbo.BSEXTERNALTABLERELATION(TABLENAME)
GO

CREATE INDEX IDX_BSEXTTABRELExtKey ON
dbo.BSEXTERNALTABLERELATION(TableName, ExtKey, ExtSystem)
GO
```

If the third-party system is not a Microsoft SQL database then you will have to adapt the script accordingly.

3 Configuring the synchronization

If the prerequisites for the synchronization have been met, see "Prerequisites and preparations" on page 11 then the configuration can continue.

This uses task configuration files and stylesheet files.

A configuration file specifies which data record types are transferred from one system to the other during a synchronization. The direction of the synchronization is important to note, for example, is data from CAS genesisWorld being transferred to the third-party system or is data from the third-party system being transferred with <Product>. A configuration file has to be available for each synchronization in each direction.

Stylesheet files define which data record type fields are to be synchronized with each other, that is, where the fields from the first system should be transferred to in the second system. The field names of the data record types in both systems will usually have different names. This is why a stylesheet file is usually used. A stylesheet file has to exist for each data record type and each direction.

You will find configuration files and stylesheets containing basic data in the ..\Server\Transceiver\ERPAdapterConfig folder, which if you are interested you can take a look at and change. You can also request a demo database for third-party systems from CAS Software AG or from your CAS partner, with the demo database you can set up synchronizations and test the system using service jobs in the Management Console.

3.1 Structure of the configuration file

The task configuration file is an XML file containing information on which data record types are to be synchronized.

Multiple different XML and configuration files are used for synchronizing different data record types. This is specified in the XML file name.

The file names also define the synchronization direction for which the configuration file is valid. The **ToGenesisWorld** text defines the direction from the third-party system to CAS genesisWorld and the **ToERPAdapter** text defines the direction from CAS genesisWorld to the third party system.

> When performing different synchronizations, you can, in principle, use the same configuration file. You can then define more precisely which data records you would like to synchronize using synchronization tasks in the Management Console.

CAS partners will find more information in the SDK documentation under **ERP connect** on the

- **XML configuration file for generating data** and the
- **XML configuration file for interpreting data** pages.

3.1.1 Synchronizing from the third-party system to CAS genesisWorld

The configuration file for the synchronization from a third-party system to CAS genesisWorld always corresponds to the following schema which is described in the example for addresses:

```
<?xml version="1.0"?>
<CUSTOMIZING>
  <ERPSYSTEM>
     <GENERATOR USEBSETR="yes" ONLINEREFRESHISALLOWED="yes">
      <SUPPORTEDTABLES>
        <ADDRESS KEYFIELD= "Addressnumber" />
      </SUPPORTEDTABLES>

       <ADDRESS>

        <INSERT>
         <GETRECORDS>
           <F N="QUERY" V="Select address number from
```

```
            Address table where company = 'CAS Software
AG'"/>
          </GETRECORDS>

          <GETXMLDOCUMENT>
            <F N="QUERY" V="Select * from address table where
            Address number = %s" />
          </GETXMLDOCUMENT>
        </INSERT>

        <UPDATE>
          <GETRECORDS>

          </GETRECORDS>
      <GETXMLDOCUMENT>

        </GETXMLDOCUMENT>
       </UPDATE>

       <DELETE>
          <GETRECORDS>

          </GETRECORDS>
       <GETXMLDOCUMENT>

        </GETXMLDOCUMENT>
       </DELETE>

      </ADDRESS>
    </GENERATOR>
  </ERPSYSTEM>
</CUSTOMIZING>
```

In the **<SUPPORTEDTABLES>** block, you define which data record types are to be transferred. In the process, you have to enter one of the fields as the key. In addition, you can enter a prefix for the key, this is not the case in the example.

> Prefixes are necessary, for example, when you want to differentiate between companies and contact persons who use the same number range in different tables, see "Special cases: Companies and contact persons" on page 30.

Next, the block for the first data record type is opened in which the blocks: **INSERT**, **UPDATE** and **DELETE** are available.

- The **INSERT** block defines the writing of new data records and a full synchronization. Data records which are defined later in this block are rewritten with every synchronization or overwritten in case they are already available in CAS genesisWorld.
- The **UPDATE** block defines data record updates for an incremental synchronization.

  Data record defined in this block are checked for actuality. In case the data records in the third-party system are more up-to-date than those in CAS genesisWorld, then the data record in CAS genesisWorld are updated.
- Data records defined in the **DELETE** block are marked as deleted in the CAS genesisWorld database. If data record were deleted in the third-party system, then you will not be able to use a synchronization to delete data records in CAS genesisWorld. In such instances, you should consider the following procedure.

  A **To delete** field or **Deleted in the ERP system** field is added to every data record type which is to be synchronized. This is done in the Management Console in the **Database** area. For data records marked in this way there are specific work flows available in CAS genesisWorld.

  Another option is available for addresses: Addresses deleted in the third-party system are deactivated by means of an UPDATE in CAS genesisWorld. Likewise for deactivated addresses, user work flows are defined by CAS genesisWorld which, for example, check and correct respective addresses with specific links.

> Depending on how the synchronization has been setup, deleting a data record in CAS genesisWorld can result in a corresponding data record in the third-party system being either deleted or not deleted.

The **INSERT**, **UPDATE** and **DELETE** blocks contains the **GETRECORDS** and **GETXMLDOCUMENT** blocks.

- You can define how you want to detect the data records using the **GETRECORDS** tag. In the example, by using **INSERT** all of the **Address numbers** in the **Address table** are selected, if **CAS Software AG** is entered in the **Company** field.
- Using the **GETXMLDOCUMENT** tag all of the fields for the selected data records in **GETRECORDS** are detected. The **SELECT** instruction in the example, detects addresses from the **Address table** whose address number matches the detected number in **GETRECORDS**.

  This is done through **Address number = %s**: The checked field has to match the key field in **GETRECORDS**. The following condition does not have to be repeated in the example: **Company = 'CAS Software AG'**. This may, however, be necessary if the **Address number** key is not unique or only has one prefix. For example, a key is not unique if the key is also being used as an identifier for companies and for the allocation of contact persons, see "Special cases: Companies and contact persons" on page 30.

The blocks have to contain valid SQL instructions. Conditions using a large or small character have to be coded with **>** or **<** as otherwise the characters will be interpreted as the start and end of the day.

In addition, the expression has to be contained within quotation marks **'%s'** in case the key is a string.

CAS partners can access more information in the SDK documentation in the entry on **ERP connect** on page...

- **The XML configuration file for generating data**,
- **Explanations** and
- **Notes on how to formulate SELECT statements**

In addition to **GETRECORDS** and **GETXMLDOCUMENT** you can also insert the **GETEXTRADOCUMENT** block. This defines which data can be displayed on the **ERP** tab in the CAS genesisWorld Desktop Client.

It is important to distinguish between a full synchronization with renewed transfer of all data records and an incremental synchronization whereby only the changed data records are transferred. If a full synchronization is what you want, then the **UPDATE** block can be ignored. Additionally, when performing a full synchronization in the **INSERT** block, no synchronization is run with the **BSEXTERNALTABLERELATION** table.

In the case of an incremental synchronization, the following data records should be detected as content in the 3 blocks:

- In the **INSERT** block, SQL instructions are used to detect all relevant data records whose keys are not yet available in the **BSEXTERNALTABLERELATION** table.
- In the **UPDATE** block, SQL instructions are used to detect all relevant data records whose keys are already available in the **BSEXTERNALTABLERELATION** table and where their timestamps are younger in the third-party system than in the **BSEXTERNALTABLERELATION**.
- In the **DELETE** block, SQL instructions are used to detect all the relevant data records whose keys are available in the **BSEXTERNALTABLERELATION**, but which no longer exist in the third-party system.

In the Management Console you can configure when you want the synchronization to be performed, see "Configuring tasks in the Management Console" on page 32.

3.1.2 Synchronizing from CAS genesisWorld to the third-party system

To transfer data records from CAS genesisWorld to the third-party system you have to create another configuration file

The direction of the synchronization is defined in the file name of the configuration file, see "Structure of the configuration file" on page 19.

> Inserting data from CAS genesisWorld into a third-party system is only supported when the **BSEXTERNALRELATION** table is available, see "Setting up the meta-table" on page 17.

Using a configuration file which has the following structure, you can transfer data from CAS genesisWorld to the third-party system:

```
<?xml version="1.0"?>
<CUSTOMIZING>
  <ERPSYSTEM>
    <INTERPRETER>
      <SUPPORTEDTABLES>
        <ADDRESS TABLENAME="ERPCustomer"
KEYFIELD="CustomerKey"
            KEYFIELDTYPE="INTEGER" KEYWITHPREFIX="yes"
            PREFIX="K_" />
        <PROJECT TABLENAME="ERPPROJECT"
            KEYFIELD="PROJECTKey" KEYFIELDTYPE="INTEGER"
            UPDATETIMESTAMPFIELD="UpdateTimestamp"/>
      </SUPPORTEDTABLES>
    </INTERPRETER>
  </ERPSYSTEM>
</CUSTOMIZING>
```

In contrast to synchronizations from the third-party system to CAS genesisWorld, no select instructions are necessary, that is no sections of your own for each data record type from CAS genesisWorld. All the necessary information is contained in the **SupportedTables** tag.

> Using ERP connect you can only transfer the **ADDRESS** and **PROJECT** data records from CAS genesisWorld to the third-party system. Using Data connect other data record types can be transferred from CAS genesisWorld.

- The **TABLENAME** attribute is required and defines the table in the third-party system to which the data record is to be written. Please note, you can only enter one table here. In more complex cases, you have to either write your own plug-in for ERP connect or work via a transfer database, see "When do we recommend using a transfer database?" on page 12.
- The required **KEYFIELD** attribute describes the unique key for the table in the third-party system. The **KEYFIELDTYPE** is also necessary. **String**, **Integer** or **Binary** describes the data type for the **KEYFIELD** field.
- **KEYWITHPREFIX** is required if the data records begin with a prefix because, for example, there is a difference between companies and contact persons and they are

to be written to different tables. For a **PREFIX** you have to use two characters which cannot normally be found in the normal keys, for example, B.K_.

- The **UPDATETIMESTAMP** field is used to detect synchronization conflicts by comparing the time the CAS genesisWorld data record was changed with this field's value. The new change "wins": Another change, which has already occurred in CAS genesisWorld and is not transferred to the third-party system if the data record in the third-party system is changed later. If the field remains empty, then the data record data record from CAS genesisWorld has priority.

You can define in detail which of your defined data record types you want to transfer and access other settings in the Management Console, see "Synchronizing from CAS genesisWorld to the third-party system" on page 36.

You will not have to perform any additional configurations to the configuration file as the data records from CAS genesisWorld are the ones being synchronized.

CAS partners can access more information in the SDK documentation in the entry on **ERP connect** on page...

- **The XML configuration for interpreting data** and
- **Synchronizing in the opposite direction**

3.2 Structure of a stylesheet file

The name fields for the data record types you wish to synchronize in CAS genesisWorld and in the third-party system are allocated to each other in the stylesheet file.

Apart from the configuration file, a stylesheet file should always be available, for example, **ERPAdapterAddressTransform**. The following also applies: A stylesheet file has to be available per data record type and direction of synchronization.

For the direction, third-party system to **CAS genesisWorld**, you should use the stylesheet files in the following folder which conform to the stated schema.

