

# ERP-110 System Interface - Currency Conversion Rates Integration from ECC

Status	Approved
Owner	
Stakeholders	
Jira Request ID	 <a href="#">ERP-38</a> - Jira project doesn't exist or you don't have permission to view it.
Jira Development ID	 <a href="#">ERP-110</a> - Jira project doesn't exist or you don't have permission to view it.

## High- Level Specification

Implementing System	SAP ECC (PRS, PF2-050)
Invokes	<a href="#">ERP-111</a> , <a href="#">ERP-289</a>
Business Process Reference	<a href="#">03.02.07.01. Manage Sourcing MD (R2) (Solution Process)</a>

## Functional Overview

The purpose of this interface is to extract latest Exchange Rate data from the SAP ECC (PRS / PF2-client 050 ) and send to SAP Cloud Integration (CPI).

SAP ECC receives a data feed of exchange rates from Reuters every Monday to Friday, and an existing program updates them to the currency table as "Standard" rate type M, and as Indirect rates from EUR to foreign Currency. For systems that do not have a direct source for Exchange Rates, this System Interface acts as the provider, with CPI providing the middleware capabilities to transform and deliver via technical capabilities in those systems.

This System Interface extracts the Standard Exchange rates ( M rates ) from ECC tables after they are updated on a defined schedule. The Interface first normalises the rates maintained internally by applying conversion factors, then calculates inverse and cross rates, before pushing the data to CPI. CPI then transforms the content to suite the receiver system specifications.

## Scope and Objectives

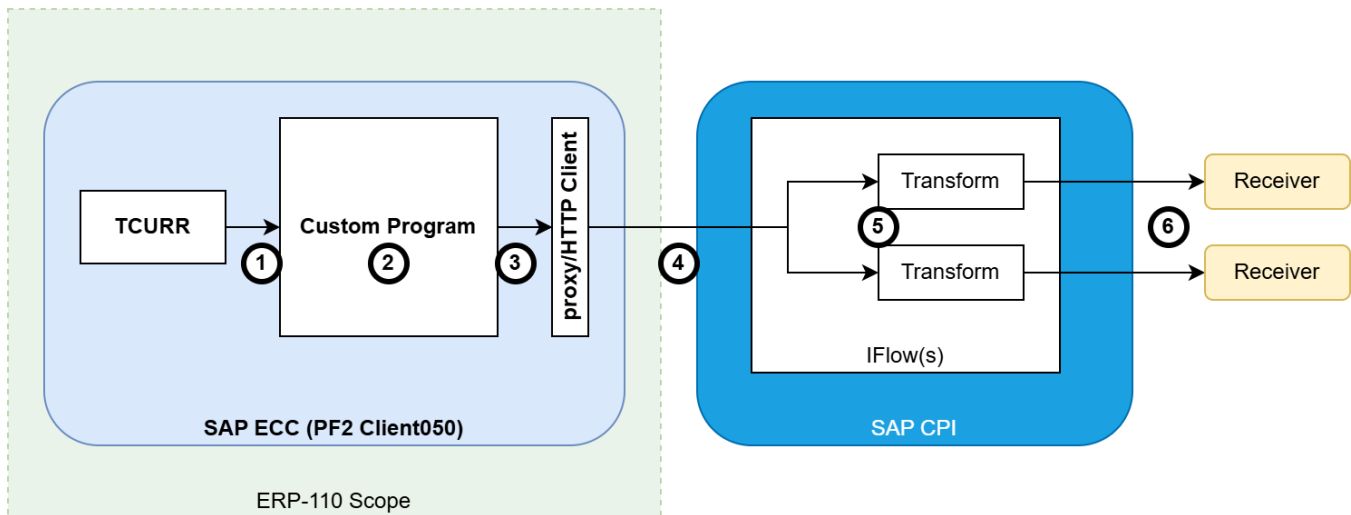
This System Interface, a custom implementation in SAP ECC, sends:

- Selected list of Indirect, M type Exchange rates from TCURR table after applying any conversion factors - e.g. 1 EUR = 1.79230 AUD, 1 EUR = 1.17225 USD
- Direct rates calculated from the above - e.g. 1 AUD = 0.55794 EUR, 1 USD = 0.85306 EUR
- Cross rates for each of the Indirect rates - e.g. 1 AUD = 0.65404 USD, 1 USD = 1.52894 AUD

ECC carries out all rate calculations, so that there will be no discrepancies due to rounding. CPI is only responsible for routing and mapping to the target structures.

