ONESOURCE INDIRECT TAX

ONESOURCE INDIRECT TAX INTEGRATION FOR SAP INSTALLATION AND RFC CONFIGURATION GUIDE

VERSION 5.2.0.0E

If you need to obtain the Open Source Libraries used in this product, please request access using ONESOURCE Indirect Tax Support Network.

June 2012

TABLE OF CONTENTS

ABOUT THIS GUIDE

INTEGRATING ONESOURCE INDIRECT TAX WITH SAP

Corporations using SAP as their Enterprise Resource Planning (ERP) system can simplify their worldwide US Sales and Use Tax, Canadian VAT/GST, and VAT by implementing ONESOURCE Indirect Tax. The suite includes Determination module and Integration module for SAP. The benefits provided by ONESOURCE Indirect Tax are:

- Fast, accurate sales, use, consumer's use tax, and VAT results.
- Complete audit database from which you can generate both standard and custom reports as well as returns.

ONESOURCE Indirect Tax Integration for SAP makes use of the SAP provided Standard Tax Interface and its underlying Remote Function Calls (RFC) and SAP's Java Connector (JCo) to communicate with ONESOURCE Indirect Tax Determination. The Enhanced version of Integration for SAP enables support for worldwide tax, including VAT and other country-specific taxation, as well as for the US and Canada.

This version of Integration for SAP makes use of the standard installation and configuration within SAP with ONESOURCE Indirect Tax specific enhancements for the worldwide support of tax integration. After the installation and configuration, SAP business processes are integrated in real-time with ONESOURCE Indirect Tax and return tax details to the SAP transaction.

SUPPORT PROTOCOL

The Integration for SAP Enhanced version is built based on the SAP Standard Tax Interface for US and Canada, however it uses enhanced methods, custom code, and Thomson Reuters implemented solutions. Hence the Enhanced version isn't supported by SAP's product support. In order to ensure resolution of potential product/installation issues related to the Enhanced Integration for SAP, we recommend the following guidelines be followed:

1. Identify the potential issue and gather all necessary facts (log files, scenarios, configurations, screen prints).
2. Attempt to reproduce the issue in a US/Canada scenario (e.g. if there is a transaction between Germany and England, try to re-create it between US and Canada.)
3. If reproduce-able in US/Canada, use that example to open an OSS message with SAP.
4. If not reproduce-able in US/Canada, contact Thomson Reuters Support who will investigate and determine the root cause of the issue. If Thomson Reuters Support determines that an OSS message should be opened with SAP, they will draft that text and provide it to the customer to log with SAP. If the issue is within the Thomson Reuters provided code or solution we will work with you to resolve the issue directly.

The overall objective of this protocol is to minimize churn and to resolve issues as efficiently as possible. A collaborative approach in determining the proper escalation (customers, partners, SAP, Thomson Reuters Support and Consulting Services) will ensure that SAP gets all of the appropriate information to appropriately address the issue, if needed.

HOW THIS GUIDE IS ORGANIZED

This guide contains the following chapters:

- ***INTEGRATION OVERVIEW (page 9)*** shows the benefits of integrating Determination with SAP and describes both an architectural and configuration overview of Integration process.
- ***STRUCTURE ENHANCEMENTS FOR INTERNATIONAL TAX CALCULATIONS (page 13)*** Identifies the two required transports and two optional transports used to implement the system.
- ***ABAP CODING AND TAX INTERFACE ENHANCEMENTS (page 21)*** identifies all of the ABAP steps that are required to manually add enhancements and includes into the programs after the transports are completed.
- ***CONFIGURE SAP TO ALLOW CALLS TO COMMUNICATE WITH DETERMINATION (page 31)*** describes the steps you need to take to enable SAP RFCs to call Determination to perform tax calculations and return the tax results back to SAP RFCs.
- ***INSTALLING AND CONFIGURING INTEGRATION FOR SAP (page 37)*** explains how to install and initially configure Integration for SAP.
- ***DEFINING A COMPANY IN DETERMINATION FOR RFC TESTING (page 57)*** provides information on Determination configurations that enable the two systems to successfully transfer and process transaction data.
- ***ADVANCED CONFIGURATIONS IN INTEGRATION FOR SAP (page 63)*** describes how to enable custom support of Invoice Print languages and Custom Authority tax result mappings in SAP.
- ***INSTALLING BRAZIL NOTA FISCAL SUPPORT (page 79)*** provides information on the objects added as part of the optional Brazil transport.
- ***ENABLING CUSTOM ATTRIBUTES (page 81)*** provides details on appending the standard SAP Tax Interface to enable up to 40 additional business-specific tax elements.
- ***OBTAINING ADDITIONAL DATA FROM DETERMINATION (page 87)*** explains how to add the structures to SAP required to obtain the additional data elements returned by Determination.
- ***APPENDIX 1: MAPPING SAP FIELDS TO ONESOURCE INDIRECT TAX XML (page 95)*** lists the input and output maps used to associate SAP data fields to Determination XML elements.
- ***APPENDIX 2: TRANSPORTS (page 117)***Provides additional needed information for transports.
- ***APPENDIX 3: ADVANCED SECURITY AND LOGGING CONFIGURATIONS (page 125)***

After you complete the procedures in this guide, follow the instructions in ONESOURCE *Indirect Tax Integration for SAP Global Tax Configuration Guide.*

Once you finish these steps, your SAP implementation can leverage the full set of calculation, auditing, and reporting features of Determination for global taxes.

SKILL AND ACCESS PREREQUISITES

This guide is intended for use by ONESOURCE Indirect Tax Professional Services and your SAP System Administrator, Configurator, or Superuser. The purpose of this guide is to walk you through the step-by-step process of installing and configuring Integration and SAP so that SAP RFCs can communicate with Determination. The examples in this guide are taken from SAP ECC 6.0.

The following table lists the required knowledge, permissions, and other information that will help you proceed quickly through the installation and configuration.