```
\Server\Transceiver\ERPAdapter<Data record
type>Transform.xsl
```

The stylesheet files in this folder are included in delivery by CAS Software AG and can be overwritten by software updates. Thus, you can name your own files according to the following schema:

```
\Server\Transceiver\ERPAdapter<Data record
type>TransformSDK.xsl
```

Files renamed in this way have priority over the delivered files from CAS Software and are not overwritten by a software update.

> We recommend you always make backup copies of any customized files, as when working with main versions, renewed copying and customizing of these files can be necessary.

Files with the following names are stylesheet files for synchronizations in the direction of CAS genesisWorld to the third-party system.

```
\Server\Transceiver\genesisWorld<Data record type>TransformForERPAdapter.
```

You can also add **SDK** to these file names too.

```
\Server\Transceiver\genesisWorld<data record type>TransformForERPAdapterSDK.xsl
```

> **ForERPAdapter** files are used if the ERP adapter is being used as the driver of the third-party system. This is not necessary with your own plugins.

Ideally, multiple synchronizations can use the same mapping as set out in the stylesheet file. If this is not possible, then you have to differentiate between cases in the stylesheet file, see "Multiple synchronizations for identical data record types" on page 41.

CAS Partners will find more information in the SDK documentation under the **ERP connect** entry and on the **Adaption** page

3.2.1 Synchronizing from the third-party system to CAS genesisWorld

Allocating fields form a third-party system to CAS genesisWorld in the stylesheet file follows a set structure as is the case for the configuration file, see the following example:

```
<?xml version="1.0" ?>
<xsl:stylesheet version = "1.0"
  xmlns:xsl=http://www.w3.org/1999/XSL/Transform
  xmlns:rs="urn:schemas-microsoft-com:rowset"
  xmlns:z="#RowsetSchema">
 <xsl:output indent="yes" />

  <xsl:template match="*">
      <xsl:copy>
        <xsl:apply-templates select="@*" />
       <xsl:apply-templates select="FIELDS/xml/rs:data" />
      </xsl:copy>
  </xsl:template>

  <xsl:template match="@*">
    <xsl:variable name="LocalName" select="local-name()" />
   <xsl:attribute name="{$LocalName}">
```

```
      <xsl:value-of select="." />
      </xsl:attribute>
  </xsl:template>

    <xsl:template match = "/">
      <xsl:apply-templates select="*" />
   </xsl:template>

  <xsl:template match="FIELDS/xml/rs:data">
      <xsl:value-of select="." />

     <xsl:element name="F">
     <xsl:attribute name="N">gwDeactivated</xsl:attribute>
     <xsl:attribute name="V">0</xsl:attribute>
     </xsl:element>

         <xsl:element name="F">
     <xsl:attribute name="N">ZIP1</xsl:attribute>
     <xsl:attribute name="V">
      <xsl:value-of select="z:row/@Postalcode" />
      </xsl:attribute>
    </xsl:element>

         <xsl:element name="F">
      <xsl:attribute name="N">ADRNUMBER</xsl:attribute>
         <xsl:attribute name="V">N_<xsl:value-of
          select="z:row/@Addressnumber" />
         </xsl:element>

    </xsl:template>
</xsl:stylesheet>
```

The first block **<xsl;stylesheet>** contains important information on the stylesheet itself. Next, you will see three **<xsl:template>-** elements with rules which are used for the following nodes.

In the fourth **<xsl:template>-** element the last step is to allocate the individual fields which you will see as **<xsl:element>-** nodes marked with an **F** which stands for **Field**. In the process, individual **<xsl:attribute>** are set.

- The **name="N"** attribute specifies the CAS genesisWorld field names.
- The **name="V"** attribute specifies the value which should be written to the CAS genesisWorld field above.

Here you can also work with a sub-node **<xsl:value-of select>** which adopts specific values from the third-party system. You can use it to evaluate suitable fields. The source XML for these selections can be found in the *_1.xml output file made visible by **ShowXMLMessage** "Creating log files" on page 16.

The **xsl:value-of select>** node can also be sent for transformations. You can do this, for example, in the third **<xsl:element>-** nodes in which an **N...** is entered before each address number.

> Line breaks in transformations can result in errors and should be avoided.

In the fourth **<xsk:template>** element If conditions are possible. These are necessary for different types of addresses where differing values have to be written to fields. Other relevant instructions include: **<xsl:otherwise>**, **<xsl:choose>** and **<xsl:when>**. The following example shows an element in which the form of address in CAS genesisWorld is determined by the form of address in the third-party system.

```
<xsl:element name="F">
 <xsl:attribute name="N">AddressTerm</xsl:attribute>
 <xsl:choose>
  <xsl:when test="z:row[@Salutation = 'H']">
   <xsl:attribute name="V">Mr</xsl:attribute>
  </xsl:when>
   <xsl:otherwise>
    <xsl:if test="z:row[@Salutation = 'F']">
    <xsl:attribute name="V">Ms</xsl:attribute>
    </xsl:if>
   </xsl:otherwise>
  </xsl:choose>
</xsl:element>
```

3.2.2 Synchronizing from CAS genesisWorld to the third-party system

The stylesheet file you are using works with the configuration file, see "Synchronizing from CAS genesisWorld to the third-party system" on page 22.

The following example includes a stylesheet file in which only the company name taken from CAS genesisWorld is written to the **ERP_Firmenname** field in the third-party system.

```
<?xml version="1.0" ?>
<xsl:stylesheet xmlns:xsl="http://www.w3.org/TR/WD-xsl">
<xsl:template match = "/">
  <xsl:pi name="xml">version="1.0"</xsl:pi>
  <xsl:apply-templates select="*"/>
</xsl:template>
<xsl:template match="*">
    <xsl:copy>
      <xsl:apply-templates select="@*|text()">
        <xsl:template>
           <xsl:copy>
             <xsl:apply-templates select="@*|text()"/>
           </xsl:copy>
        </xsl:template>
    </xsl:apply-templates>

    <xsl:element name="F">
      <xsl:attribute
name="N">ERP_Companyname</xsl:attribute>
      <xsl:attribute name="V"><xsl:value-of
      select="F[@N='COMPNAME']/@V"/></xsl:attribute>
      </xsl:element>

  </xsl:copy>
</xsl:template>
</xsl:stylesheet>
```

The value in the database is selected by CAS genesisWorld as the **value-of-select**. The target field is included in the **N** attribute.

At this point, it is worth considering the important question of how the keys can be set in the third-party system, see "Defining prerequisites" on page 13.

By default, the system expects a key field of the integer data type **(int)**, which increases in value automatically for each entry.

One possibility when transferring data from CAS genesisWorld to the third-party system is to use the **GGUID** field in CAS genesisWorld. Save the unique key to its own field in the third-party system and then transfer the **GGUID** field value from CAS genesisWorld to this field. This provides you with a unique key which can be counted.

3.3 Setting links as extended functions

Links can be entered while importing data records to CAS genesisWorld. To do this you will need a unique key which is used to assign the data records that you want to link.

Links can only be entered to those data records which have already been transferred or which are currently being transferred. Thus, when entering links, pay attention to the order of the synchronized data record types.

To enter links, the **SR** tag is used in an element within the stylesheet file such as in the following example:

```
<xsl:element name="SR">
<xsl:attribute name="T">ADDRESS</xsl:attribute>
<xsl:attribute name="K">
   <xsl:value-of select="z:row/@Linknumber"/>
</xsl:attribute>
<xsl:attribute name="N">PARTNER</xsl:attribute>
<xsl:attribute name="ES">SYSTEMID</xsl:attribute>
<xsl:attribute name="M">LINK</xsl:attribute>
</xsl:element>
```

- The **SR** tag creates a link for the specified data record. You can create as many links as you want by using this tag multiple times.
- The **T** attribute specifies the data record type for the linked data record, for example, **ADDRESS**.
- The **K** attribute specifies the key for the data record you want to link from the third-party system. This corresponds to the **EXTKEY** in the **BSEXTERNALTABLERELATION** and is defined in the synchronization *.xml-file for the respective data record types.
- The **N** attribute is optional and specifies the attribute for the link type. You have to enter the name under which the link type is saved in the **Internal name** field in the database.

You will find more information in the Online Help for the Management Console on the Link types http://hilfe.cas.de/CgW/en/Administrator/x7/index.htm#Verknuepfungsarten.htm and Link types tab http://hilfe.cas.de/CgW/en/Administrator/x7/index.htm#Register_Verknuepfungsarten.htm pages.

- The **M** attribute is optional and can take the **LINK** or **UNLINK** values. **Link** is the default value and is also used when an attribute has not been specified - the link is then created. **UNLINK** has to be specified explicitly, it deletes the specified links.
- The **SRC** attribute is optional and can be given the values of **YES** or **NO**. **NO** is the default value and is also used if the attribute has not been specified.

With directed links between the same data record types, such as between two addresses, the data record with the **SR** tag is normally the target of the link. Using the **SRC="YES"** attribute you can set a data record as the source and the ERP data record as the link target.

The direction of the link is determined automatically for directed links between data records of different data record types.

CAS Partners will find more information in the SDK documentation under the **ERP connect** entry on the **Tag SR (= Set Relations)** page.

The **ExtKey** for the data record in question, has to agree with the key of the data record you wish to link which was read out in the **K** attribute. In the example above, the data record is linked, which contains the same value as that saved in the **Link number** field in the third-party system, this should correspond to the value of the **EXTKEY** for the current data record. You can use any number of different **SR** elements in a synchronization. When synchronizing from CAS genesisWorld to the third-party system **SR** elements are not possible, this is because there are no links available in third-party systems.

3.4 Special cases: Companies and contact persons

The allocation of companies and contact persons during while importing to CAS genesisWorld is a special case which is not followed with an **SR** element. You can ensure that allocations take place by entering a unique company key in the contact persons **GWCOMPANYGUID** field as in the following example:

```
<xsl:element name="F">
 <xsl:attribute name="N">GWCOMPANYGUID</xsl:attribute>
 <xsl:attribute name="V">
    <xsl:value-of select="z:row/@Companykey" />
 </xsl:attribute>
 <xsl:attribute name="EXTOBJECT">ADDRESS</xsl:attribute>
</xsl:element>
```

In the process, the **Company key** field is exported and the system then searches for the value in the **BSEXTERNALTABLERELATION** table under **EXTKEY**. If a corresponding company is found, then the allocations are then performed. A suitable prefix can also be set before the **<xsl:value-of-select />** block, in case the **EXTKEY** has already been allocated such a prefix within the framework of the configuration file.

If a suitable value could not be found in the **BSEXTERNALTABLERELATION** table, then an address is created as an individual contact and no company contact person. Problems can occur when the value you are looking for is not unique.

The attribute with the **EXTOBJECT** name has to be set here because of the framework as this involves a foreign key relationship. The framework for receipts and products behaves similarly, whereby a deviating **EXTOBJECT** has to be entered.

You can, for example, use the following code when synchronizing CAS genesisWorld to the third-party system:

```
<xsl:element name="F">
   <xsl:attribute name="N">FIRMENNUMMER</xsl:attribute>
   <xsl:attribute name="V"><xsl:value-of
     select="F[@N='GWCOMPANYGUID']/@V" /></xsl:attribute>
   <xsl:attribute name="EXTOBJECT">ADDRESS</xsl:attribute>
   <xsl:attribute name="PREFIX">F_</xsl:attribute>
   <xsl:attribute
name="KEYFIELDTYPE">INTEGER</xsl:attribute>
</xsl:element>
```

In the process, the company **EXTKEY** from the **BSEXTERNALTABLERELATION** table is written to the **FIRMENNUMMER** column and the prefix and data type of the key are specified, for example, an integer for numbers or a string for characters.

CAS Partners will find more information in the SDK documentation under the **ERP connect** category on the **Synchronizing customers and contact persons** page.

3.5 Entering participants

Participants can be entered via the interface when importing to CAS genesisWorld by using the **AC** and **ACR** elements.