As of writing this specification, CPI will deliver the rates to Ariba and ICertis. The selection and calculation of the rates as shown above fulfils the requirements for these two systems.

## Process Flow Diagram



Step	Description	Comment
1	The Custom Program implemented in SAP ECC PF2 Client 050 (PRS) reads the Exchange Rates from TCURR	TCURR table contains Exchange Rates of type M created by processing the Reuters file.
2	The Program harmonises the rates by applying any conversion factors and calculates inverses and cross rates, the maps the data to a defined simple structure	SAP ECC and CPI will share a simple schema for enable data mapping as required
3	The Program invokes a service (via a Proxy or a Service Client) and sends the data to a CPI end-point	CPI provides a service to receive the data.
4	CPI receives the data and initiates IFlow(s) to process them	
5	The IFlows transforms the data as required by the Processing Systems	See <a href="#">ERP-111 for Integration Process in CPI for Ariba</a> See <a href="#">ERP-289 for Integration Process in CPI for ICertis</a>
6	SAP CPI invokes the outbound services to send the data for processing in Receiver Systems	See <a href="#">ERP-111 for details on processing in Ariba to upload the data</a> See <a href="#">ERP-290 for details on processing in ICertis to upload data</a>

## Assumptions

- The System Interface relies completely on the data available in TCURR. It is assumed that Reuters upload program manages any exceptions and errors
- The System Interface reads values applicable on the run date for each currency. It is assumed that the receiver system validates, if required, dates and currency codes that may differ from what's defined in respective systems
- The System Interface calculations will be rounded to a defined number of decimal points for consistency. It is assumed that Inverse and Cross rate calculations that may lead to minor differences in rounding are acceptable
- The System Interface will only extract the list of Currencies listed below

## Dependencies

- This System Interface depends on the Exchange rates loaded via the existing BAU process. If the rates upload is missing, for example due to a public holiday, or an exception, this integration will continue to process the most recent rates.

## Security, Integrity and Controls

- Required authorisations to execute the Program as a Background Job in ECC need to be defined.
- Existing secure connectivity for communication between SAP ECC and SAP CPI will be applied.
- User role based authorisation will be applied to the Service hosted in CPI.
- Integration will use the integrity and control provided by Proxy framework in ECC.

## Configuration Requirements

- The Custom Program implementing this service will be scheduled as a batch job

- SOAMANAGER configuration is required for Proxy Configuration

## Special Requirements

- Ariba Exchange Rates have 10 decimal points and therefore the ECC output shall also adhere to this maximum to reduce rounding errors.

## Design Rationale

The rationale of this System Interface is to provide a simple but reliable asynchronous flow of Exchange Rate data from SAP ECC to SAP CPI. The interface is implemented as a custom ABAP report that constructs and posts an XML payload directly to a CPI.

The program retrieves exchange rate data from standard SAP tables TCURR, but also uses data in other support tables like TCURF, and TCURV. The program selects only M rates, which are saved as indirect rates. For each rate, the system applies conversion factors and calculates the direct (inverse) rate, rounded to 10 decimal points. The output XML is structured in a flat format, reducing the need for further mapping or transformation in CPI.

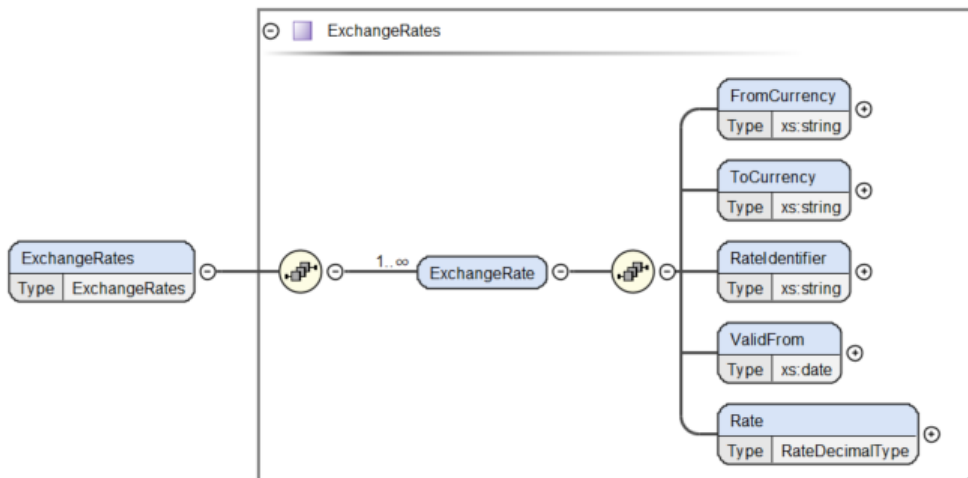
The process is scheduled to run once daily, after the Reuters exchange rate upload job completes, ensuring that downstream systems such as SAP Ariba and ICertis receive consistent and current financial rates aligned with ECC's valuation dates.

