

Automate All Your Exchange Rates with Standard Functionality: Merck's Experience

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WAE Solutions LLC



2023

SAPinsider

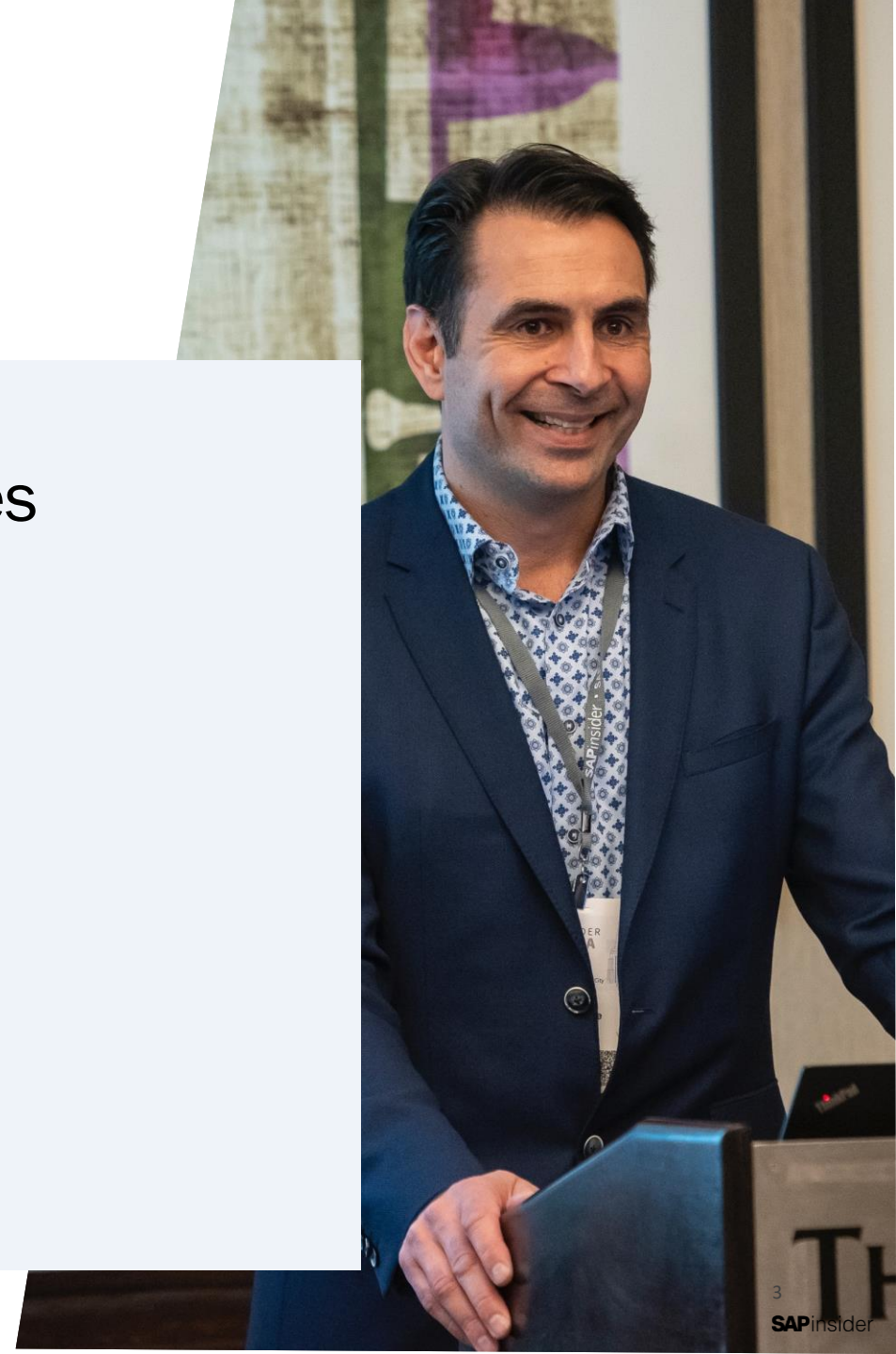


In This Session

- We will see why it is important to update daily the Exchange Rates
- We will see how to fully automate this task with standard SAP functionality
- We will see the basic steps in customizing for this
- We will analyze what you should consider to implement this functionality
- We will explain how this functionality works from the technical side

What We'll Cover

- TBD4 transaction functionalities
- Customizing
- Execution example
- Technical settings
- Merck's experience
- Wrap Up