```
<xsl:element name="AC">
<xsl:attribute name="FEP">FULL</xsl:attribute>
<xsl:attribute name="MODE">APPEND</xsl:attribute>
<xsl:element name="ACR">
    <xsl:attribute name="T">G</xsl:attribute>
  <xsl:attribute name="N">Development</xsl:attribute>
  <xsl:attribute name="EP">FULL</xsl:attribute>
  </xsl:element>
</xsl:element>
```

- The **AC** tag initiates the input of rights. When installing in CAS genesisWorld these rights are entered for the data record which was created.
- The **FEP** attribute specifies the (Foreign Edit Permission) for the data record, possible values are: **NONE**, **VIEWTIMES**, **VIEW**, **INSERT**, **COPY**, **MOVE**, **EDIT**, **DELETE**, **FULL** or **PRIVATE**.

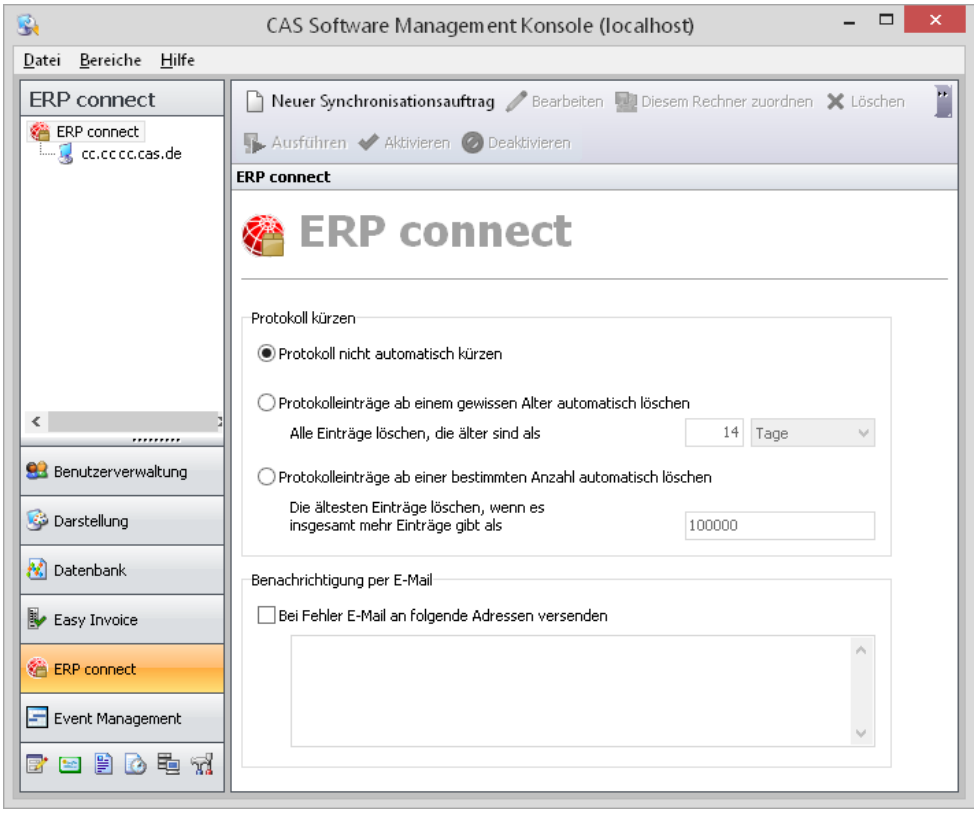
- The **MODE** attribute is optional and determines whether the rights for an available data record are replaced with **REPLACE** or complemented with **APPEND**. Rights are complemented by default.
- A individual participant with rights is entered via the **ACR** day
- The **T** attribute specifies whether users, groups or resources are entered using **U**, **G** or **R** respectively.
- The **N** attribute identifies a participant via the name, for example, **Robert Glade** for this user.
- The **EP** attribute specifies the participant's access rights to the data record, possible values are as follows: **NONE**, **VIEWTIMES**, **VIEW**, **INSERT**, **COPY**, **MOVE**, **EDIT**, **DELETE**, **FULL** or **PRIVATE**.

CAS Partners will find more information in the SDK documentation in the section on **ERP connect** on the **Tags AC (=Access Control) page and ACR (=Access Control Relation)**

3.6 Configuring tasks in the Management Console

Once configuration and stylesheet files have been created, then the settings for performing the synchronization in the **ERP connect** area of the Management Console can be defined.

The synchronization occurs via one more synchronizations tasks.

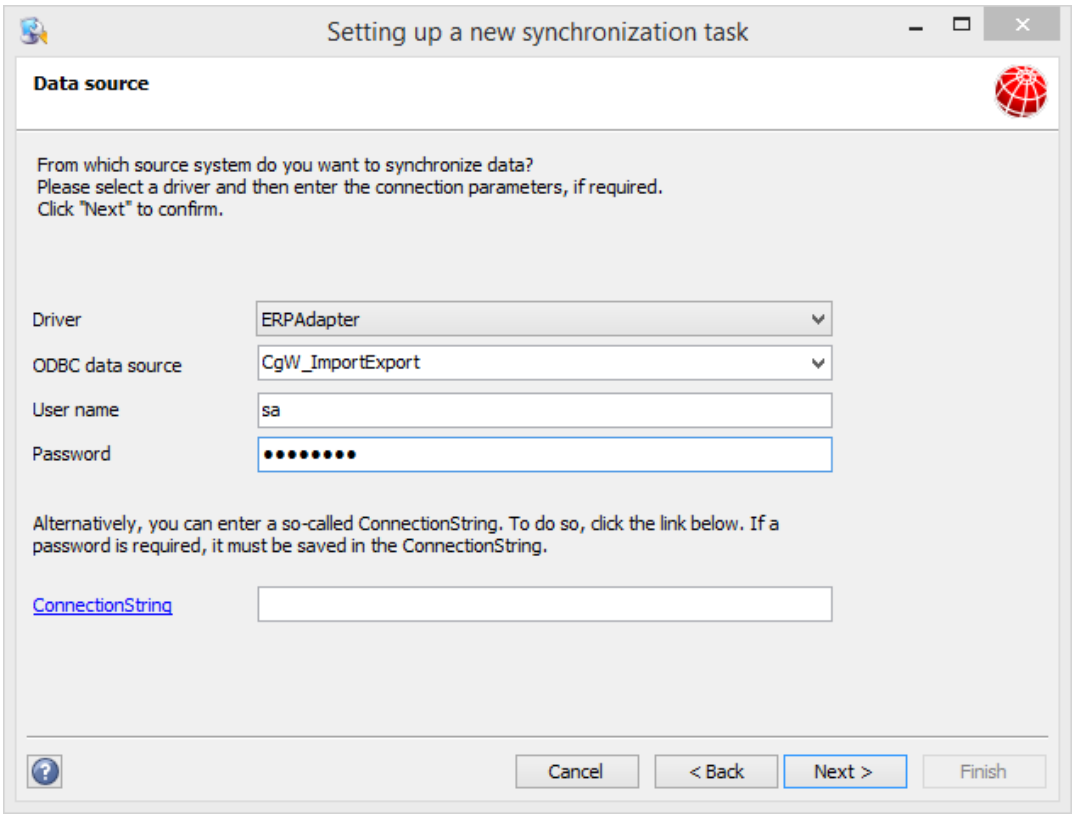


3.6.1 Synchronizing from the third-party system to CAS genesisWorld

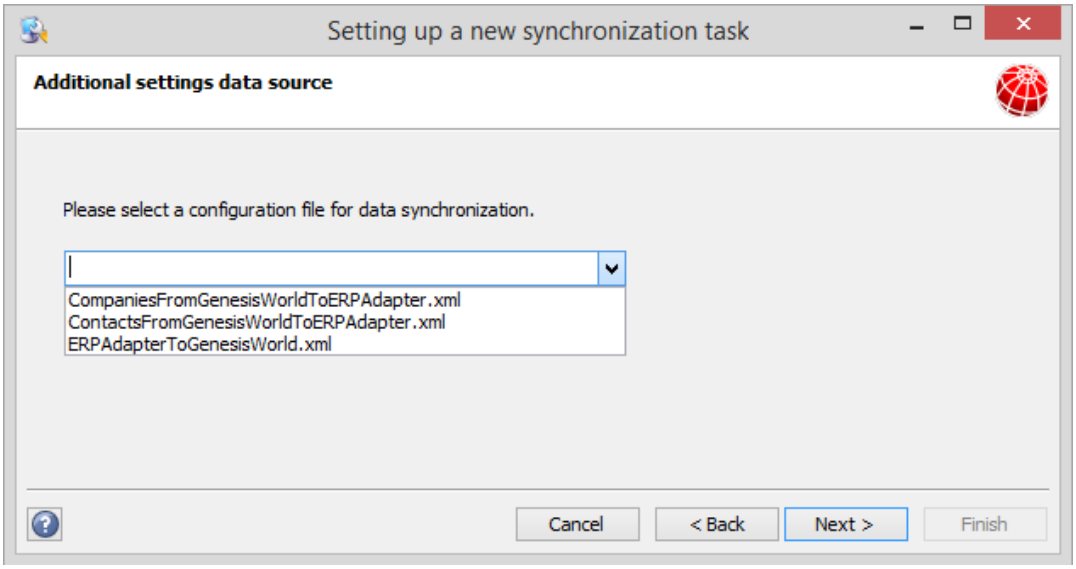
☑ In the **ERP connect** area, click **New Synchronization task**. A multi-page wizard will open.

☑ Select **ERPAdapter** as the **Driver** of the data source and **ODBC data source** as the connection, see "ODBC integration" on page 14.

Alternatively, you can enter your own plug-in as the driver. Or you can enter the connection details or **ConnectionString** which includes the database name and the connection parameters.

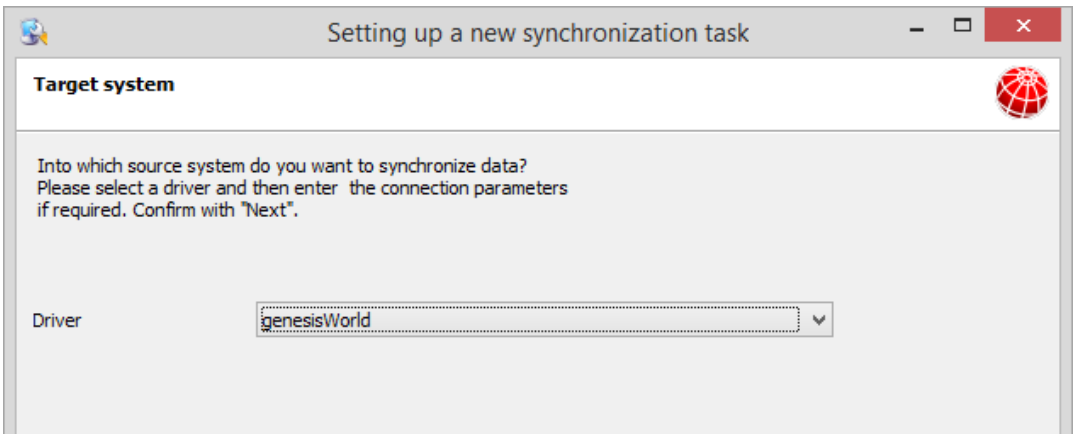


☑ Select a relevant configuration file for the synchronization. All the XML files are displayed which are contained in the Application Server folder ..\Server\Transceiver\ERPAdapterConfig\.



You use a configuration file for every synchronization task, which you have configured previously, see "Structure of the configuration file" on page 19.

☑ Select a driver for the data target, in this case for example, **genesisWorld**.



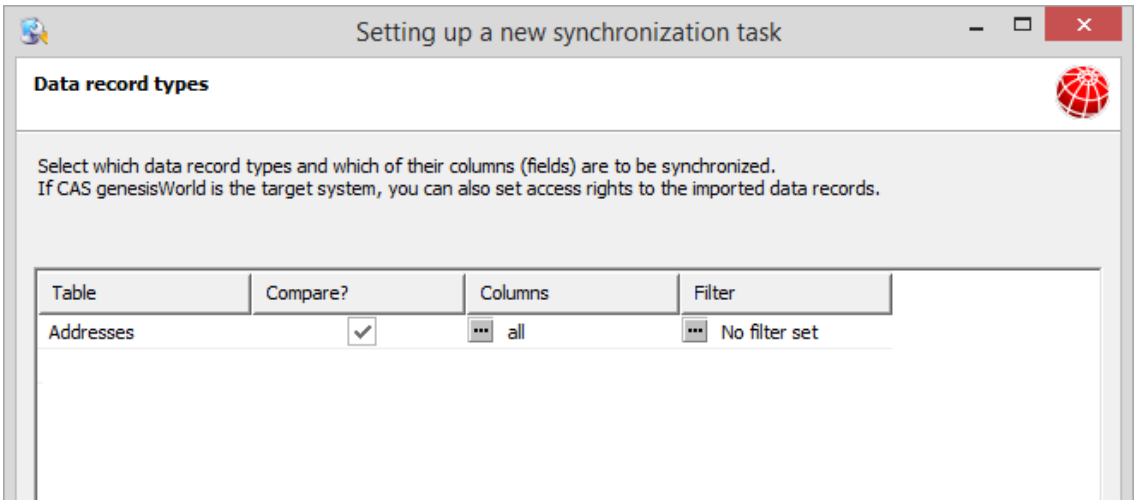
☑ Finally, you can restrict the data record types or fields you wish to synchronize by using a filter. To do so, click the button next to **Column** in the corresponding row. Select the corresponding columns in the **Column selection** window.

☑ You use an ERP key field to update data records, see "Synchronizing with existing data records" on page 40.

☑ In addition, you can define participants or groups for the imported data records. These can be different participants or groups for each data record type.

☑ Create a **Schedule** for recurring synchronizations

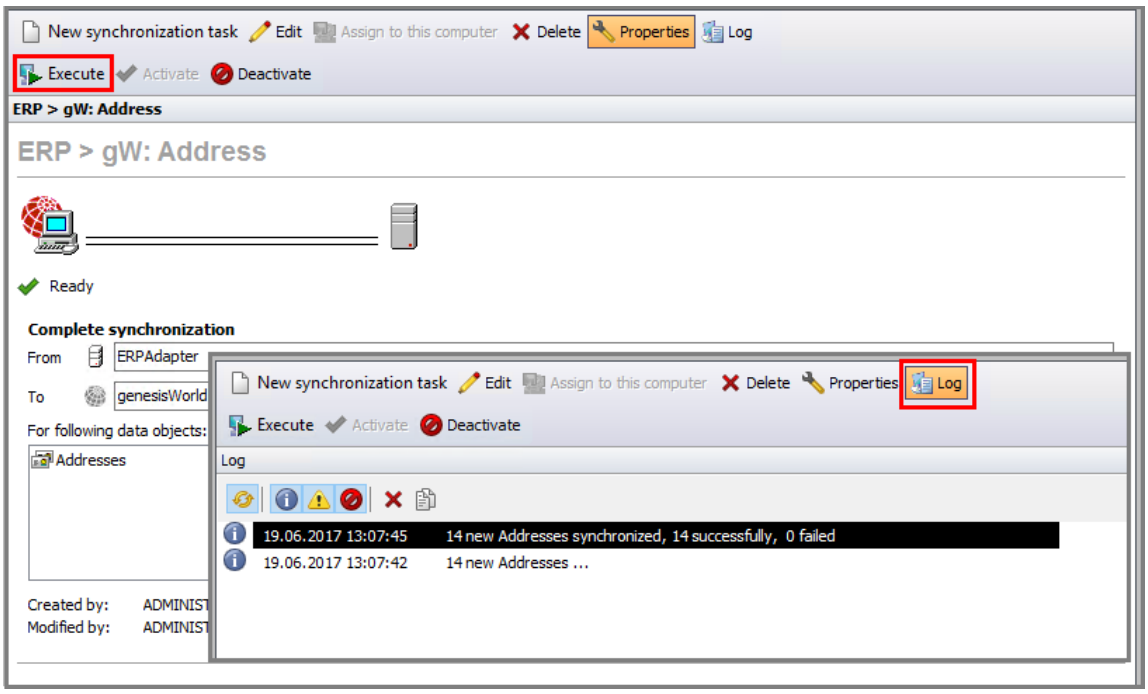
☑ Award this task a name.



☑ Click **Active** and start the task with **Execute**.

This performs a synchronization task immediately, independent of a schedule.

☑ You will find information on the synchronization in the **Log**.

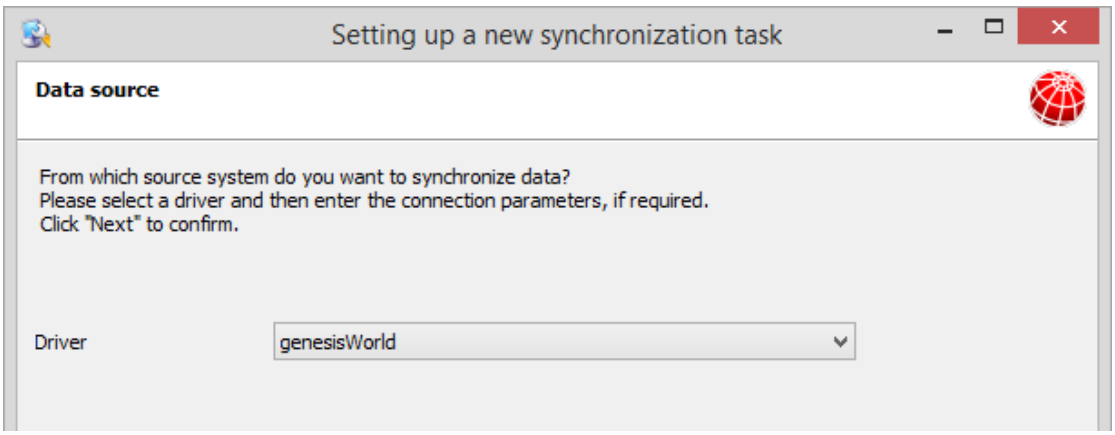


CAS Partners will find more information in the SDK documentation under **ERP connect** and on the **Monitoring tasks** page.

3.6.2 Synchronizing from CAS genesisWorld to the third-party system

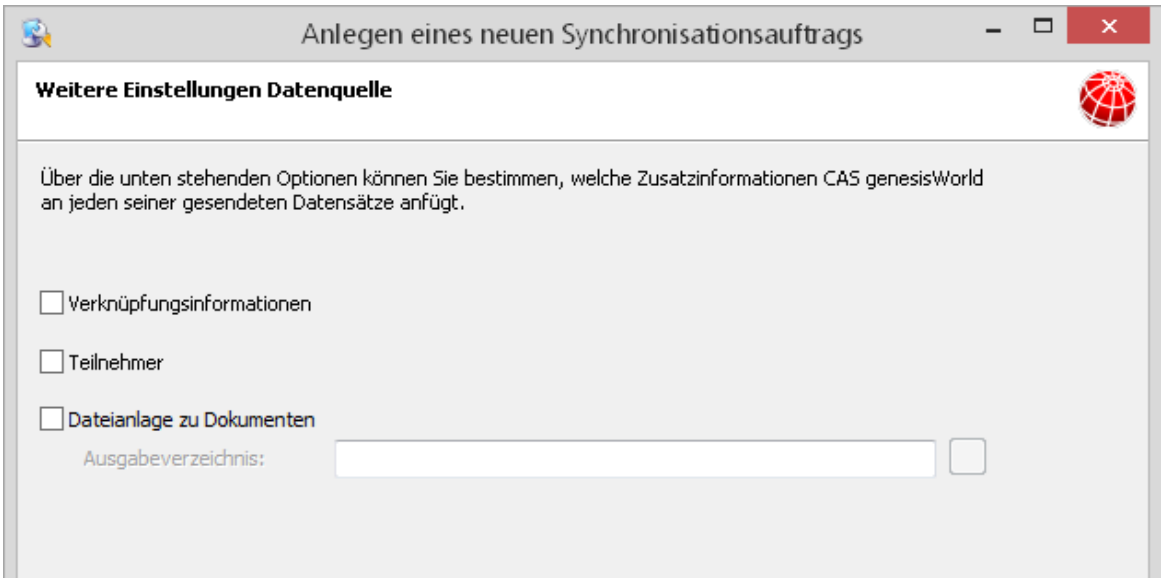
☑ In the **ERP connect** area, click **New Synchronization task**. A multi-page wizard will open.

☑ Select the **genesisWorld** as the driver for the **Data source**



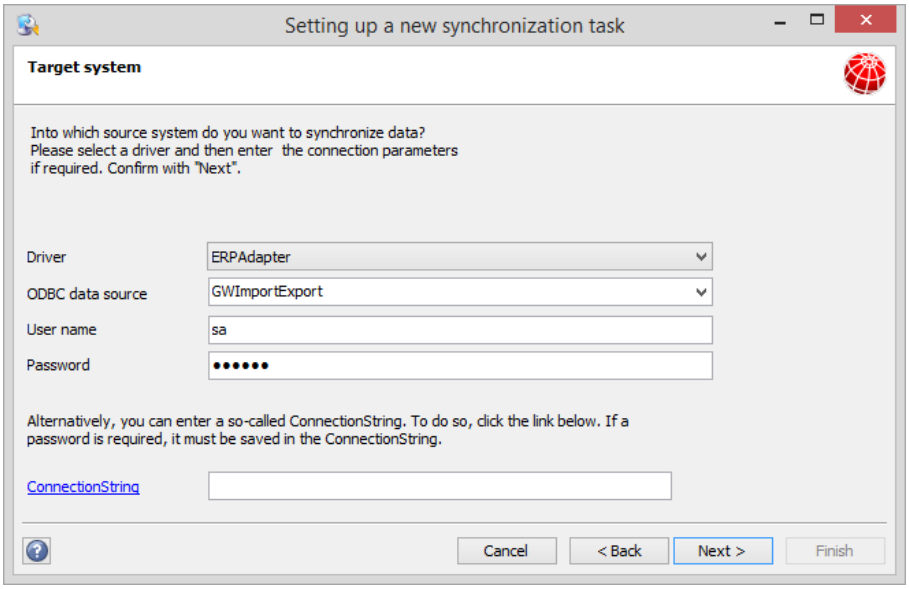
For synchronization tasks when synchronizing from CAS genesisWorld to the third-party system, more options are available for the synchronization task than vice versa. The respective settings are possible in CAS genesisWorld and do not have to the be completely out sourced to the configuration file.

☑ You can define more settings for the data source by completing **Link information** for the data records you wish to synchronize.



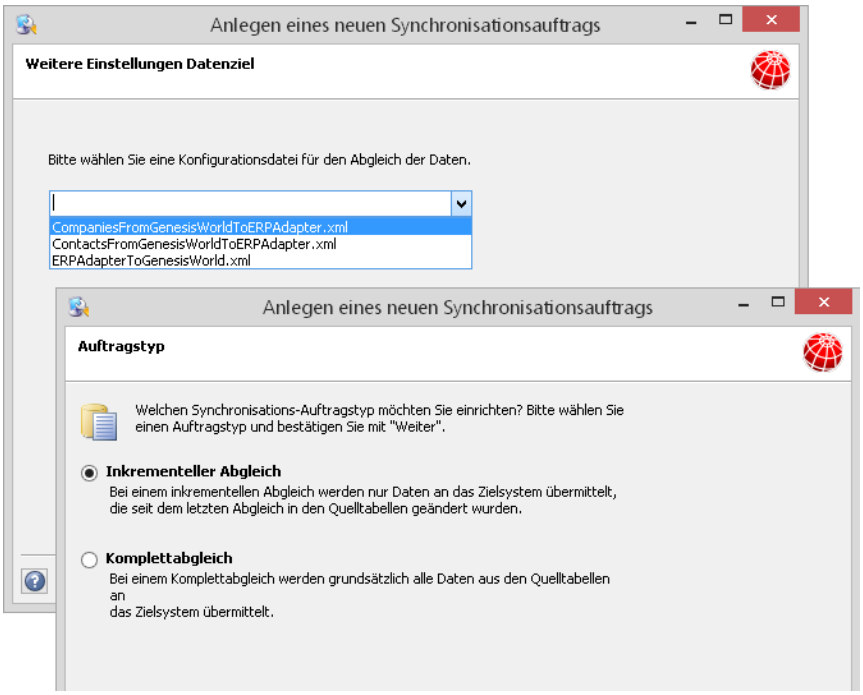
☑ Select the **ERPAdapter** as the driver for the **Data goal** and **ODBC data source** as the connection, see "ODBC integration" on page 14

Alternatively, you can use one of your own plug ins as a driver or enter the **ConnectionString**.



☑ Afterwards, select an XML configuration file for the direction, CAS genesisWorld to the third-party system and then either an incremental or complete synchronization.

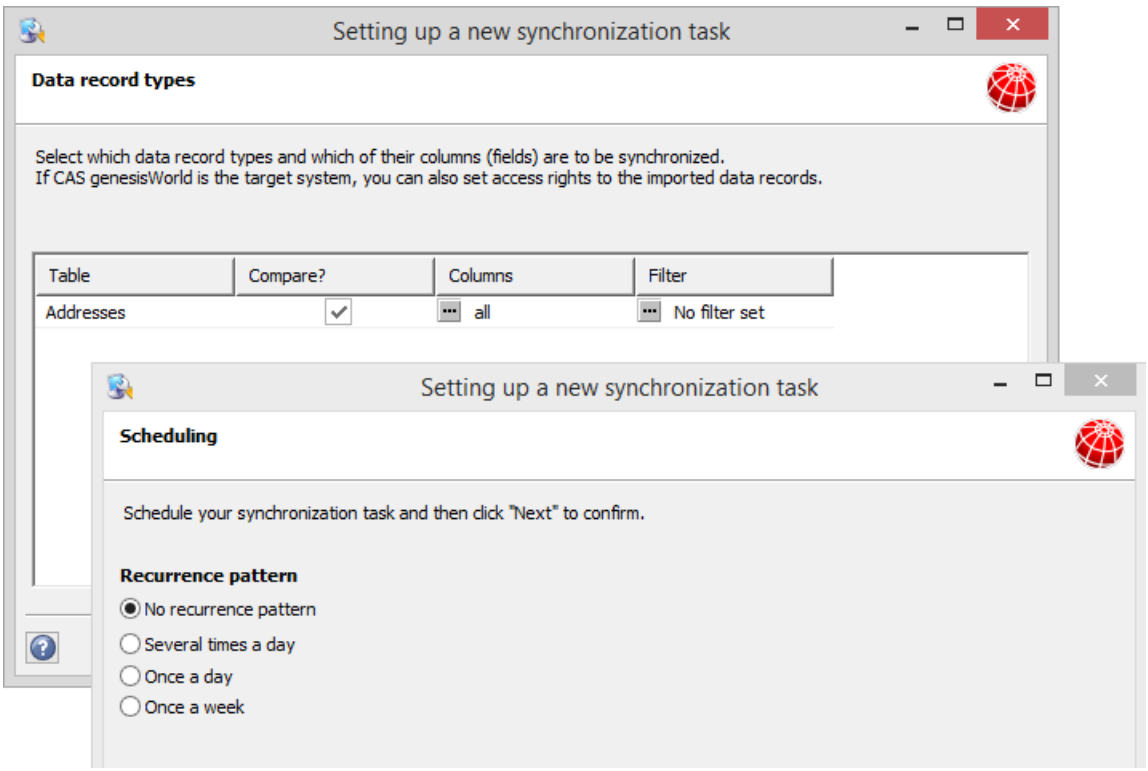
In contrast to the direction of synchronization: third-party system to CAS genesisWorld, you do not have to configure the settings for an incremental or complete synchronization in the XML configuration file.



☑ Finally, you use a filter to restrict the data record types or fields. To do so, click the button next to **Column** in the corresponding row. Select the corresponding columns in the **Column selection** window.

The filter is especially important here as in the XML configuration file no data record restrictions are used. You should restrict the selection so that only the relevant data records are transferred.