## API Use

There are no API use in this System Interface. The Interface uses SOAP messaging protocol over HTTP/S transport to push the data to CPI.

## Data Structure

The output consists of a flat XML structure:



Schema File: [ExchangeRateSchemaECC.xsd](#)

Sample structure example in XML:

## Sample Payload

```
<?xml version="1.0" encoding="UTF-8"?>
<ExchangeRates xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <ExchangeRate>
    <FromCurrency>EUR</FromCurrency>
    <ToCurrency>USD</ToCurrency>
    <RateIdentifier>EUR:USD</RateIdentifier>
    <ValidFrom>2025-09-30</ValidFrom>
    <Rate>1.1743500000</Rate>
  </ExchangeRate>
  <ExchangeRate>
    <FromCurrency>USD</FromCurrency>
    <ToCurrency>EUR</ToCurrency>
    <RateIdentifier>USD:EUR</RateIdentifier>
    <ValidFrom>2025-09-30</ValidFrom>
    <Rate>0.8515348916</Rate>
  </ExchangeRate>
</ExchangeRates>
```

The following fields will be used to provide the required data structure of the interface:

Node	Element	Description	Mandatory (Y/N)	Data Type
ExchangeRate	FromCurrency	From Currency Code. This is the from Currency Code. For Indirect rates, this is always EUR	Yes	3 character String
ExchangeRate	ToCurrency	To Currency Code.	Yes	3 character String
ExchangeRate	RateIdentifier	A unique Identifier for the Currency Rate	Yes	String
ExchangeRate	ValidFrom	The Date from TCURR table	Yes	XML Date type ('YYYY-MM-DD')
ExchangeRate	Rate	Exchange Rate	Yes	With 10 decimal points

## Calculation and Validation

### Indirect Rate Mapping

Only "M" type rates are mapped

Node	Element	Rule Type	Rule Instruction	Example Value
ExchangeRate	FromCurrency	Copy	Get value from TCURR-TCURR	Always EUR
ExchangeRate	ToCurrency	Copy	Get value from TCURR-FCURR	USD
ExchangeRate	RateIdentifier	Combine Strings	Concatenate values from TCURR-TCURR and TCURR-FCURR, separated by a colon.	EUR:USD
ExchangeRate	ValidFrom	Format	Transform value TCURR-GDATU to XML date format	2025-09-30
ExchangeRate	Rate	Calculate and format	Remove Indirect indicator, multiply by the Factors as below:  Rate = (TCURR-UKURS indirect indicator removed) x TCURR-FFACT / TCURR-TFACT	1.1743500000

### Direct (Inverse) Rate Mapping

Direct rates are calculated by taking the inverse of the Indirect rates calculated in the previous table.

Node	Element	Rule Type	Rule Instruction	Example Value
ExchangeRate	FromCurrency	Copy	Value from TCURR-FCURR	USD

ExchangeRate	ToCurrency	Copy	Value from TCURR-TCURR	Always EUR
ExchangeRate	Rateldentifier	Concatenate	Concatenate values from TCURR-FCURR and TCURR-TCURR, separated by a colon.	USD:EUR
ExchangeRate	ValidFrom	Format	Transform value TCURR-GDATU to XML date format	2025-09-30
ExchangeRate	Rate	Calculate	Calculate the Inverse of the corresponding Indirect rate	0.8515348916

## Cross Rate Mapping

This is required for all Indirect rates. Each of the Currency require a Cross with the other Currencies, as well as the inverse.