SKILL AND ACCESS PRE-REQUISITES	
Requirement	**Description**
Technical Skills	• UNIX or Windows System Administrative Privileges • Experienced User of UNIX or Windows • Using Determination • ABAP
SAP Authorizations	• Configurator (IMG) • Defining and Testing RFC Destinations • System Administrator • Ability to run SE37 transactions to execute Tax Interface RFCs

SITE-SPECIFIC SYSTEM CONFIGURATION

The scripts and procedures used in this guide reference the following information about your implementation that you should determine *before* running the installation. Use the table below to list the values at your site.

Information About your SAP Implementation			
Item	**Description**	**Value**	**Page Reference**
SAP CPIC Username and Password	Username and password to enable the JCo Client to connect to SAP.		Created on: ***DEFINING A CPIC USER ACCOUNT (page 32)***
SAP System Number	System number to connect to for the host server.		Per your SAP install, used on: ***CONFIGURING INTEGRATION PROPERTIES FILE (page 38)***
SAP Client	SAP Client.		Per your SAP install, used on: ***CONFIGURING INTEGRATION PROPERTIES FILE (page 38)***
SAP Host	Host parameter for your SAP system.		Per your SAP install, used on: ***CONFIGURING INTEGRATION PROPERTIES FILE (page 38)***
SAP Message Server	SAP Message Server.		Per your SAP install, used on: ***CONFIGURING INTEGRATION PROPERTIES FILE (page 38)***
SAP System ID	SAP System ID.		Per your SAP install, used on: ***CONFIGURING INTEGRATION PROPERTIES FILE (page 38)***

Information About your SAP Implementation			
Item	**Description**	**Value**	**Page Reference**
SAP Group Name	SAP logon group name.		Per your SAP install, used on: ***CONFIGURING INTEGRATION PROPERTIES FILE (page 38)***
SAP Gateway Server	Gateway to connect to your SAP instance.		Per your SAP install, used on: ***CONFIGURING INTEGRATION PROPERTIES FILE (page 38)***
RFC Program ID	Case-sensitive, uniquely-defined ID in your RFC destination. Must match that found in your *SabrixInConnection.properties* file. `SABRIX` is used in this document.		Created on:***DEFINING THE RFC DESTINATION, SM59 (page 33)***
Calculation URL	The URL of the Calculation servlet. Example: *http://<server:port>/sabrix/xmlinvoice*		Used on: ***CONFIGURING INTEGRATION PROPERTIES FILE (page 38)***
Address Validation URL	The URL of the Address Validation servlet. Example: *http://<server:port>/sabrix/addressvalidation*		Used on: ***CONFIGURING INTEGRATION PROPERTIES FILE (page 38)***
Version URL	The URL of the Version servlet. Example: *http://<server:port>/sabrix/version.txt*		Used on: ***CONFIGURING INTEGRATION PROPERTIES FILE (page 38)***
Debug Level	ALL, INFO, ERROR, DEBUG, or NONE		Used on: ***DEFINING LOG LEVEL AND APPENDER SETTINGS (page 43)***
Integration Log File Location	Specifies the log directory and the log file name.		Used on: ***CONFIGURING THE APPENDER (page 45)***
Number of RFC Servers to Start	To achieve multi-threading at least two servers should be started. The default is 5.		Used on: ***CONFIGURING INTEGRATION PROPERTIES FILE (page 38)***

Information About your SAP Implementation			
Item	**Description**	**Value**	**Page Reference**
Number of Address Records to Return	Limits the number of address records returned by the jurisdiction lookup. Default is set to 99 which is max SAP can return.		Used on: ***CONFIGURING INTEGRATION PROPERTIES FILE (page 38)***
Product Code to be Used for Freight	Default is FREIGHT.		Used on: ***CONFIGURING INTEGRATION PROPERTIES FILE (page 38)***
Fully Qualified Host Name	The SAP Host to connect to.		Used on: ***CONFIGURING INTEGRATION PROPERTIES FILE (page 38)***
Solution Manager Port	Default is 50000		Used on: ***REGISTERING INTEGRATION FOR SAP WITH SAP SOLUTION MANAGER (page 56)***
Solution Manager Login	Default is j2ee_admin		Used on: ***REGISTERING INTEGRATION FOR SAP WITH SAP SOLUTION MANAGER (page 56)***
Solution Manager Password	Password tied to Solution Manager Login.		Used on: ***REGISTERING INTEGRATION FOR SAP WITH SAP SOLUTION MANAGER (page 56)***

SYSTEM PREREQUISITES

The installation of Integration for SAP places no new software or hardware requirements on either the system hosting SAP or the one hosting Determination.

SAP System requirements are:

SAP Enhanced Version 5.2.x.x
Dependencies

XML Schema Version G
ERP Version

R/3 4.6 and higher (No SAP Certification)
SAP-JCo, SRM/EBP

JVM 1.5, 1.6
SAP-JCo 3.0.7 and 3.0.8
CRM/SRM/EBP not supported

	SAP Enhanced Version 5.2.x.x
Dependencies	
	XML Schema Version G
ERP Version	
	R/3 4.6 and higher (No SAP Certification)
SAP-JCo, SRM/EBP	
	JVM 1.5, 1.6 SAP-JCo 3.0.7 and 3.0.8 CRM/SRM/EBP not supported

For detailed platform and end of service information, please review these documents:

Platform Guide:

https://customer.sabrix.com/cgi-bin/sabrix.cfg/php/enduser/std_adp.php?p_faqid=527

End of Service:

https://customer.sabrix.com/cgi-bin/sabrix.cfg/php/enduser/std_adp.php?p_faqid=679

REFERENCES TO RELATED DOCUMENTATION

ONESOURCE INDIRECT TAX-PROVIDED DOCUMENTATION (INTEGRATION FOR SAP)

ONESOURCE Indirect Tax Integration for SAP US/CA and Global Tax Configuration Guides

Once you are done with the installation and basic configuration in SAP and have enabled RFCs from SAP to communicate with Determination, you will be using these guides to enable US/CA and International Global transactions in SAP to communicate with Determination for tax calculation.

These guides provide details on setup, configuration, and coding necessary to enable US/CA and Global tax calculations with SAP.