☑ Create a **Schedule** for recurring synchronizations.



CAS Partners will find more information in the SDK documentation under **ERP connect** on the **Configuring tasks** page.

3.7 Additional functions in the ERP connect area

In the **ERP connect** module in the Management Console, you will see a navigator on the left that is divided into different levels. When you click on an item in the navigator, you will then see the subfolders in the pane on the right.

☐ The root (top level) of the navigator is always **ERP connect**.

☐ The middle level contains the Application Server name upon which the synchronization tasks are performed.

☐ The bottom level contains the synchronization tasks.

3.7.1 Toolbar buttons

New synchronization task opens the **Set up a new synchronization task** wizard, see "Configuring tasks in the Management Console" on page 32.

Edit opens the **Change an existing synchronization task** wizard. The settings in the wizard correspond to those used when configuring a new synchronization task, see "Configuring tasks in the Management Console" on page 32.

Allocate to this computer: If the name of the computer is changed, then the existing synchronization tasks cannot be executed. If this happens, select the available synchronization tasks and using the context menu select another Application Server. The process it the same if you wish to move the synchronization texts to another Application Server.

Delete deletes the selected synchronization task from the **ERP connect navigator**.

Properties opens the selected synchronization task's properties sheet. These properties are the ones you have defined when you set up the synchronization task.

Log opens the selected synchronization task's log, see "Log view/Maintenance" on page 39.

Execute starts the synchronization task which is highlighted in the navigator.

This performs the synchronization tasks immediately, independent of scheduling.

Activate/Deactivate activates/deactivates the schedule. When scheduling is deactivated, the synchronization task can only be performed manually.

Stop synchronization service: The synchronization service ensures that the synchronization tasks are performed in order according to the schedule. If this service is stopped, then no synchronization tasks are performed.

3.7.2 Log view/Maintenance

This view displays the synchronization log for synchronizations with the third-party system including the setting changes, the status and so on.

With this icon, you enable or disable the refresh mechanism of the log. Even if you disable automatic update no messages are lost. As soon as you enable the update again, all messages that have not been displayed before are included in the log.

Use these icons to display or hide messages about status, warning or errors.

Use this icon to delete one or several selected messages. If no message is selected all messages are deleted after a security prompt was displayed.

3.7.3 Maintenance

☑ Click the first entry in the Navigator.

The log may be very large. As administrator, you define if and how you want to automatically shorten the log.

The setting you select will be performed the first time you log on to a domain and then afterwards on a daily basis.

Following installation, the first option is set as the default so that initially no entries are deleted.

- ☑ **Do not automatically delete entries from log file** means that data is further logged. The newest entries are displayed at the top in the Log tab.
- ☑ **Automatically delete entries after a certain time period:** In the dropdown list, choose the time from which log file entries are to be deleted.
- ☑ **Automatically delete entries if the log file has reached a certain size:** Specify how many entries should be kept. Entries exceeding this number are automatically deleted.

4 Special user scenarios

4.1 Synchronizing with existing data records

Occasionally, a new address is created in the third-party system and transferred to CAS genesisWorld, and it can sometimes be the case that the address is already saved in CAS genesisWorld. The synchronization, nevertheless, creates a new address in CAS genesisWorld, because up until the synchronization there had not been a connection between both addresses in the BSEXTERNALTABLERELATION table. In this case, a duplicate record is created which has to be resolved.

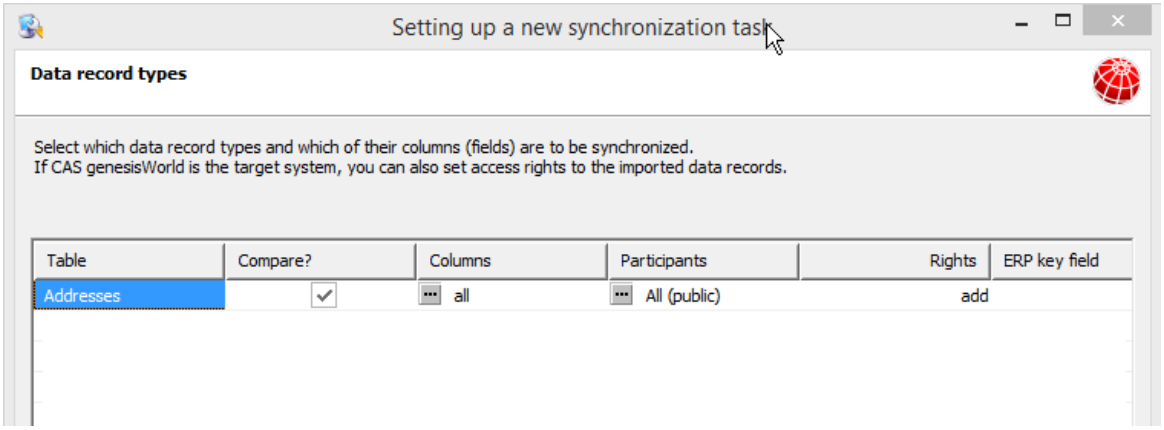
> When merging duplicates, the address is retained which was most recently saved to CAS genesisWorld via the synchronization.

However, such duplicates can be avoided by checking prior to the synchronization for an available key. If a key is available, then an initial allocation of ERP addresses to CAS genesisWorld addresses takes place, so that no duplicates occur at the first synchronization. This happens at configuration of the synchronization in the Management Console in the **ERP Key field**, see "Synchronizing from the third-party system to CAS genesisWorld" on page 33.

The content of the ERP key field is compared with the content of a field in the third-party system. If the contents match then the respective data record is updated and a new data record is not created. To enable this, you should ensure that the respective field in the stylesheet file has also been completed.

> Data records are synchronized and may be overwritten in both systems according to the key field without further checking. In the **ERP key** field drop-down list, all of the data record type fields, even those you created, are displayed when configuring the synchronization in the Management Console.

In the following example, the system checks whether the **Club number** field in the third-party system matches the **ADRNUMBER** field for an existing address. Additionally, the club number in the stylesheet file in the third-party system is transferred to the number filed in CAS genesisWorld thus enabling the synchronization.