Node	Element	Rule Type	Rule Instruction	Example
ExchangeRate	FromCurrency	Copy	Use ToCurrency from the calculated Indirect Rates	USD
ExchangeRate	ToCurrency	Copy	Use ToCurrency from the calculated Indirect Rates. There will be an entry for each of the ToCurrency values except for Currency Code in the above row	AUD
ExchangeRate	Rateldentifier	Concatenate	Concatenate values of the two Currency Codes (Both are from TCURR-FCURR column), separated by a colon.	USD:AUD
ExchangeRate	ValidFrom	Format	Transform value TCURR-GDATU to XML date format	2025-09-30
ExchangeRate	Rate	Calculate	Calculate the cross rate by dividing Indirect rate of the ToCurrency in this row by the Indirect Rate of the From Currency in this row. For Example, if calculating USD (FromCurrency) to AUD (ToCurrency),  USD:AUD = EUR:AUD / EUR:USD	1.5129864600

## Processing Logic



### Reuters Feed to SAP ECC

SAP ECC receives Exchange Rate feeds Monday to Friday and gets uploaded SAP ECC at 16:30 CET (with a contingency run at 17:20 CET). The feed from Reuters contains the list of Currencies and their rates with a given valid date. The rates are created in table with the given valid date, and does not validate whether all expected rates are available in the file. Hence the extraction of rates to send to downstream systems will extract the dates that are valid as of run date - i.e. the most recent exchange rates.

The list of Currencies to be extracted are found here: [Currency\\_List\\_ERP\\_110.txt](#). This file contains EUR to Foreign Currency rates - i.e. Indirect rates - received from Reuters and uploaded ECC.

1. Extract the valid currencies, based on the list of currencies, with type M from TCURR that are valid for the run date - i.e. the most recent rate available in the system
2. Sanitize the Rate value to remove the Indirect indicator, and apply the Conversion factors to get the normalised decimal value for the Indirect rate
3. Calculate the Inverse to get the Direct rate
4. For each Indirect Rate, calculate the Cross rate for each of the other Indirect Rates
5. Generate the payload in XML
6. Invoke the CPI service and pass the values for downstream processing

The batch job would be executed upon successful run of the existing currency upload job in PF2/050 and will be used as a start condition of this job.

## Delta or Full Load Requirements

The integration will upload all M rates valid for the date.

## Interface Alert & Monitoring

The batch job will be monitored using the BAU process through Automatic Check Job tool as per current practice. As part of the monitoring tool, an email will be sent to the respective parties through set distribution list. In addition, an incident ticket will be raised in SyRA through the Helix mailbox. The IT support group assigned in the batch job monitoring configuration would investigate the issue.

Details are documented in the file below.

[Automatic\\_Check\\_Job\\_Monitoring.docx](#)

# Language Requirements

No Language Requirements

## User Interface Requirements

### Selection Screen

Field Name	Description	Select:	Data Type /Length	Default Value/ Validation rule/ Value Help	Selection Logic
S_FCURRE	From currency field	Select Option	WAERS	Input help implemented in TCURC	Select only the currencies in this select option
S_DATE	Validity date of the Currency to be picked	Select Option with no extensions	DATUM_INV	Standard date value help	Select the valid currencies in TCURRE based on the date as of which the rates are effective (GDATU)
P_TEST	Testing of extract without sending to CPI	Check box	XFELD	N/A	If set as true, do not send the data to CPI

## Volumetrics

Each Integration contain entries for all Indirect rates, their inverses, and cross rates with the other Indirect rates. At the moment there are 70 Exchange Rates in the Reuters file, therefore this Integration produces an output containing 4,970 rates.

## Performance Consideration

The output message from the Interface is less than 2MB, with one message per day. There is no performance specific consideration in SAP ECC as there are only around 5000 rates to be sent to the service on a given run.

## Error Handling

- As mentioned in the monitoring section, the batch job would be monitored via the existing Automatic Check Job tool.
- In case the service in CPI is not reachable during the batch job run, the batch job would end in cancelled status and the respective IT support team would be notified of the cancellation.
- The said team would confirm if there's an outage in CPI and if confirmed that the outage is already resolved or the issue blocking the service is already resolved,
  - first, attempt to Restart the failed message via SXMB\_MONI
  - if the above does not succeed, then the batch job would be rescheduled and re-executed.
- For any other possible errors in the system, the batch job can be rescheduled as soon as the issue has been resolved.
- There are no dependencies in re-executing the failed batch job nor any clean-up activities required before rescheduling the batch job.