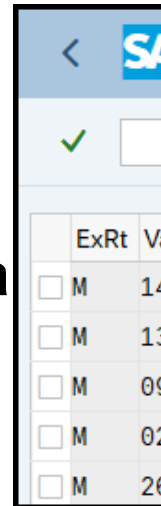
Topic 1

TBD4 Transaction Functionalities

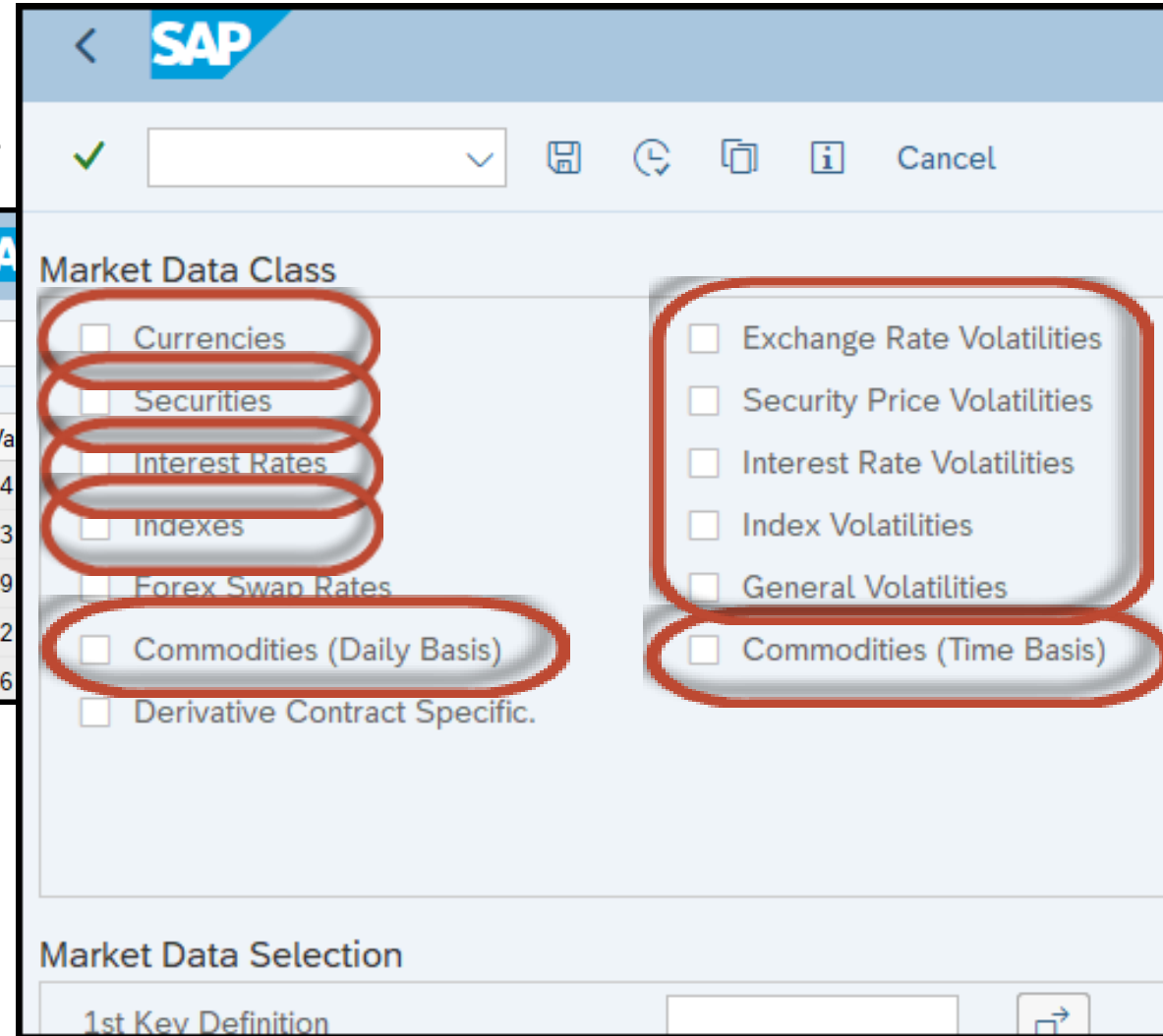


TBD4 Transaction Functionalities

- Importance of having updated Exchange Rates
 - Ways of entering FX rates:
 - Manual way: OB08 transaction
 - Automated way: TBD4 transaction
- TBD4 transaction can update Automatica
 - Exchange Rates
 - Securities
 - Interest Rates
 - Indexes
 - Commodities
 - Several Volatilities
 - Etc.



| | ExRt | Va |
|--------------------------|------|----|
| <input type="checkbox"/> | M | 14 |
| <input type="checkbox"/> | M | 13 |
| <input type="checkbox"/> | M | 09 |
| <input type="checkbox"/> | M | 02 |
| <input type="checkbox"/> | M | 26 |



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Market Data Class

- ☐ Currencies
- ☐ Securities
- ☐ Interest Rates
- ☐ Indexes
- ☐ Forex Swap Rates
- ☐ Commodities (Daily Basis)
- ☐ Derivative Contract Specific.