SAP Load Balancing and Failover Guide

This document outlines what customers should take into account when building a scalable and redundant architecture using Determination and Integration for SAP. The document *SAPLoadBalancing.pdf* can be found in the release distribution file.

SAP-PROVIDED DOCUMENTATION (SAP TAX INTERFACE)

SAP R/3 Tax Interface Configuration Guide

We provide the steps for you to send SAP tax-relevant transactions in SD, MM and FI to Determination for tax calculation. These steps are contained in the extended version manuals: *ONESOURCE Indirect Tax Integration for SAP Installation and RFC Configuration Guide*, *ONESOURCE Indirect Tax Integration for SAP Global Tax Configuration Guide*, and ONESOURCE *Indirect Tax Integration for SAP US/CA Tax Configuration Guide*.

However, you may find that your business requires more complex configurations. If you require additional information about preparing SAP ECC for the external tax engine, consult the *R/3 Tax Interface Configuration Guide Release 4.6x* (released by SAP Labs). You can download this document from the SAP web page according to instructions in OSS note 392696, or you can get it from ONESOUECE Indirect Tax Customer Support upon request. Although this guide was first published for release 4.6 in 2003 it is still applicable for ECC 6.0. We strongly recommend you read this document prior to configuring SAP. It will give you a broader understanding of the process.

REVIEWING SAP SUPPORT NOTES

We recommend that you review all relevant notes to the SAP Tax Interface on the SAP Support Web. Our Professional Services team has compiled a list of important OSS notes that they have encountered in their support of ONESOURCE Indirect Tax implementation projects.

Please review KB article at:

https://customer.sabrix.com/app/answers/detail/a_id/1122

With a list of known possible notes relevant to integrating SAP and ONESOURCE Indirect Tax with SAP. It is also recommended that you do a search in sap at http://service/sap.com/notes for the tax relevant notes in the core application areas XX-PART-TIF, CRM-BD-TAX, AP-TTE, but there are others relevant as well.

INTEGRATION OVERVIEW

This chapter describes:

- The benefits of integrating SAP with Determination ***(page 9)***
- An architectural overview and process flow ***(page 10)***
- The various user processes that can trigger Determination tax calculations ***(page 11)***
- Optional customizations that help you make the most of Determination***(page 11)***

BENEFITS

Enabling Determination to generate tax results for your SAP transactions results in the following key benefits:

Seamless Integration.

Once integrated, your tax professionals can continue to use SAP functionality without needing to learn new technology or processes. Determination automatically obtains a complete set of data elements necessary to perform the appropriate tax calculations, then returns the results to SAP all without the need for manual intervention.

Accurate Tax Calculation.

Determination is the premier solution for your sales, use tax, and VAT needs. ONESOURCE Indirect Tax Determination is the only system to provide all of these features:

- Integrates worldwide tax calculation
- Enables global visibility and real-time transactions
- Gives control of the data and decision-making to the tax professional
- Eliminates or minimizes IT involvement as tax jurisdictions, rates, and rules change
- Provides a scalable, maintainable enterprise solution

Using Determination as your global transaction tax management solution reduces costs, increases accuracy, and provides the flexibility you need to adapt to an ever-changing business and taxation environment.

Auditing/Reporting.

Tax calculations that are processed using Determination are stored in Determination audit tables. From this audit data, you can generate standard or customized reports based on any user-defined criteria. For example, you can create tax-by-jurisdiction reports or any other desired reports needed to satisfy your company's needs.

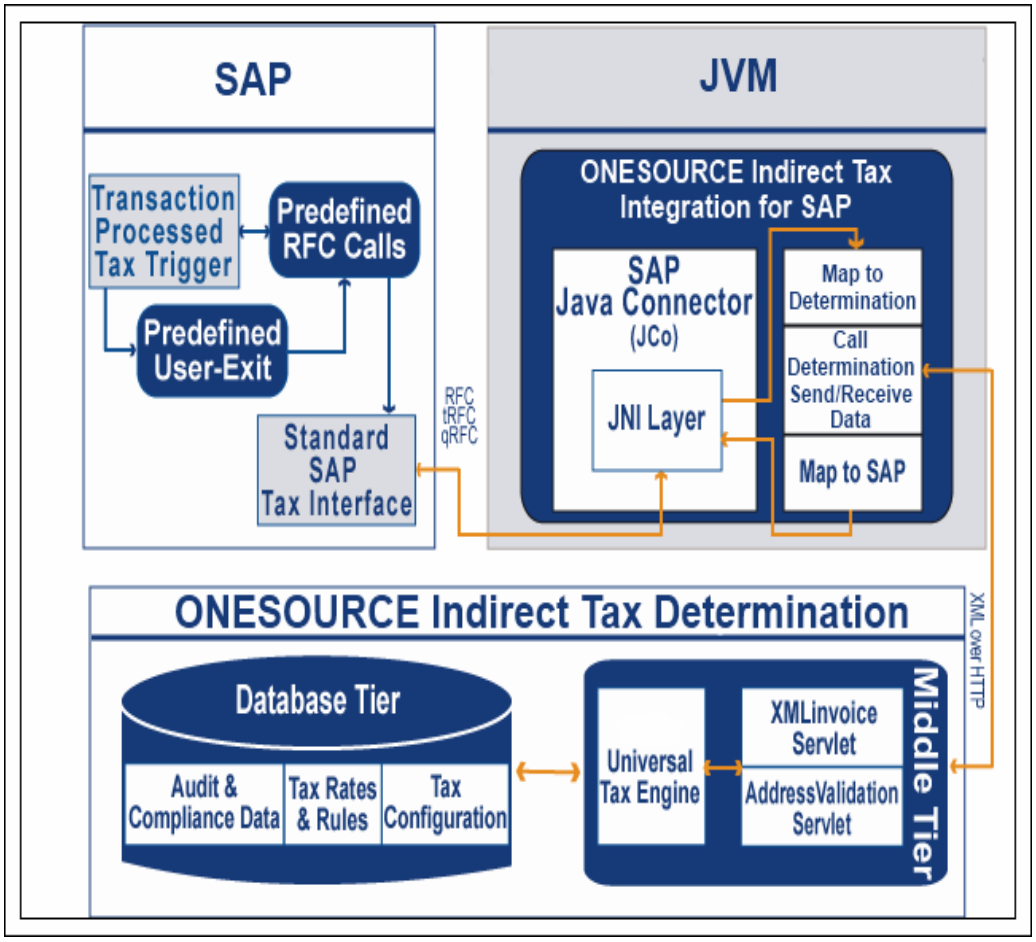
ARCHITECTURE

Integration for SAP consists of a set of Java classes. These classes use the SAP Java Connector (JCo) interface to communicate with SAP, and the Java Connection interface to communicate with Determination software. Additionally, these classes map data between formats that can be recognized by SAP and by Determination.