```
<xsl:element name="F">
 <xsl:attribute name="N">ADRNUMBER</xsl:attribute>
  <xsl:attribute name="V">
  <xsl:value-of select="z:row/@Clubnumber" />
 </xsl:attribute>
</xsl:element>
```

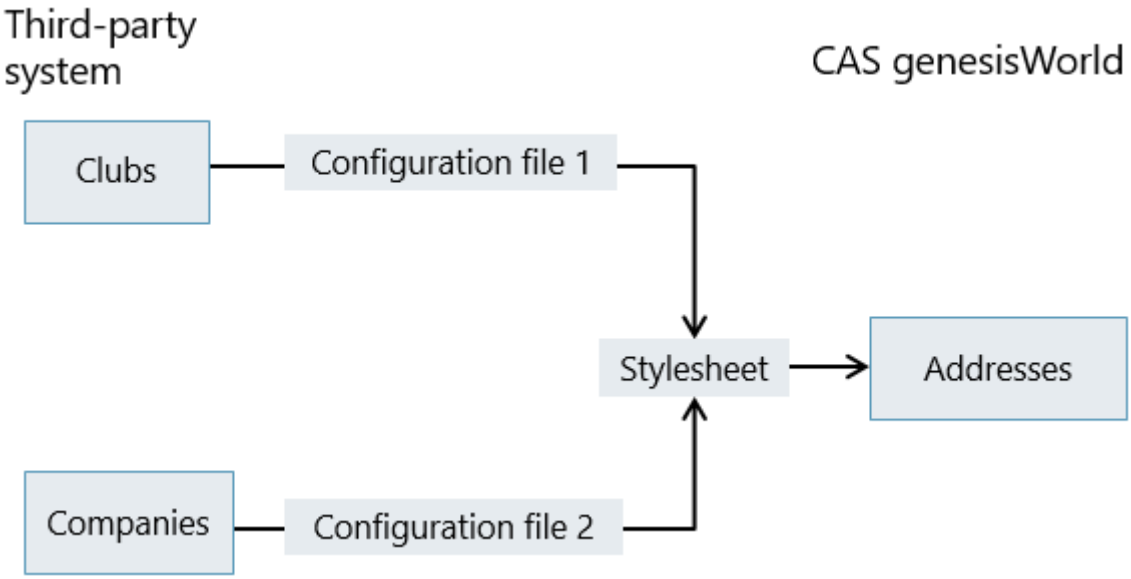
CAS Partners will find more information in the SDK documentation under **ERP connect** on the **Configuring tasks** page.

4.2 Multiple synchronizations for identical data record types

If multiple synchronizations are to take place for the same data record type in CAS genesisWorld, then you have to create a configuration file for each synchronization, see "Structure of the configuration file" on page 19.

The necessary data are called in each configuration file. For example, an initial synchronization could access the **Clubs** table and a second synchronization could access

the **Companies** table in the third-party system. For each synchronization of a data record type the same XSL stylesheet has to be used.



Ideally, all data records of the same data record types could be transformed without any additional customization using the same transformation in the XSL stylesheet. In case of doubt, cases have to be differentiated using If conditions in the XSL stylesheet as in the following example.

So, the read data of the configuration file contains a **Type** field, this is considered: If **Company** is the field value, then the name of the company in the **COMPNAME** field of the CAS genesisWorld database is adopted. If no, **Type** field is available, or the field value is not **Company**, then the If condition is skipped.