Market Data Selection

1st Key Definition

Exchange Rate Volatilities

Security Price Volatilities

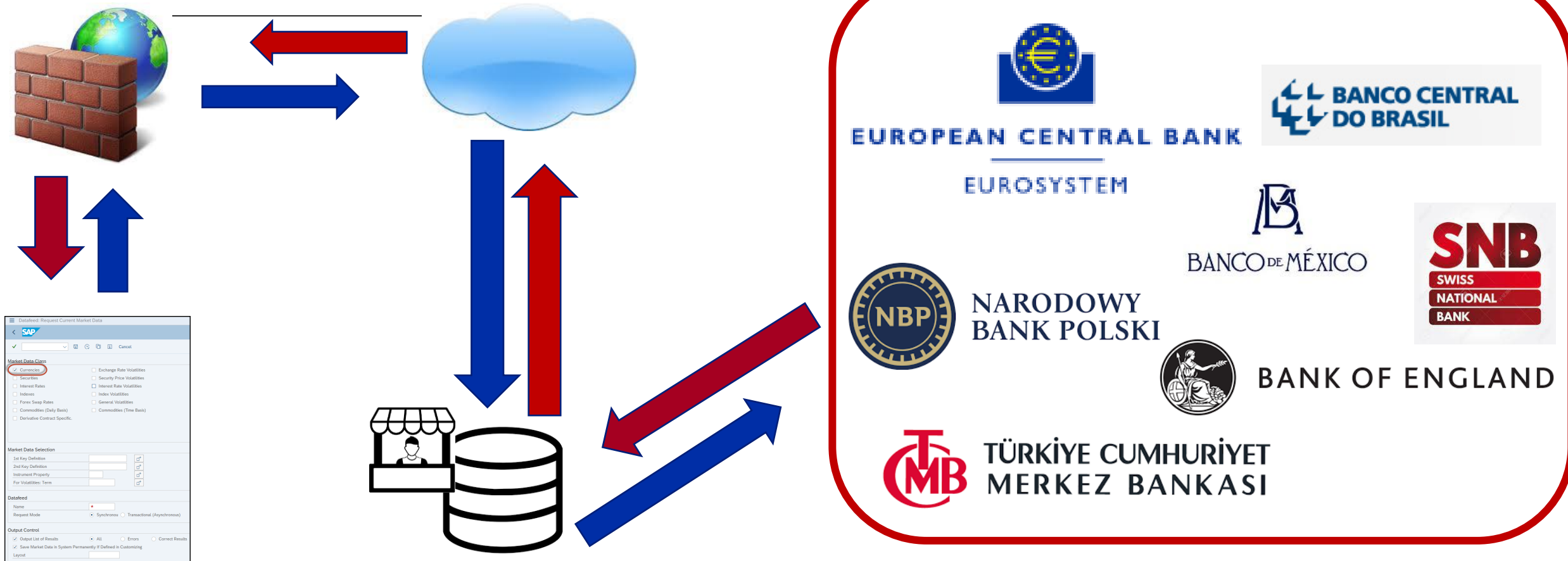
Interest Rate Volatilities

Index Volatilities

General Volatilities

Commodities (Time Basis)

TBD4 Transaction Functionalities



Job for the TBD4 transaction is being executed Automatically and connects to the internet
TBD4 transaction looks for the specific exchange rates at vendor's database
Vendor's database contains the values from the different sources for every currency
TBD4 transaction populates automatically the TCURR table in your SAP system

TBD4 Transaction Functionalities

- Automatically executable by job programmed from SAP for transaction TBD4 (standard transaction)
- Connection time determined by the user
- Standard customizing for the determination of currencies to be processed (Exchange rate type, direct or indirect quotation)

Datafeed: Request Current Market Data

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Market Data Class

☒ Currencies ☐ Exchange Rate Volatilities

☐ Securities ☐ Security Price Volatilities

☐ Interest Rates ☐ Interest Rate Volatilities

☐ Indexes ☐ Index Volatilities

☐ Forex Swap Rates ☐ General Volatilities

☐ Commodities (Daily Basis) ☐ Commodities (Time Basis)

☐ Derivative Contract Specific.

Market Data Selection

1st Key Definition [] []

2nd Key Definition [] []

Instrument Property [] []

For Volatilities: Term [] []

Datafeed

Name [] *

Request Mode ☒ Synchronous ☐ Transactional (Asynchronous)

Output Control

☒ Output List of Results ☒ All ☐ Errors ☐ Correct Results

☒ Save Market Data in System Permanently If Defined in Customizing

Layout []

TBD4 Transaction Functionalities

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Mkt data - 20.09.2022, 14:37:52 o'clock User: USER02

Market data class: 01 Currencies Data source: WAE-Solut

| From curr. | To-Currency | Cat | Date | Value |
|------------------------------|-------------|--------|-----------------------|------------|
| Refresh | UpdateFlag | Status | Warning/error message | |
| <input type="checkbox"/> ARS | EUR | M | 21.09.2022 | /144,68760 |
| X | X | | | |
| <input type="checkbox"/> ARS | USD | M | 21.09.2022 | /144,37000 |
| X | X | | | |
| <input type="checkbox"/> EUR | ARS | M | 21.09.2022 | 144,68760 |
| X | X | | | |
| <input type="checkbox"/> EUR | MXN | M | 21.09.2022 | 19,96670 |
| X | X | | | |
| <input type="checkbox"/> EUR | PLN | M | 21.09.2022 | 4,75650 |
| X | X | | | |
| <input type="checkbox"/> GBP | USD | M | 21.09.2022 | /1,14310 |
| X | X | | | |
| <input type="checkbox"/> MXN | EUR | M | 21.09.2022 | /19,96670 |
| X | X | | | |
| <input type="checkbox"/> PLN | EUR | M | 21.09.2022 | /4,75650 |
| X | X | | | |
| <input type="checkbox"/> USD | ARS | M | 21.09.2022 | 144,37000 |
| X | X | | | |
| <input type="checkbox"/> USD | GBP | M | 21.09.2022 | /1,14310 |
| X | X | | | |

NBP

Website Central European Bank

Schedule of exchange rates

Buy and sell prices of foreign currencies – table C

Current average exchange rates of foreign currencies in zlotys defined in § 5 of the Resolution No Management Board of the National Bank of Poland of 23 September 2002 on the way of calculating current exchange rates of foreign currencies (Dziennik Urzędowy NBP of 2022 item 10):