## Testing

### How to Test

1. Schedule or run the Custom Program implemented by this Interface
2. Check in CPI that the Integration file has been received

## Test Conditions and Expected Results

ID	Condition	Expected Results
ERP-110-UT-001	Defined set of Exchange Rates are available in the output to CPI	For the given set of Exchange rates, Indirect Rates, their Inverses and cross rates are available in the output
ERP-110-UT-002	A new Currency has been configured	The output includes the new Currency, its inverse and cross rate with other exchange rates

ERP-110-UT-003	A currency is removed from the batch job variant	The output does not contain the currency
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## Test Considerations/Dependencies

Not Applicable

## Other Information

Not Applicable

## Development Details

### Package

Package Name	Parent Package
ZWPU_5_08	N/A

Other Development Objects

Object Type	Object Name	Purpose/High Level Logic	Design Rationale Reference
CLAS	ZMM_CO_CL_EXCHANGE_RATES_PORT	Currency Exchange Proxy Class	
DTEL	ZMM_RATE_DECIMAL_TYPE	Data element for Rate Decimal Format	
TABL	ZMM_EXCHANGE_RATES	Structure for Currency Exchange	
TABL	ZMM_SEND_EXCHANGE_RATES_REQ	Structure for the Currency Exchange Request	
TABL	ZMM_EXCHANGE_RATES_EXCHANGE_TB	Structure for the Exchange	
TTYP	ZMM_EXCHANGE_RATES_EXCHANGE_RT	Table type for the Exchange structure	
REPS	ZMM_CURRENCY_CONV_INTERFACE	Program triggering the Currency Exchange	
REPS	ZMM_CURR_CONV_INTF_CL01	Include Program under the Main Program	
REPT	ZMM_CURRENCY_CONV_INTERFACE	Report Text for the main program	
MSAG	ZMM_EXRATE	Message Class for Exchange Rates	

## Appendix

### See also

File	Modified
File ERP-110 Process Diagram draw.io diagram	Nov 07, 2025 by EPASINGHE-ext, Kapila
File -ERP-110 Process Diagram.tmp draw.io Draft	Nov 07, 2025 by EPASINGHE-ext, Kapila
Microsoft Word Document Automatic_Check_Job_Monitoring.docx	Nov 05, 2025 by TORRES-ext, Benedict
Text File Currency_List_ERP_110.txt	Nov 04, 2025 by EPASINGHE-ext, Kapila
File ExchangeRateSchemaECC.xsd	Nov 04, 2025 by EPASINGHE-ext, Kapila

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## Change log

Version	Published	Changed By	Comment
<b>CURRENT (v. 38)</b>	<b>Dec 04, 2025 09:17</b>	<b>TORRES-ext, Benedict</b>	Added the development details
v. 37	Nov 12, 2025 15:17	EPASINGHE-ext, Kapila	
v. 36	Nov 10, 2025 14:29	EPASINGHE-ext, Kapila	
v. 35	Nov 10, 2025 14:14	TILBEE-ext, Amanda	
v. 34	Nov 07, 2025 15:37	TORRES-ext, Benedict	
v. 33	Nov 07, 2025 15:33	TORRES-ext, Benedict	
v. 32	Nov 07, 2025 15:19	TORRES-ext, Benedict	
v. 31	Nov 07, 2025 15:18	TORRES-ext, Benedict	
v. 30	Nov 07, 2025 09:45	EPASINGHE-ext, Kapila	
v. 29	Nov 06, 2025 13:28	EPASINGHE-ext, Kapila	

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## Workflow history

This view shows the 5 most recent entries. The complete workflow log is available from the 'Document Activity' menu item.

Apr 09, 2026	Actor	Type	Activity	Version
Approved	 TORRES-ext, Benedict	State	changed state to <b>Approved</b> at 6:32 am	v38
Revision under Review	 TORRES-ext, Benedict	State	gave <i>Minor change</i> approval at 6:32 am	
		State	changed state to <b>Revision under Review</b> at 6:32 am	v38
<b>Mar 18, 2026</b>				
Revision in progress	WENNINGER-ext, Sascha	State	changed state to <b>Revision in progress</b> at 1:08 pm	v38
<b>Dec 04, 2025</b>				
Edited following Approval	 TORRES-ext, Benedict	Edit	updated the page at 9:17 am	
			<i>Added the development details</i>	
		State	changed state to <b>Edited following Approval</b> at 8:17 am	v38
<b>Nov 17, 2025</b>				
Approved	WENNINGER-ext, Sascha	State	changed state to <b>Approved</b> at 7:59 am	v37