Communication between SAP and Determination during tax-relevant processes is managed by ONESOURCE Indirect Tax Integration for SAP. Integration subscribes to the SAP system with a predefined server pool, and using the JCo Server architecture, it makes these connections available to the RFC Destination at a tax call. In addition, a JCo Client to Integration is used when the connection starts up.

This JCo Client connects to the SAP system using a special background account (CPIC). It then interrogates the Tax RFC Structures and provides them to Integration to use in the JCo Server. This JCo Client connection is only used once, at the startup of Integration, after which it automatically closes.

INTEGRATING SAP ECC WITH ONESOURCE INDIRECT TAX



RFC CALL FOR SAP ECC

The following describes the process of using the RFC call for SAP ECC:

1. SAP determines that it needs to call the SAP Tax Interface.
2. Integration is listening for remote function calls from the SAP Tax Interface.
3. SAP sends a Remote Function Call (RFC) to one of Integration listeners.
4. Integration determines which RFC call in the SAP Tax Interface was requested.
5. Integration maps the data from SAP to ONESOURCE Indirect Tax.
6. Integration calls Determination, sending XML over HTTP.
7. Integration receives the results from Determination.
8. Integration maps the results to SAP RFC response structures.
9. SAP receives the response.

USER PROCESSES THAT TRIGGER DETERMINATION TAX CALCULATIONS

This *Installation and RFC Configuration Guide* provides procedures needed to install and configure Integration to enable RFC communication with Determination.

ONESOURCE Indirect Tax Integration for SAP Global Tax Configuration Guide enables end-to-end tax calculation with configuration steps completed in SAP.

Once Determination is fully integrated with SAP ECC, you can automatically generate correct tax results during the following actions:

- Processing Purchase (Procure To Pay) or Sales (Order To Cash)Transactions.
- Logistic Invoice Verification (LIV) with posting to AP.
- Processing Billing Document transactions with posting to AR.
- Supporting address management to support jurisdiction code.

CUSTOMIZING INTEGRATION

The standard, out-of-the-box installation of Integration enables basic transaction data from RFCs to be passed to Determination, which calculates the appropriate tax and returns the correct result to SAP ECC RFCs.

However, there are additional customizations that you can make to both Determination and SAP that will enable you to pass additional data to Determination to trigger specialized calculations or enable additional auditing or reporting capabilities. These customizations can be straightforward or complex and require you to thoroughly analyze your business processes and requirements. You can engage ONESOURCE Indirect Tax Professional Services to assist you in this process.

For more information on customizing Integration, see ONESOURCE Indirect Tax *Integration for SAP Global Tax Configuration Guide.*

STRUCTURE ENHANCEMENTS FOR INTERNATIONAL TAX CALCULATIONS

Because SAP has limited data elements on the tax interface structure, additional attributes are needed to support global tax calculation, such as registration numbers and additional locations. The Standard SAP Tax Interface must be enhanced in order to send these elements to the external tax system. You should engage a technical consultant or team member to make the changes because they involve data dictionary work in the ABAP Workbench. Follow the procedures in this chapter carefully to ensure success.

This chapter describes:

IMPLEMENTATION PROCESS TRANSPORTS

REQUIRED TRANSPORTS:

See APPENDIX 2 section at the end of this installation guide for information on locating transports, loading information, and verification/content data. ***ONESOURCE INDIRECT TAX TRANSPORTS (page 117)***

If you are an upgrade customer applying your transports as an upgrade to 5.2.0.0.E from a prior version then refer to the following Knowledge base article for other helpful information on pre-transport adjustments at:

https://customer.sabrix.com/app/answers/detail/a_id/1135

ONESOURCE Indirect Tax Integration for SAP - 40 Input User Attributes.

The Initial package and the 40 custom attribute transport can be found in **K900186.DO2** and **R900186.DO2.**

If you have already applied the K900186.DO2 transport with the Basic Install, then you do not need to do it again and can proceed to the international transport. However, if you have not already applied K900186.DO2, you must apply this transport before you apply the international attributes transport.

ONESOURCE Indirect Tax Integration for SAP - Enhanced Global template.

For upgrade customers transports should be imported with the “Overwrite Originals” check box selected when importing the transport. In cases where a customer has existing objects setup in their system and they import a newer transport which alters these objects an error is raised during the import if the “Overwrite Original” box is not checked.

The international attributes can be found in *K900180.DO2* and *R900180.DO2.*

The addition of the Tax Code Qualifier function within the International attributes transport ***K900180.DO2*** will add a 200 character field to the ZSABRIX_OUT file structure increasing it from approximately 800 characters to 1,000 characters per line. Your System Administrator may need to be made aware of the 25% increase in file size for planning purposes.

Included in this transport are two enhancement implementations that go directly into the SAP’s external tax interface ABAP code.

- Z_SABRIX_ENHO_CHCK_DEST_CNTR: Allows countries other than US/CA to use the SAP external tax interface. This is in class CL_XTAX_RULES_CONFIGURATION method CHECK_DESTINATION_COUNTRY.
- Z_SABRIX_ENHO_UPDATE_CREDIT_IN: This sets the credit/debit indicator field when you are updating the audit database in Determination when the FI document is created. This is in class CL_XTAX_DOCUMENT_ITEM method UPDATE_GLTAX_DATA.

OPTIONAL TRANSPORTS:

The following two transports are optional and can be added to the system if the customer has specific need for this additional functionality. Contact your Professional Services Representative for additional information on these features.