Table No. 182/C/NBP/2022 of 2022-09-19 effective from 2022-09-20

| Bank of England Database | Browse data |
|--------------------------|-------------|
| South Korean Won | 1586.2913 |
| Swedish Krona | 12.2771 |
| Swiss Franc | 1.1000 |
| Taiwan Dollar | 35.7173 |
| Thai Baht | 42.1918 |
| Turkish Lira | 20.8082 |
| US Dollar | 1.1431 |

Bank of England

TBD4 Transaction Functionalities

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Mkt data - 20.09.2022, 14:37:52 o'clock User: USER02

Market data class: 01 Currencies Data source: WAE-Solut

| From curr. | To-Currency | Cat | Date | Value |
|------------------------------|-------------|--------|-----------------------|------------|
| Refresh | UpdateFlag | Status | Warning/error message | |
| <input type="checkbox"/> ARS | EUR | M | 21.09.2022 | /144,68760 |
| X | X | | | |
| <input type="checkbox"/> ARS | USD | M | 21.09.2022 | /144,37000 |
| X | X | | | |
| <input type="checkbox"/> EUR | ARS | M | 21.09.2022 | 144,68760 |
| X | X | | | |
| <input type="checkbox"/> EUR | MXN | M | 21.09.2022 | 19,96670 |
| X | X | | | |
| <input type="checkbox"/> EUR | PLN | M | 21.09.2022 | 4,75650 |
| X | X | | | |
| <input type="checkbox"/> GBP | USD | M | 21.09.2022 | 1,14310 |
| X | X | | | |
| <input type="checkbox"/> MXN | EUR | M | 21.09.2022 | /19,96670 |
| X | X | | | |
| <input type="checkbox"/> PLN | EUR | M | 21.09.2022 | /4,75650 |
| X | X | | | |
| <input type="checkbox"/> USD | ARS | M | 21.09.2022 | 144,37000 |
| X | X | | | |
| <input type="checkbox"/> USD | GBP | M | 21.09.2022 | /1,14310 |
| X | X | | | |

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✓ [] ⌨️ New Entries 📄 ⌂ ⏪ ⏩ ⏴ ⏵ 📄 📁

| | ExRt | ValidFrom | Indir.quot | X | Ratio(from) | From | = | Dir.quot. | X | Ratio (to) | To |
|----------------------------|------|------------|------------|---|-------------|-------|---|-----------|---|------------|-------|
| <input type="checkbox"/> M | | 21.09.2022 | 144,68760 | X | | 1 ARS | = | | X | | 1 EUR |
| <input type="checkbox"/> M | | 21.09.2022 | 144,37000 | X | | 1 ARS | = | | X | | 1 USD |
| <input type="checkbox"/> M | | 21.09.2022 | | X | | 1 EUR | = | 144,68760 | X | | 1 ARS |
| <input type="checkbox"/> M | | 21.09.2022 | | X | | 1 EUR | = | 19,96670 | X | | 1 MXN |
| <input type="checkbox"/> M | | 21.09.2022 | | X | | 1 EUR | = | 4,75650 | X | | 1 PLN |
| <input type="checkbox"/> M | | 21.09.2022 | | X | | 1 GBP | = | 1,14310 | X | | 1 USD |
| <input type="checkbox"/> M | | 21.09.2022 | 19,96670 | X | | 1 MXN | = | | X | | 1 EUR |
| <input type="checkbox"/> M | | 21.09.2022 | 4,75650 | X | | 1 PLN | = | | X | | 1 EUR |
| <input type="checkbox"/> M | | 21.09.2022 | | X | | 1 USD | = | 144,37000 | X | | 1 ARS |
| <input type="checkbox"/> M | | 21.09.2022 | 1,14310 | X | | 1 USD | = | | X | | 1 GBP |