```
<xsl:if test="z:row[@Typ = 'Company']">
  <xsl:element name="F">
     <xsl:attribute name="N">COMPNAME</xsl:attribute>
      <xsl:attribute name="V">
      <xsl:value-of select="z:row/@Companyname" />
    </xsl:attribute>
  </xsl:element>
</xsl:if>
```

> Remember that at least one condition has to be met. All of the data records imported into the configuration file are adopted into CAS genesisWorld and if no condition matches, then empty data records are created.

If a unique difference is not possible in the stylesheet, then a case difference can already be prepared in the configuration file. This is done by using an additional field. For example, the first instruction might select addresses using the **Condition** field and then the second instruction would then call them via the stylesheet.

Instructions in the configuration file:

```
SELECT *, 'synchronization1' as a FROM condition address
table
```

Stylesheet file instructions

```
<xsl:if test="[@condition='Synchronization1']">
```

If multiple tables in the third-party system all point to a single address in CAS genesisWorld, then you can use **Joins** in the configuration file. This command enables you to transfer information on companies and clubs from different tables in the third-party system via the synchronization to a single address in CAS genesisWorld.

4.3 Non-unique keys

Normally, the selecting instruction in the configuration file for the synchronization from the third-party system to CAS genesisWorld under **<GETRECORDS>** is selected in such a way so that a unique list of data records is selected.

If both companies and contact persons are present in the respective field with the same value, then there is no unique key for a data record. In this case, the restrictive condition has to be repeated in the instruction under **<GETXMLDOCUMENT>** as otherwise the selection would deliver more %s data records than required.

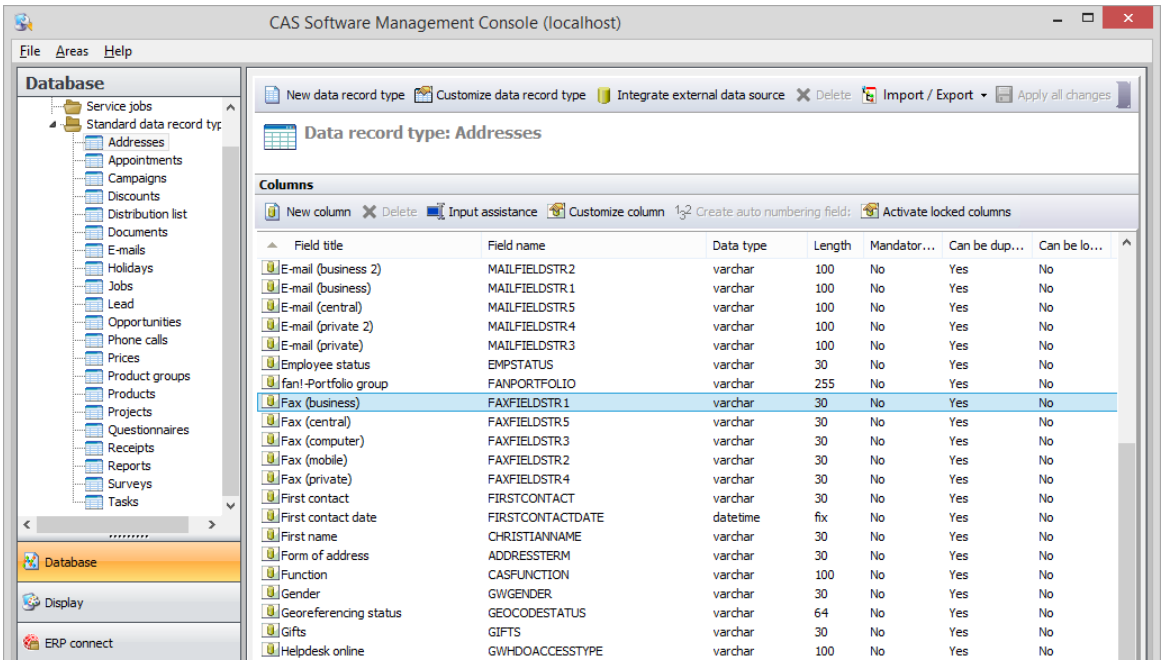
4.4 Locked columns

With the help of the **Locked columns** function, the administrator can define an individual list of fields for each data record type, which are locked in some specific data records. We recommend you do this for data record types or fields which are only managed in the third-party system. This data is displayed in CAS genesisWorld and only updated through a synchronization, it cannot however, be edited in CAS genesisWorld. The function is only available if an ERP connect license or Data connect license has been entered.

To enable field locking for a data record type, this option has to be active in the respective data record type.

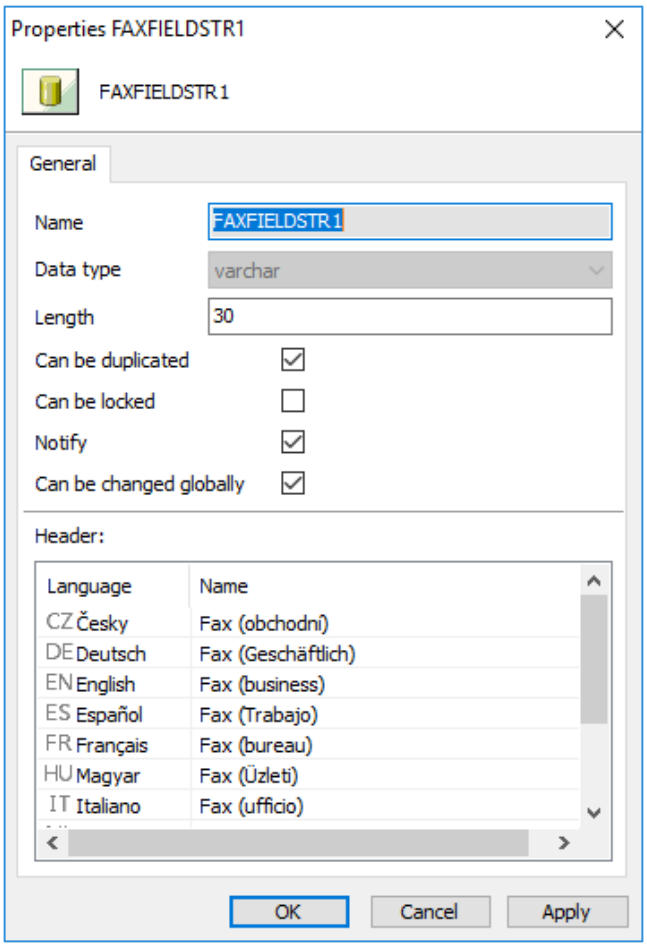
☑ In the **Database** area of the Management Console click **Activate locked columns** for the respective data record type.

Now, the new **gwLockedColumns** field is created for a data record type.



Click **Apply**. Only then, can the field be used.

Highlight a respective field and click **Customize column**.



☑ In the following window, click the **Can be locked** option.

Users cannot edit locked fields in synchronized data records. If a data record is not synchronized, then you still be able to edit the fields.

Thus, a specific data record finally has the bit value of **1** in the **gwLockedColumns** field and a locked field cannot be changed in the data record in CAS genesisWorld. The **gwLockedColumns** field has to be set in the respective data records through the synchronization in the third-party system.

```
<xsl:element name="F">
  <xsl:attribute name="N">GWLOCKEDCOLUMNS</xsl:attribute>
  <xsl:attribute name="V">1</xsl:attribute>
</xsl:element>
```

CAS partners can access more information in the SDK documentation in the entry on **ERP connect** on page...

☐ **Locked columns** and

☐ **Installing and configuring**.

4.5 Defining a default address

Various functions in CAS genesisWorld use **default** defined addresses, for example, georeferencing. The default address is the address which is displayed when opening a data record window. If addresses are imported via ERP connect or Data connect, then you can set the default address. This is done via the **CBADDRESS** field. The **0** value represents the **Company address**, **1** represents the **Delivery address** and **2** the **Private address**. In the following example, the **Company address** has been set as the default address.