ONESOURCE Indirect Tax Integration for SAP - Brazil template.

The code needed to enable the Brazil Nota Fiscal process can be found in the K900184.DO2 and R900184.DO2 transport files included in the installation directory's code subfolder. See chapter ***INSTALLING BRAZIL NOTA FISCAL SUPPORT (page 79)*** for additional information and configuration steps for this template offering.

ONESOURCE Indirect Tax Integration for SAP - 5 Output User Attributes.

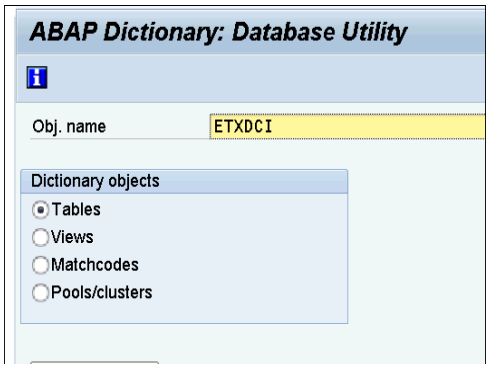
The code needed to enable the additional 5 user defined fields functionality can be found in the K900182.DO2 and R900182.DO2 transport files included in the installation directory's code subfolder. See ***FLEXIBLE MAPPING CAPABILITY FOR FIVE ADDTIONAL ATTRIBUTES IN RFC RETURN STRUCTURE (page 93)*** for more information on this feature.

If you decide to add this functionality the addition of the five user fields will increase the size of the ZSABRIX_OUT file structure from approximately 1,000 characters per line to approximately 2,000 characters per line (five new user fields X 200 characters per field). Your System Administrator may need to be made aware of this 100% increase in file size for planning purposes.

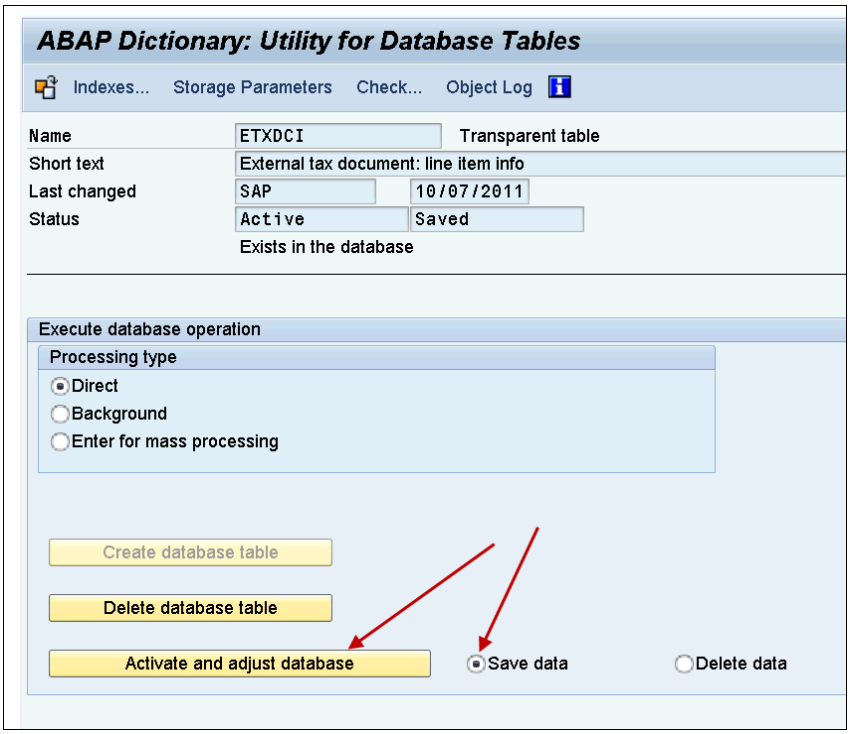
CONVERTING THE SAP DB TABLE ETXDCI AND KONV

In some instances, a warning message occurs during activation of the append structure *ZATAX_USER_INF*. Please work with the SAP Basis team to resolve issues with the activation of table ETXDCI. The following procedure explains how to manually regenerate table ETXDCI using the Database Utility in the ABAP Workbench.

1. In **SE14 - Utility for Database Tables**, enter table *ETXDCI* for **Obj. name**, click **Tables**, then press ENTER.



2. In **SE14 - Utility for Database Tables**, you can run this process in **Direct** mode (foreground). Select **Save data**, and then click **Activate and adjust database** to regenerate the table.



NOTE See SAP Support Note 636217 for more information.

3. Repeat these two steps for KONV table as well.

CONFIGURING CUSTOM TABLE TO DETERMINE TRANSACTION TYPE

Tax determination is dependent on a transaction type. For example, different locations are relevant depending on whether the transaction is a Goods transaction or a Customer Location Services transaction. Because the SAP system does not have transaction types, the transport for International attributes *K900180.DO2* created ZSOURCE_TYPE as a new data element for source type. It also created a mapping table to associate a data value to a transaction type.

In most cases, the item category of a business transaction can be mapped to a Transaction Type, as shown in the following example.

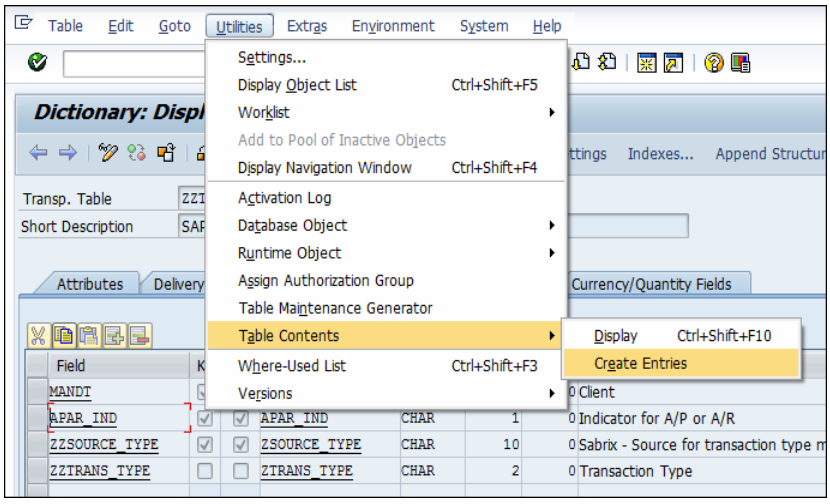
The process includes:

- Creating the new data element ZSOURCE_TYPE (done by the transport)
- Creating the new custom table for source type to transaction type (created by the transport)
- ***CONFIGURING TABLE VALUES (page 17)***

CONFIGURING TABLE VALUES

For table ZZTRANS_TYPE_MAP configure table values directly from the data dictionary or use transaction **SE16**.