Same Rates in the OB08 Transaction

Topic 2

Customizing



Customizing

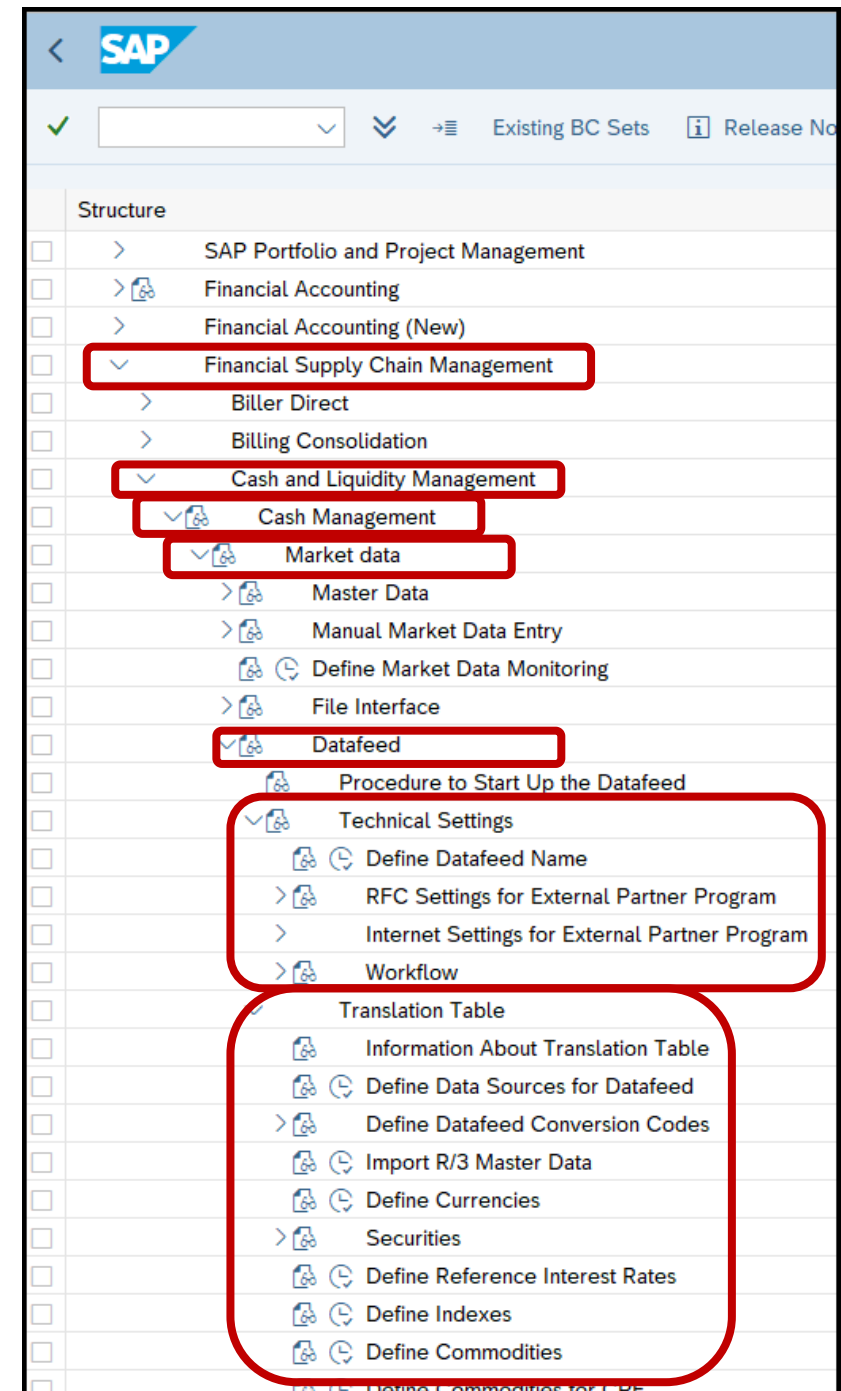
- Very short time (less than 1 hour)
- Prepare first a list of the currencies-combinations to update (useful for the Enduser, Consultant and Vendor)

| Exchange Rate Type | From | To | Indirect / Direct | Source | Instrument (To be used by WAE Solutions) |
|--------------------|------|-----|---------------------------------|-------------------------------|--|
| M | BRL | PYG | Direct (second column in OB08) | SET Paraguay - Sale | |
| M | BRL | USD | Direct (second column in OB08) | Central Bank of Brazil - Sale | |
| M | EUR | PYG | Direct (second column in OB08) | SET Paraguay - Sale | |
| M | EUR | USD | Direct (second column in OB08) | Central European Bank | |
| M | USD | PYG | Direct (second column in OB08) | SET Paraguay - Sale | |
| M | ARS | CHF | Indirect (first column in OB08) | Central Bank Argentina | |
| M | ARS | EUR | Indirect (first column in OB08) | Central Bank Argentina | |
| M | ARS | GBP | Indirect (first column in OB08) | Central Bank Argentina | |
| M | ARS | USD | Indirect (first column in OB08) | Central Bank Argentina | |
| M | USD | CHF | Indirect (first column in OB08) | Swiss National Bank | |
| M | USD | EUR | Indirect (first column in OB08) | Central European Bank | |
| M | USD | GBP | Indirect (first column in OB08) | Bank of England | |

- Ask your vendor for a free trial

Customizing

- General access to customizing:
 - Financial Supply Chain Management
 - Cash and Liquidity Management
 - Cash Management
 - Market Data
 - Datafeed
- Connections and Functions:
 - Technical Settings
- Functional Definitions:
 - Translation Table



Customizing

- Main Settings:
 - Connection (provided by vendor)
 - Currencies definition (based on Excel and vendor information)

This screenshot shows the 'New Entries' screen in SAP Fiori for the 'Data Provider' 'WAE-Solut'. The 'URI' field is highlighted with a blue selection box and contains the text 'https://www.ob08.net/app/cotizacion/cotizaciones'. Below the URI field are fields for 'User name' and 'Password', both masked with black dots. The top bar includes a green checkmark, a dropdown menu, and various navigation icons.

This screenshot shows the 'Administrative Data' and 'Datafeed Parameters' screens in SAP Fiori. The 'Administrative Data' section shows 'Crcy Pair' as 'EUR' and 'PLN', 'Rate/Pr.Provis.' as 'Syst. Request', and 'RateType' as 'M'. The 'Datafeed Parameters' section shows 'Data Provider' as 'WAE-Solut', 'Instrument' as 'NBPVEURPLN=X', 'Data Source' as 'INFOAVAL', 'Property' as 'MAN', and 'Explanation' as 'Bank of Poland EUR Sale'. The 'Max. deviation in percent' field is highlighted with a blue selection box and contains the value '2'.