```
<xsl:element name="F">
  <xsl:attribute name="N">CBADDRESS</xsl:attribute>
  <xsl:attribute name="V">0</xsl:attribute>
</xsl:element>
```

> You can also define values for default telephone numbers (CBPhone 1-3 or e-mail addresses (CBMail) is possible.

4.6 Country codes

In the third-party system country values are often entered with country codes in the ISO format. CAS genesisWorld in contrast, works with written names for countries.

> When synchronizing with ERP connect and Data connect, a field form the database is used in CAS genesisWorld. The XML files for the address check are not relevant.

You will find additional information in the online help pages for the Management Console on the Automatic address check http://hilfe.cas.de/CgW/en/Administrator/x7/index.htm#AdressenPruefung.htm page.

The difference between country codes and names which are written in full is taken into consideration when synchronizing from the third-party system to CAS genesisWorld, for example, with the following element.

```
<xsl:element name="F">
   <xsl:attribute name="N">GWISOCOUNTRYCODE1</xsl:attribute>
   <xsl:attribute name="V">
      <xsl:value-of select="z:row/@COUNTRYCODE" />
   </xsl:attribute>
</xsl:element>
```

In the process, the **COUNTRYCODE** field is read from the third-party system and entered into the existing **GWISCOUNTRYCODE1** field.

Thus, the country names are entered into the **COUNTRY1-n** fields, which correspond to the respective ISO codes. The country is entered in the respective database language.

> If the ISO code being used is unknown, then the value from the third-party system is transferred directly to the **COUNTRY1** field. For more information, you should contact your CAS Partner or CAS Software AG.

Fundamentally, you can also use such a mechanism when synchronizing from CAS genesisWorld to the third-party system. Then an additional XML file and a function in the stylesheet file could be used. Before the end of the stylesheet file and before the **</xsl:stylesheet>** element the following is inserted:

```
<xsl:template name="getcountrylong">
    <xsl:param name="shortcountry"/>
      <xsl:for-each

select="document('countrymapping.xml')/countries/country">
        <xsl:if test="contains(@short, $shortcountry)">
        <xsl:value-of select="@long" />
      </xsl:if>
    </xsl:for-each>
  </xsl:template>
```

In the process, the software references the **countrymapping.xml** XML file, which contains a written variant **long** for the country code **short**.

A country can then be written to the stylesheet itself, for example, with the following element.

```
<xsl:element name="F">
```

```
 <xsl:attribute name="N">COUNTRY1</xsl:attribute>
 <xsl:attribute name="V">
  <xsl:call-template name="getcountrylong">
      <xsl:with-param name="shortcountry">
        <xsl:value-of select="z:row/@GWADDRESSFORMAT" />
      </xsl:with-param>
    </xsl:call-template>
 </xsl:attribute>
</xsl:element>
```

4.7 Dependencies between data records

Dependencies between imported data records in CAS genesisWorld can lead to problems if such data records have been imported as a result of different synchronizations.

For example, if logon data records are imported and linked directly to an available address. Then at the first synchronization, the logons will be imported and then the addresses with the second synchronization however the you will not be able to enter the link.

We recommend you synchronize the different data record types using a single XML configuration file as in the following example. This ensures that, first of all, the current status of the addresses and any associated logons are transferred.

```
<?xml version="1.0"?>
<CUSTOMIZING>
  <ERPSYSTEM>
      <GENERATOR USEBSETR="yes"
ONLINEREFRESHISALLOWED="yes">
       <SUPPORTEDTABLES>
         <ADDRESS KEYFIELD="ADDRESSNR"
          UPDATETIMESTAMPFIELD="TIMESTAMP"
KEYWITHPREFIX="yes"
          PREFIX="F_" />
         <ANMELDUNGEN KEYFIELD="ANMELDUNGENNR"
          UPDATETIMESTAMPFIELD="TIMESTAMP"
KEYWITHPREFIX="yes"
          PREFIX="AN_" />
       </SUPPORTEDTABLES>
  …
    </GENERATOR>
```

```
  </ERPSYSTEM>
</CUSTOMIZING>
```

Similar problems can occur with synchronizations from CAS genesisWorld to the third-party system if, for example, the contact person and then the associated company is transferred. Normally, in the third-party system there is a field with the key for the allocated companies, for example, **COMPANYNUMBER**. If this field cannot contain a NULL value, then a contact person is not recorded. This will only happen when if the company data record is actually available in the **BSEXTERNALTABLERELATION** table.

4.8 Linking via comma-separated field values

Using comma separated field values in a third-party system field allows you to enter specific links in CAS genesisWorld.

For example, you may have a field in an address in the third-party system which contains the name of a decision-maker for this company. The field contains the decision-maker's names, comma separated, additionally the decision maker's address is also available in the third-party system. When transferring the address with the comma separated field, you can enter links in CAS genesisWorld for additional addresses.

For example, a **LINKS** field can contain the following string: **Doe John, Demo Dave, Piper Peter**. Now, you wish to enter links in CAS genesisWorld for the respective addresses **Doe John, Demo Dave, Piper Peter**

This is done in XSL 1.0, for example, using one of the stored blocks:

```
<xsl:template match="text()" name="split">
  <xsl:param name="pText" select="."/>
  <xsl:if test="string-length($pText)">
   <xsl:element name="SR">
    <xsl:attribute name="T">ADDRESS</xsl:attribute>
    <xsl:attribute name="N">RELATED_ADDRESS</xsl:attribute>
    <xsl:attribute name="K">
     <xsl:text>AD_</xsl:text>
     <xsl:value-of select="substring-before
          (concat($pText,','),',')"/>
    </xsl:attribute>
   </xsl:element>
   <xsl:call-template name="split">
    <xsl:with-param name="pText" select="substring-after
         ($pText, ',')"/>
   </xsl:call-template>
```

```
  </xsl:if>
 </xsl:template>
```

The example defines a function which is searching for comma-separated content and which links the individual elements with the **RELATED_ADDRESSES** link type and with the respective addresses. In the process, searching for addresses which correspond to a suitable key that specifies the **AD_** prefix.

The function in the **LINKS** field within the **template** block is called with the help of the following instruction:

```
<xsl:call-template name="split">
   <xsl:with-param name="pText" select="z:row/@LINKS"/>
</xsl:call-template>
```

> The solution depends on whether XSL 1.0 or XSL 2.0 are being used. You will find other solutions on the Internet.

4.9 Importing documents

Documents can also be imported in CAS genesisWorld.

CAS Partners will find more information in the SDK documentation under **ERP connect** on the **Importing documents** page.

5 Important information for users

Using ERP connect and Data connect means that data from third-party systems such as ERP systems is also available in CAS genesisWorld.

Configuring ERP connect and Data connect is very much dependent on your company and your individual needs. Thus, you will find the most commonly related issues and most frequently used functions with respect to users described here.

We recommend that you speak to your administrator about the rights system in your company and what data you have access to.

5.1 Maintaining data and synchronizing

Specific data from CAS genesisWorld and from the third-party system should be available and manageable in both systems. Other data, however, should only be manageable in one system or the other. One principle holds for all data and that is: All data should be displayed in as up-to-date a form as possible in both systems.

For example, you have to create and manage address data and projects in both the ERP system and in CAS genesisWorld. Data for receipts, products and product groups are only created and managed in the ERP system.

Synchronizing or transferring data between CAS genesisWorld and the ERP system has a number of implications which you need to be aware of.

- If you are planning on maintaining data such as addresses and projects in both systems, then any changes you make in one system will be transferred to the other system.

  Users of either system can change addresses and projects if they have the necessary rights.

  It is possible that not all the fields from both systems are also displayed in both systems. And it could also be the case that some individual fields of such data records are only displayed as read only fields in one system, because only field values in one system can be changed. Your administrator will grant suitable rights for specific data records and specific fields.

  Data which is changed in one system, will be available in the other system after synchronization. Your administrator configures the time intervals for synchronizations in the Management Console.

  A special case, worth mentioning is deleting, especially with respect to managing addresses or projects in both systems: Deleting a data record in the third-party system does not mean that the respective data record will be deleted in CAS genesisWorld. Data records which are deleted in the third-party system are likely to be marked with a special field: **To delete** in CAS genesisWorld. Also specific work flows are available for data records in CAS genesisWorld which have been marked in this way. Please contact your administrator for more information.

  Deleting a data record in CAS genesisWorld can result in the respective data record being deleted in the third-party system. You should check with your administrator to find out how this is managed in your company.

- If data such as receipts, products and product groups are only managed in the ERP system, then only changes performed in the ERP system will be transferred to CAS genesisWorld.

  Changes to such data records in CAS genesisWorld, however, would not result in changes being made in the third-party ERP system.

  Consequently, your administrator can configure the Management Console to prevent such data records from being created and changed. These data records are then displayed as read only in CAS genesisWorld.

Functions for users

The following functions could be available to users if ERP connect or Data connect have been configured and if the necessary rights have been granted:

- Receipts are managed in ERP systems and through synchronization tasks when synchronized to CAS genesisWorld. This ensures that the **Receipts** data record type is available in CAS genesisWorld.
- Products and product groups are also managed in the third-party system when synchronized to CAS genesisWorld and are also available as data record types in CAS genesisWorld.
- Addresses and projects are also created and managed in the third-party system as well as in CAS genesisWorld. Synchronization tasks ensure that the data in both systems is kept synchronous.

5.2 Receipts

Receipts are recorded in the ERP system or third-party system and then transferred to CAS genesisWorld by means of synchronization tasks from the ERP system. The receipts data record type in CAS genesisWorld displays data from the third-party system.

In CAS genesisWorld data record windows, list views, dossiers and so on are all available for receipts. Receipts can be linked with addresses automatically and, if necessary, you can then enter more links. If you are running the Premium Edition you could set automatic or manual primary links.

Using a multilist in CAS genesisWorld you can, for example, display certain addresses and associated receipts. And using a link search, you can search for certain addresses which are linked with certain receipts. You can save a link search as your own custom view, which allows you to see any special addresses and special receipts in their own respective views.

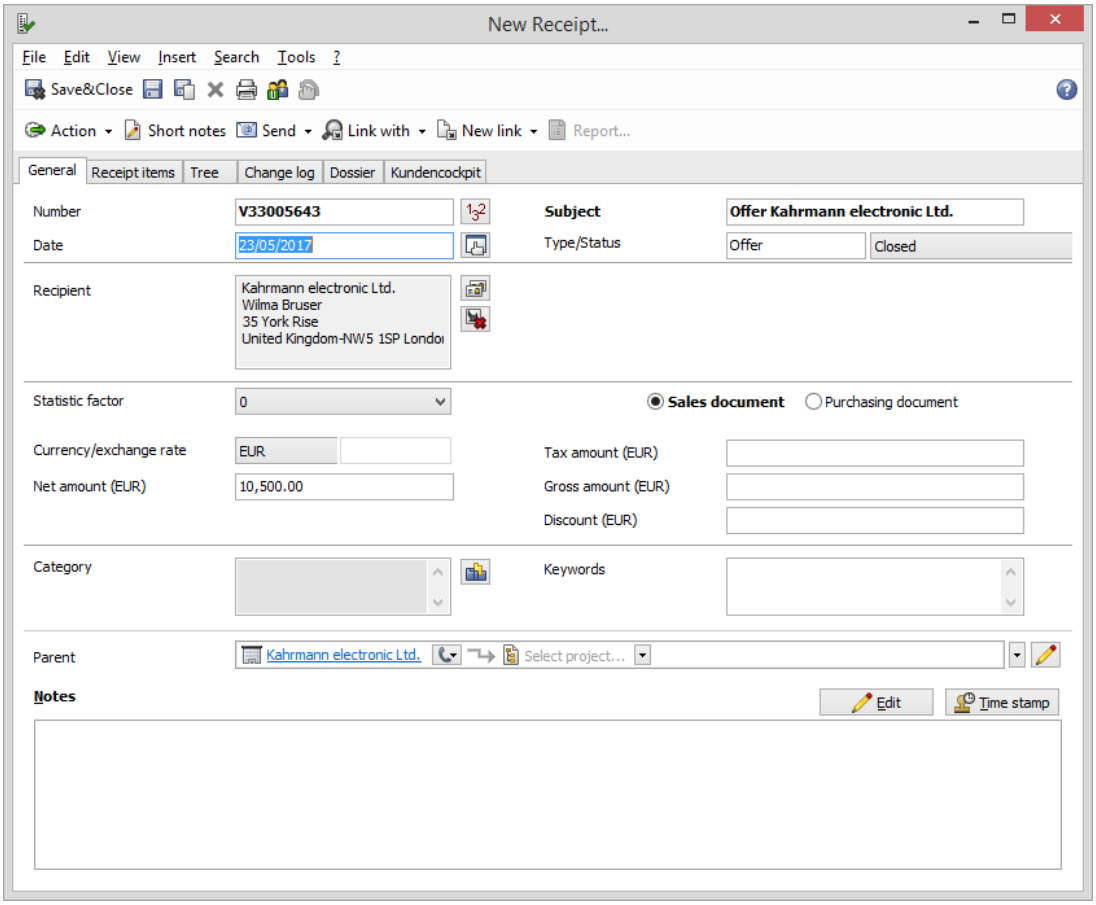
You will find more information in the Online Help for Users on the Lists http://hilfe.cas.de/CgW/en/Desktop_Client/x7/index.htm#A_Neue_Listenansicht_erstellen.htm, Link search http://hilfe.cas.de/CgW/en/Desktop_Client/x7/index.htm#Verknuepfungssuche.htm and Search view http://hilfe.cas.de/CgW/en/Desktop_Client/x7/index.htm#A_Neue_Suche_erstellen.htm pages.

As a user, you will need rights to view or change data records or fields from a third-party system. Your administrator configures these rights in the Management Console.

> And if you change receipt data in CAS genesisWorld or enter additional links, then these changes will be overwritten when the data record is next synchronized with the third-party system.

Normally, the majority of fields in the data record window cannot be changed and are thus greyed out.

The display and order of fields in receipts depends on how your company has configured ERP connect or Data connect.



General tab

You can display the following fields on this tab:

- ☑ **Type** which can be quote, order, delivery note or invoice.
- ☑ The status keeps you informed of, for example, whether or not a quote has been finished, or an invoiced paid.
- ☑ The **Statistic factor** gives an indication of relevance, for example, to what extent business documents such as invoices, offers and delivery notes are used in the statistical analyses to calculate values like turnover. The statistic factor can adopt the values -1 or 0 or 1. Where there is a 0 value, the respective receipt has no bearing on the statistics, where the value is equal to 1 it is disproportionately high and where the value is equal to -1 it is disproportionately low.

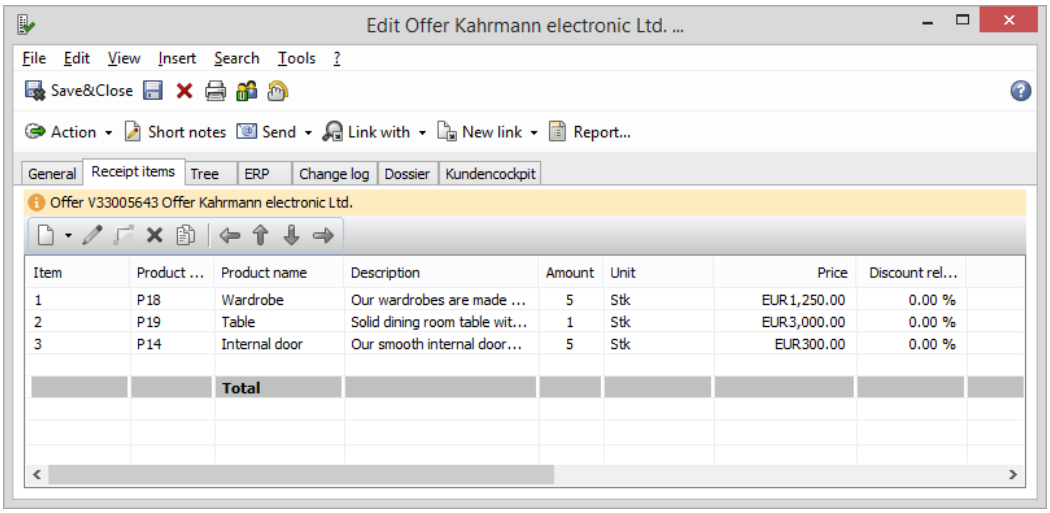
  On the **ERP for addresses** tab, you may see statistics with these values referring to an address.

For **Recipients** an address can be displayed which is linked with this receipt. You open the address using the button.

Links are normally entered automatically. This also applies for primary links, if you are using the Premium Edition.

Document items tab

On the **Receipt items** tab you can display receipt items in a list, which are adopted directly from third-party system data.



ERP tab

On the **ERP** tab in the receipt data record window, you can display the receipt in CAS genesisWorld as the original hard copy would appear in the third-party system.

This information is displayed on the tab as an HTML page.

5.3 ERP address tab

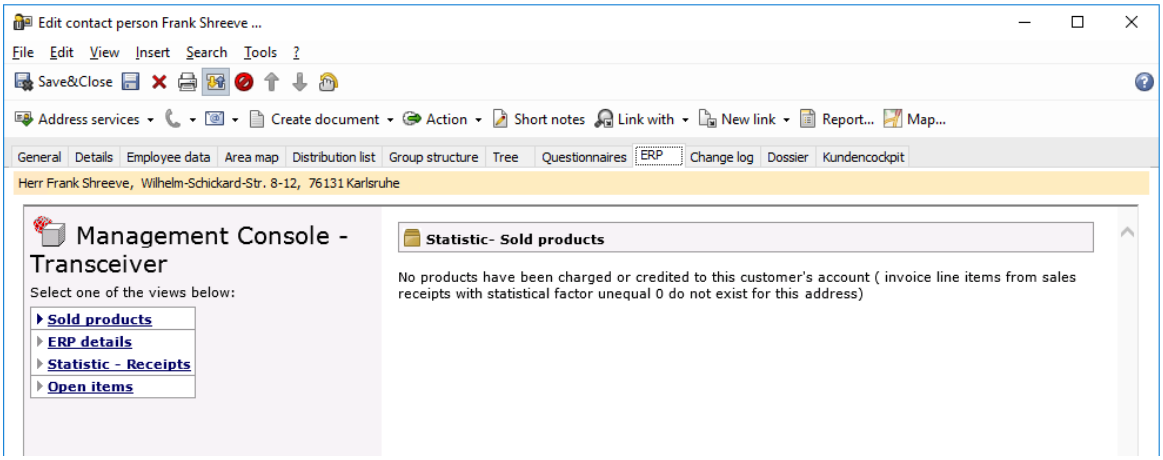
An additional tab can be available for addresses, on this tab you can display different information from the third-party system and run an analysis.

This information is displayed as HTML pages. You can right-click and then select **Refresh** to run a recalculation of the values in the view.

With the analysis functions, sales employees receive extensive information about their customers such as the number of sold product items (quantities), the turnover for different periods or the number of customer calls, training courses, etc.

The data displayed on the tab originates from the third-party system and is analyzed automatically for CAS genesisWorld. Using this feature you can display the following:

- ☐ Sold products
- ☐ Details from the ERP system,
- ☐ Statistics - receipts, which you can calculate for different time periods and
- ☐ any open items or outstanding invoices.



5.4 Changing the key assignment for contact persons

The **Assign key to company** function is only available if your third-party system connection with CAS genesisWorld explicitly offers this function. Ask your administrator or your CAS partner.

The function supports the company creation process in CAS genesisWorld.

If a CAS genesisWorld individual data record is transferred to a third-party system, receipts can be entered for this address in the third-party system.

If you now want to create a company from this individual contact in CAS genesisWorld, the individual contact data record is transformed into a contact person data record and a new company data record is created.

From this point on, the company is now the customer for the third-party system. Receipts should, thus, be assigned to the company data record and not the contact person.

In order to transfer receipts from contact partners to the company, the database key of the contact person has to be changed to the company.

How to

- ☑ Open the contact person's address.
- ☑ In the data record window of the contact person, go to **Tools** > **Assign key to company**.

You will now receive a confirmation and the change of key assignment is applied the next time a synchronization is performed with the third-party system.

5.5 ERP tab in products and product groups

Product and product group data is recorded in the third-party system and then transferred to CAS genesisWorld through the synchronization tasks.

Products and product groups can be used, unchanged, as items in opportunities. Likewise, you can use individual items from products in opportunities. As was previously the case, you can use a catalog as a special view to display products and product groups on HTML pages.

You will find more information in the Online Help for Users on the Product items tab http://hilfe.cas.de/CgW/en/Desktop_Client/x7/index.htm#VerkaufschanceRegisterProduktpositionen.htm and Creating a product catalog http://hilfe.cas.de/CgW/en/Desktop_Client/x7/index.htm#A_Neuen_Produktkatalog_erstellen.htm pages.

The data for products and product groups originates from the ERP system.

Analyzing and displaying different information from the third-party system can result in additional tabs being available in products and product groups.

This information is displayed as HTML pages. You can recalculate the display values by right-clicking and selecting **Refresh**.

The data displayed on the tab originates from the third-party system and is analyzed automatically for CAS genesisWorld. Using this feature you can display the following:

- ☐ Details from ERP and
- ☐ Statistics - receipts which you calculated for different periods.

6 Features of using specific modules

When working with specific additional modules, there are some key points you need to be aware of.

Easy Invoice and ERP connect

- ☐ ERP connect and Easy Invoice cannot be used at the same time.

Duplicate Finder pro and ERP connect

By default, Duplicate Finder pro also checks for addresses which originate from the third-party system.

- If the duplicate check identifies two addresses that match and these two addresses both exist in the ERP system, then they will not be identified as duplicates.
- When merging duplicates, the address is retained which was most recently saved to CAS genesisWorld via the synchronization. The address from the ERP system is thus considered correct and the other address is then discarded.
- When two duplicates are merged, the field from the address that originated from the ERP system automatically overwrites the field in the other address.
- Alternatively, you can exclude addresses from the duplicate check which originate from the third-party system. You can create a filter condition in the Duplicate Finder pro settings: Only those addresses will be checked where the ERP key field does not contain a value.

Replication and ERP connect

If you run a replication between two domains, then you cannot allow both domains to access the same third-party system. This could lead to duplicates. The third-party system has to use either just one domain or both domains use two fully separated third-party systems. Ask your CAS Partner about solutions for your company.