1. From the data dictionary, select **Utilities >Table contents > Create entries** from the menu.

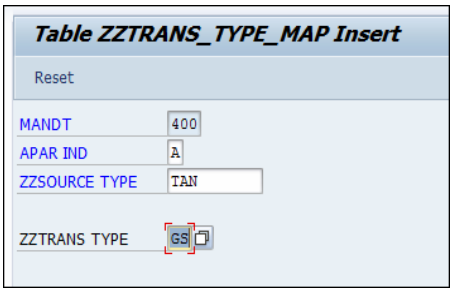


2. Map your item categories in the **Source Type** field to ONESOURCE Indirect Tax Transaction Types (Trans Type).

The mapped categories are then read in the tax user exit to determine the appropriate transaction type. You can map any attribute from your sales or purchase transaction to ONESOURCE Indirect Tax Transaction Type using this table; in this case, you must adjust the user exit accordingly. There is a sample code in include ZXFYTF01_SABRIX.

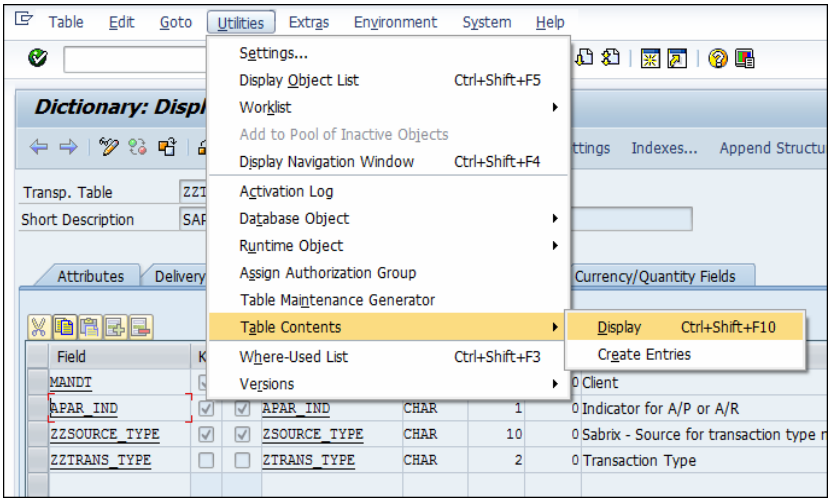
You can use the SAP Table Maintenance Generator to generate a user interface for table maintenance, if desired. This is already run as part of the transport.

3. On the maintenance screen, enter a valid mapping. In this example for an SD transaction (**APAR IND** *A*), the tangible item category *TAN* has been mapped to the Transaction Type goods (*GS*).

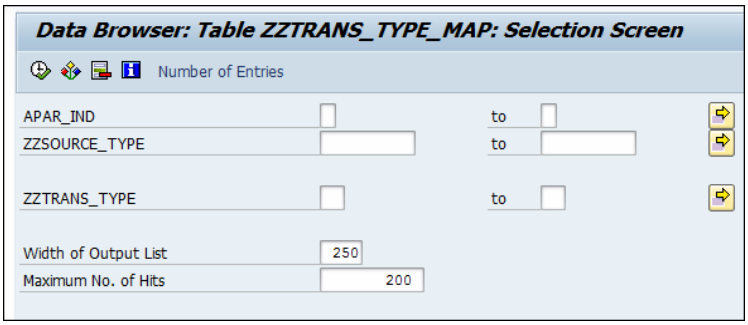


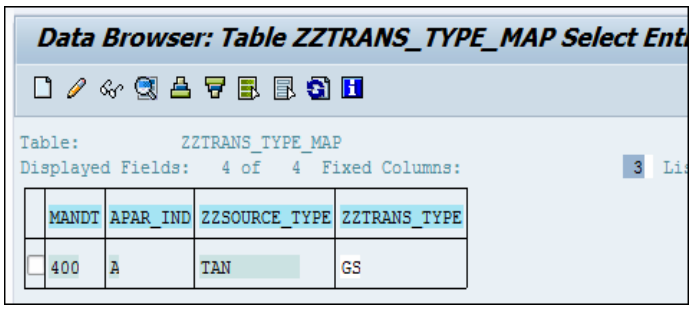
4. Save your transaction when done.

5. To view table entries, select **Utilities > Table contents > Display**.



6. On the selection screen, narrow your search by entering any attribute or press F8 to display all records.





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NOTE

You can derive the transaction type from another attribute. Replace the source field values in the table with the new attributes and adjust the ABAP code in the user exit to determine the transaction type based on the custom table.

Within the include ZXFYTF01_SABRIX of the International transport there is a sample usage of this table.

ABAP CODING AND TAX INTERFACE ENHANCEMENTS

New ABAP code must be added to provide content to the structures and fields added when you installed and initially configured the Integration. This code is implemented in user exits, customer exits, and enhancements. Existing SAP structures and tables must be appended to provide data attributes to the tax user exit to perform lookups.

This section describes each code and table change and has includes with sample code that can be implemented in user exits, customer exits, and enhancements. The implementation has four sections based on both type and location in the system in which the change is implemented.

The code provided in this transport is a starting point or template of the working process. Specific customer requirements may necessitate changes to the provided code.