This screenshot shows the 'Administrative Data' and 'Datafeed Parameters' screens in SAP Fiori. The 'Administrative Data' section shows 'Crcy Pair' as 'GBP' and 'USD', 'Rate/Pr.Provis.' as 'Syst. Request', and 'RateType' as 'M'. The 'Datafeed Parameters' section shows 'Data Provider' as 'WAE-Solut', 'Instrument' as 'BOECUSDGBP=X', 'Data Source' as 'INFOAVAL', 'Property' as 'MAN', and 'Explanation' as 'Bank of England USD'. The 'Max. deviation in percent' field is highlighted with a blue selection box and contains the value '2'.

Topic 3

Execution Example



Demonstration



Topic 4

Technical Settings



Technical Settings

- Use of standard SAPHTTPA RFC connection
- Communication through HTTP Proxy (if necessary)
- SSL Connection from SAP S/4HANA to vendor
- Middleware integration

Technical Settings

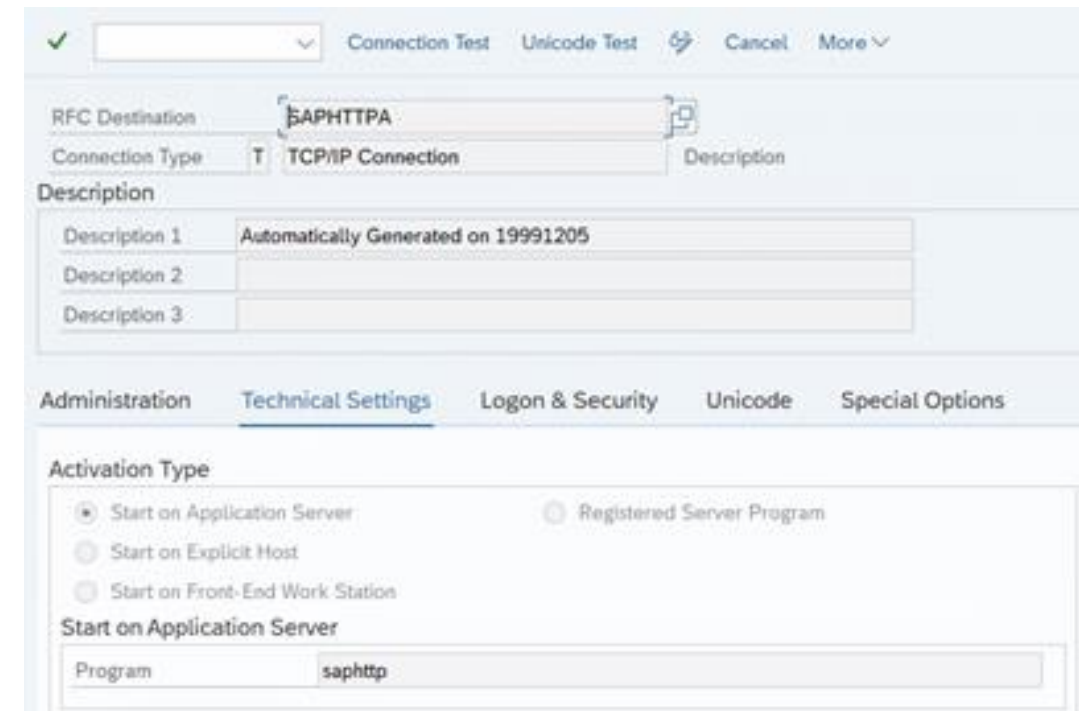
- Use of standard SAPHTTTPA RFC connection
 - RFC created automatically
 - Possibility to trace execution

```
SAPHTTP Version

[Thr 860] Tue Sep 13 18:02:37 2022
[Thr 860] [4688:860] RfcListenAndDispatch() ended with key=RFC_COMMUNICATION_FAILURE and message=connection closed without message (CM_NO_DATA_RECEIVED)
[Thr 860] Hint: key=RFC_COMMUNICATION_FAILURE and message=CM_NO_DATA_RECEIVED is a standard situation and happens when application server closes the connection.
[Thr 860] [4688] elapsed time 3788320 ms - active time 1750 ms - wait time 1016 ms
[Thr 860] [4688:860] SAPHTTP end

-----
trc file: "dev_http", trc level: 2, release: "749"

[Thr 1680] Mon Sep 19 07:11:32 2022
[Thr 1680] [4336:1680] sccsid: @(#) SId: //bas/749_STACK/src/krn/ftp/httpnw.c#11 $ SAP
[Thr 1680] Unicode
[Thr 1680] Compiled at: Apr 11 2019 562 (PC with Windows NT)
[Thr 1680] Compiled for 64 BIT
[Thr 1680] SAPHTTP patchnumber: 700
[Thr 1680] Current working directory (location of dev_http): C:\usr\sap\EH8\D02\work
```



The image shows the 'SAPHTTP' configuration dialog box in SAP. The 'RFC Destination' is set to 'SAPHTTPA' and the 'Connection Type' is 'TCP/IP Connection'. The 'Description' section contains three fields, with the first one containing the text 'Automatically Generated on 19991205'. The 'Activation Type' section has three radio buttons: 'Start on Application Server' (selected), 'Start on Explicit Host', and 'Start on Front-End Work Station'. Below this, the 'Start on Application Server' section is expanded, showing a 'Program' field with the value 'saphttp'.

| SAPHTTP | |
|--|-------------------------------------|
| RFC Destination | SAPHTTPA |
| Connection Type | T TCP/IP Connection |
| Description | |
| Description 1 | Automatically Generated on 19991205 |
| Description 2 | |
| Description 3 | |
| Administration Technical Settings Logon & Security Unicode Special Options | |
| Activation Type | |
| <input checked="" type="radio"/> Start on Application Server <input type="radio"/> Registered Server Program | |
| <input type="radio"/> Start on Explicit Host | |
| <input type="radio"/> Start on Front-End Work Station | |
| Start on Application Server | |
| Program | saphttp |

Technical Settings

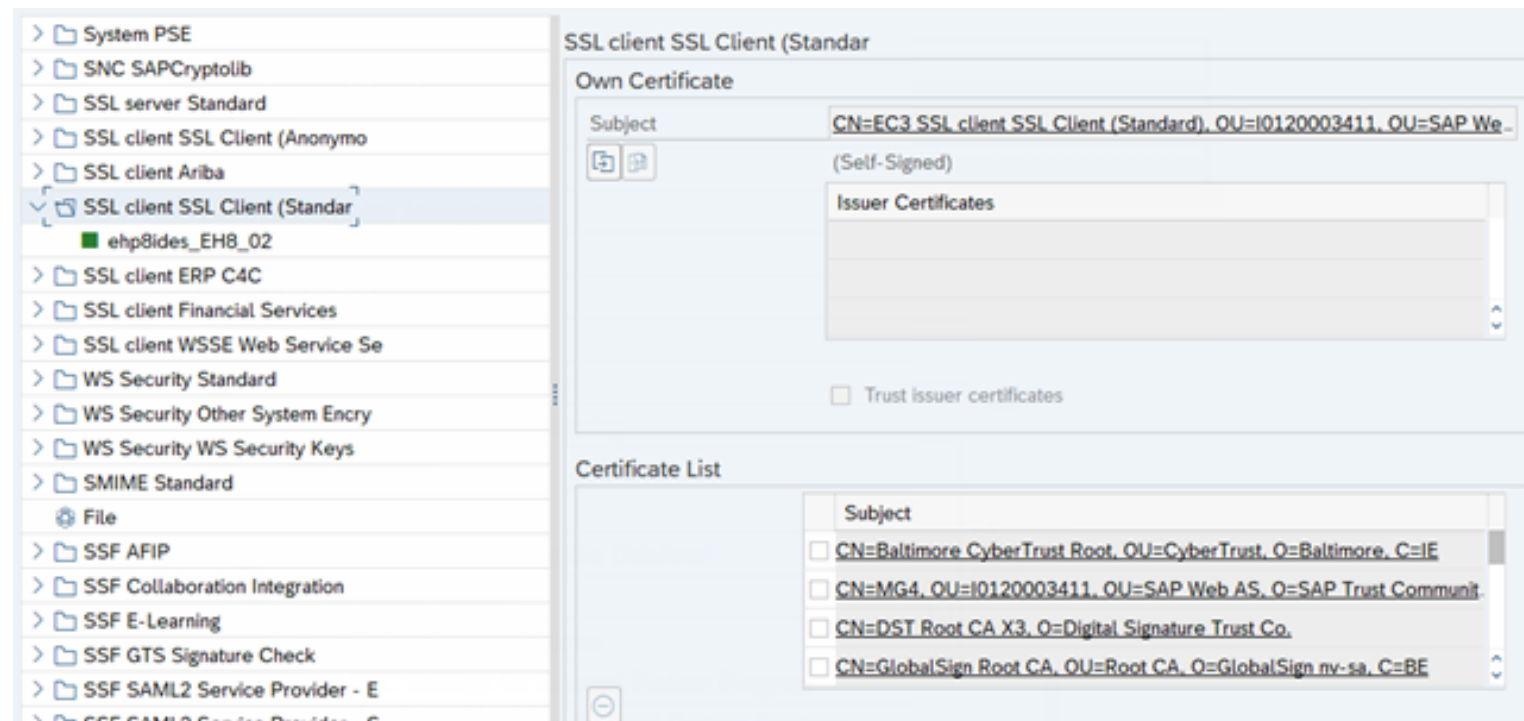
- Communication through HTTP Proxy (if necessary)
 - SAP S/4HANA Standard Customizing

| | |
|-----------------|---|
| Proxy | <input type="text" value="proxy:8080"/> |
| Proxy user | <input type="password" value="....."/> |
| Proxy password | <input type="password" value="....."/> |
| Function Module | <input type="text" value=""/> |

| Structure | |
|-----------|--|
| ▼ | Financial Supply Chain Management |
| > | Biller Direct |
| > | Billing Consolidation |
| ▼ | Cash and Liquidity Management |
| ▼ | Cash Management |
| ▼ | Market data |
| > | Master Data |
| > | Manual Market Data Entry |
| | Define Market Data Monitoring |
| > | File Interface |
| ▼ | Datafeed |
| | Procedure to Start Up the Datafeed |
| ▼ | Technical Settings |
| | Define Datafeed Name |
| > | RFC Settings for External Partner Program |
| ▼ | Internet Settings for External Partner Program |
| > | HTTP Proxy Configuration |
| | Define Internet Settings for WEB Server Access |