SD IMPLEMENTATION SPECIFIC CHANGES

The International Attributes Transport incorporates many steps of the install process including many of the data elements and appends to structures that are needed. However there are several Includes that must be manually added by the customer after the International Attributes Transport is complete. They are listed below:

USING SD USER EXITS MV45AFZZ AND RV60AFZZ

Once the additional fields have been assigned and populated to KOMKAZ via the transport, Includes must be inserted using SE38 transaction.

1. **MV45AFZZ**: User exit called during order process. Add include to user-exit in form userexit_pricing_prepare_tkomk.

```
186  *---------------------------------------------------------------------*
187  FORM userexit_pricing_prepare_tkomk.
188
189  *  TKOMK-zzfield = xxxx-zzfield2.
190
191    INCLUDE ztr_mv45afzz_prepare_tkomk.
192
193  ENDFORM.                    "USEREXIT_PRICING_PREPARE_TKOMK
194  *eject
195
```

RV60AFZZ: For this user exit called during the order process add these four includes to the user exit as shown in the four print screens below.

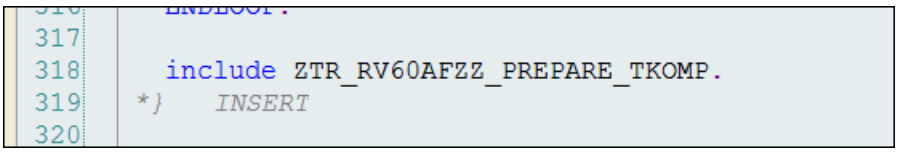
2. Add this include at bottom of form userexit_number_range.

```
163  * note 829932
164
165    include ZTR_RV60AFZZ_NUMBER_RANGE.
166
167  *}   INSERT
168
169  * Example: Number range from TVFK like in standard
170  * US_RANGE_INTERN = TVFK-NUMKI.
```

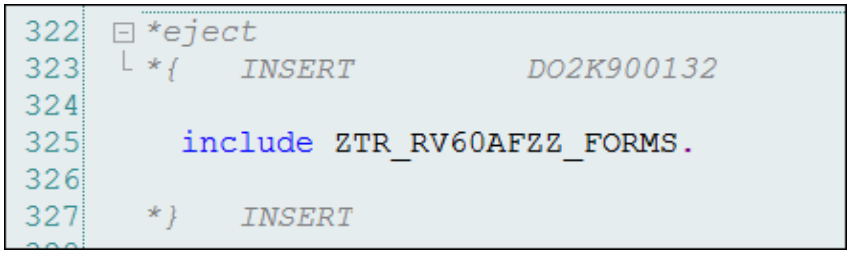
3. Add this include at bottom of form userexit_pricing_prepare_tkomk.

```
197  * PERFORM XVBPA_SELECT USING 'AP'.
198  * TKOMK-PARNR = XVBPA-PARNR.
199  *{   INSERT          DO2K900132
200
201    include ZTR_RV60AFZZ_PREPARE_TKOMK.
202
203  *}   INSERT
204
```

4. Add this include at bottom of form userexit_pricing_prepare_tkomp.



5. Add this include at very bottom at the end of the program after the last form.



MM IMPLEMENTATION SPECIFIC CHANGES

To provide additional required data elements from MM to the Tax Interface, make the following changes. The Customer User Exit will have to be created first for these two if they are not already present and then add the includes as noted below:

Changes	Description
Enhancement LMEKO001 (User Exit ZXM06U14)	This enhancement enables management of additional fields on the header level of AP documents (PO, LIV, etc.) which are not part of the standard tax interface.
Enhancement LMEKO002 (User Exits ZXM06U15)	This user exit is the same as **LMEKO001**, but on the item level of the document.

See print screens on next page.

1. Insert this include at the beginning of user exit ZXM06U14.

```
1  *&---------------------------------------------------------------------*
2  *&  Include           ZXM06U14
3  *&---------------------------------------------------------------------*
4
5  INCLUDE zxm06u14_sabrix.
6
```

2. Insert this include at the beginning of user exit ZXM06U15.

Include | ZXM06U15 | Active

```
1  *&---------------------------------------------------------------------*
2  *&  Include           ZXM06U15
3  *&---------------------------------------------------------------------*
4
5  INCLUDE zxm06u15_sabrix.
6
```

TAX INTERFACE SPECIFIC CHANGES

Within the Tax Interface, collection logic for the newly added fields must be implemented. Once implemented, these elements along with the standard elements available in the SAP Standard Tax Interface are sent to Determination for tax calculation.

This overview describes:

- ***POPULATING JURISDICTION CODES (page 24)***
- ***POPULATING REGISTRATION NUMBERS (page 25)***
- ***MAPPING PRODUCT CODES (page 25)***
- ***MODIFICATIONS TO SUPPORT TAX INTERFACE CHANGES (page 26)***

POPULATING JURISDICTION CODES

For tax calculations outside the United States and Canada, Determination needs up to six jurisdiction codes. These jurisdiction codes are Ship-From, Ship-To, Point Of Order Acceptance (POA), Point of Order Origin (POO), Seller Primary, and Buyer Primary. The need for these jurisdiction codes varies by business process.

For A/R transactions, the standard SAP Tax Interface derives the Ship-From and Point of Order Acceptance jurisdiction codes from the plant, and the Ship-To and Point of Order Origin jurisdiction codes from Ship-To customer.

We recommend that you change the defaults on some tax interface fields. For example, POA jurisdiction should be derived from the sales organization address instead of the plant.

We have also added two additional fields: one for seller's primary jurisdiction code, which should be derived from company code, and a second one for buyer's primary jurisdiction code, which should be derived from sold-to-party customer address.

We have provided sample code in the software distribution.

POPULATING REGISTRATION NUMBERS

For international tax calculations such as UK VAT, we require the seller's and buyer's primary registration numbers.

For A/R transactions, the seller's primary registration number is derived from the company code; the buyer's primary registration number is derived from the sold-to-party customer number. User exit code looks for all of the countries associated with the Ship-To, Ship-From, Point of Order Acceptance, Point of Order Origin, Seller Primary, Buyer Primary addresses, and then looks for registration numbers for the company and sold-to-party customers. Up to six registration numbers can be provided on a given entity.