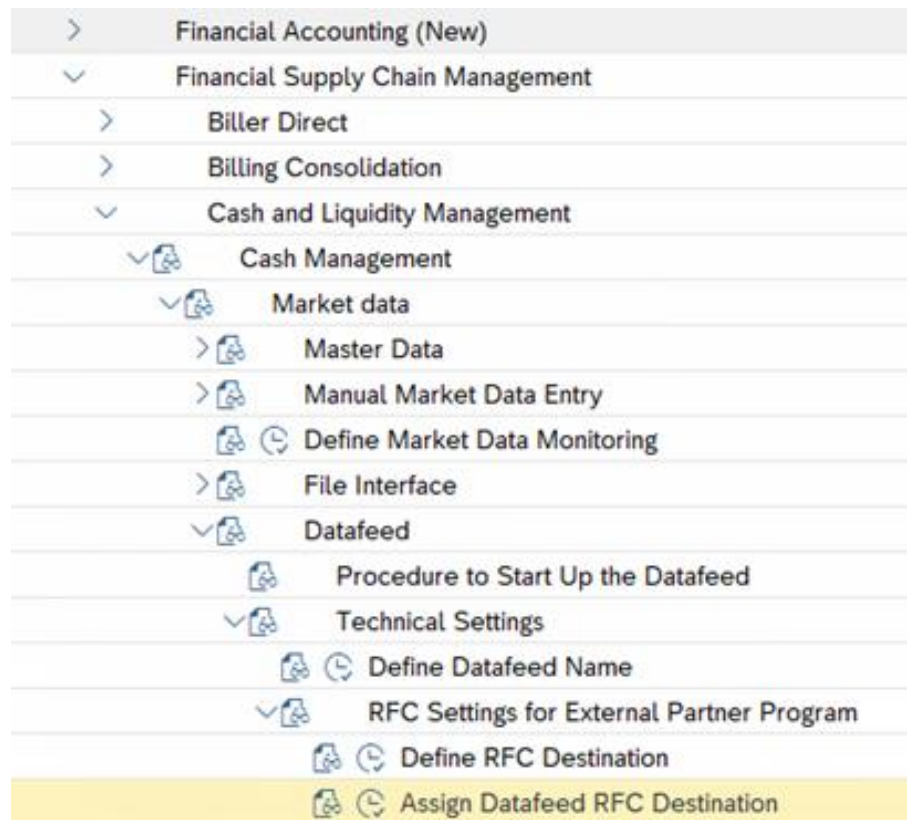
Technical Settings

- SSL Connection from SAP S/4HANA to vendor
 - STRUST to upload certificate



Technical Settings

- Middleware integration



Data Provider Infoaval

Datafeed: Technical settings external partner program

| Mode | Function | RFC destination | B... |
|----------------------------|-----------------------------|-----------------|------|
| <input type="checkbox"/> 1 | TB_DATAFEED_INTERNET_ACCESS | NONE | |

Merck's Experience



- Legal requirement for having Daily Updates for Latin America, Turkey, United Arab Emirates, Saudi Arabia
- Previous situation: Manual entry of Exchange Rates by the different countries (risk, errors)
- Scope: Automatic Update of Exchange Rates for those countries and result via distribution list
- Implementation process: very fast. Performed together by Merck and WAE Solutions
- Result: all countries were automated. No issues.

OB08 vs. TBD4

| Manual Process for 1 currency (OB08) | | Automatic Process for ALL currencies (TBD4) | |
|--------------------------------------|----------------|---|----------------|
| Activity | Estimated Time | Activity | Estimated Time |
| Manual access to OB08 | 5 seconds | Automatic Job Execution for ALL currencies | 10 seconds |
| Access to the bank’s website | 5 seconds | | |
| Find currency in the website | 10 seconds | | |
| Manual entry in OB08 | 10 seconds | | |
| 30 seconds / currency combination | | 10 seconds for <u>ALL</u> your currencies | |

Summary

| Manual Process – OB08 | Automatic Process – TBD4 |
|---|---|
| Values are being entered manually, 1 by 1 | All values are being entered Automatically, every day |
| Possibility of involuntary errors | All available values are being populated Automatically |
| If Keyuser is not available, the values are not populated | Job runs every day, at the same time |
| There is no standard report in SAP with the specific values for one day | Automatic report with all values is being sent by e-mail, directly from SAP |

Where to Find More Information

- SAPinsider: Automate Your Foreign Exchange Rates
<https://sapinsider.org/expert-insights/automate-your-foreign-exchange-rates/>
- SAP Community: Automation of Exchange Rate Feed-in SAP
<https://blogs.sap.com/2020/04/28/automation-of-exchange-rate-feed-in-sap/>
- WAE Solutions – TBD4 Overview
<https://www.waesolutions.com/>
- WAE Solutions – Customizing Document
<https://www.waesolutions.com/resources/pdf/Customizing%20for%20TBD4%20-%20WAE%20Solutions.pdf>
- Additional considerations for setting up SSL on Application Server ABAP – Note 510007
<https://launchpad.support.sap.com/#/notes/510007>

Key Points to Take Home

- Automating Exchange Rates is very easy (and fast)
- Avoid the Risk of entering the rates manually
- Be sure to have updated Exchange Rates in your SAP systems
- Write a list of all the Exchange Rates you would like to Automate
- Explore which is the best Vendor for your needs
- Ask your Vendor for a free trial (30 to 90 days) in your own SAP systems

Thank you! Any Questions?

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your session evaluation.

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