For A/P transactions, the seller's primary registration number is derived from the vendor; the buyer's primary registration number is derived from the company code. Up to six registration numbers can be provided on a given entity.

We have provided sample code in the software distribution.

MAPPING PRODUCT CODES

The Determination provides an advanced, exception-based approach to product taxability. The Determination provides a complete list of product categories and exceptions with its US and International Tax Data releases. Only products and product categories that need special tax treatment need to be maintained in the Determinations's product exceptions list.

The Determination also provides product mapping, in which source system products (such as those maintained in your SAP implementation) can be mapped to Determination product exceptions. This mapping can be based on the Material Master Material Group field or some other attribute sent by SAP to Determination.

Because product mappings are always implementation-specific, you must first configure them in the Determination. Once they are configured, product codes can be passed in transactions to the Determination. See the *Determination Online Help* for more information about product mapping.

The process by which you map product codes is implementation-specific. We have provided sample code to query product code from the TTXP table mapped with the material group:

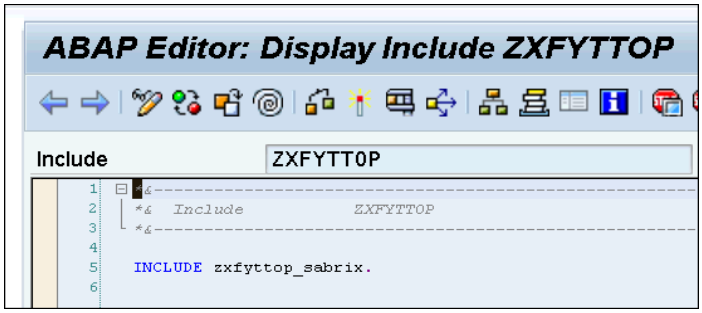
- **Commodity Code:** We have provided code to query commodity code from the material master and populate the Z field extended on the tax interface.
- **Transaction Type:** We have provided code to query the transaction type maintained in the Z table and populate the Z field designated as the transaction type field in the Tax Interface structure. If nothing is maintained, the system defaults to transaction type **GS** (Goods Sold).
- **Incoterms** - Incoterms can be mapped to Point of Title Transfer within the Determination. We have provided code describing how to pull Incoterms for A/P and A/R transactions and map them to the Z fields extended on the tax interface structure.
- **Location Tax Category:** We have provided sample code as a guideline to query from the address location and populate the **Z** field extended on the tax interface structure.

- **Invoice Date and Movement Date:** As of release 5.0, you can provide the invoice date during billing creation and movement date for the goods issue for Receivables transactions and the invoice date and goods receipt (movement) date for Purchasing transactions. We have provided code in the text file.
- **Freight:** We have provided code to access freight value from the line item freight condition when it is available in the field **KZWI4**. Customers also need to add the field **KZWI4** to the table *CI_TAX_INPUT_USER* in transaction **SE11**.

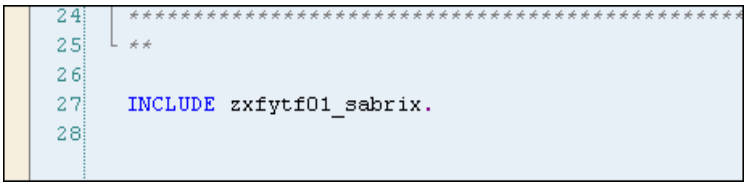
  For additional information on freight handling in the SAP interface see Appendix D of the *R/3 Tax Interface Configuration Guide*.

MODIFICATIONS TO SUPPORT TAX INTERFACE CHANGES

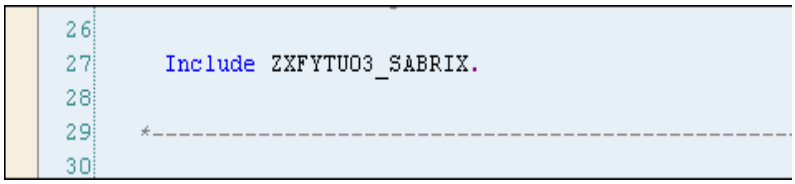
1. **ZXFYTTOP** add the include.



2. **ZXFYTF01** add the include.



3. **ZXFYTU03** add the include.



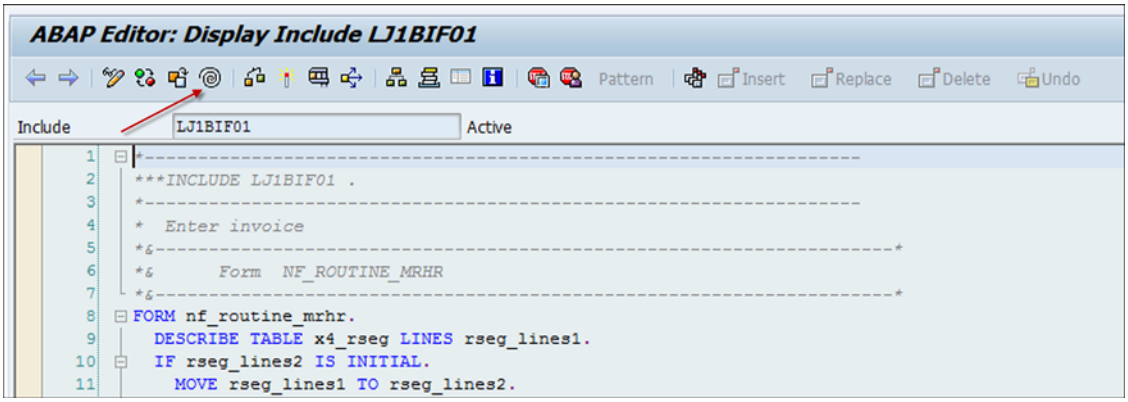
Include ZXFYTU03_SABRIX: This include contains processing logic specific to the Integration. Two main sections each contain two sub-sections. The first two main sections are for the separation of SD / AR (SELLER) versus MM / A/P (BUYER) transactions. Within each block, the user exit enhancement is separated into logic relevant to a domestic integration (US/CAN) and this global enhancement.

For upgrade customers, you may need some manual consideration for data types and forms that may already exist.

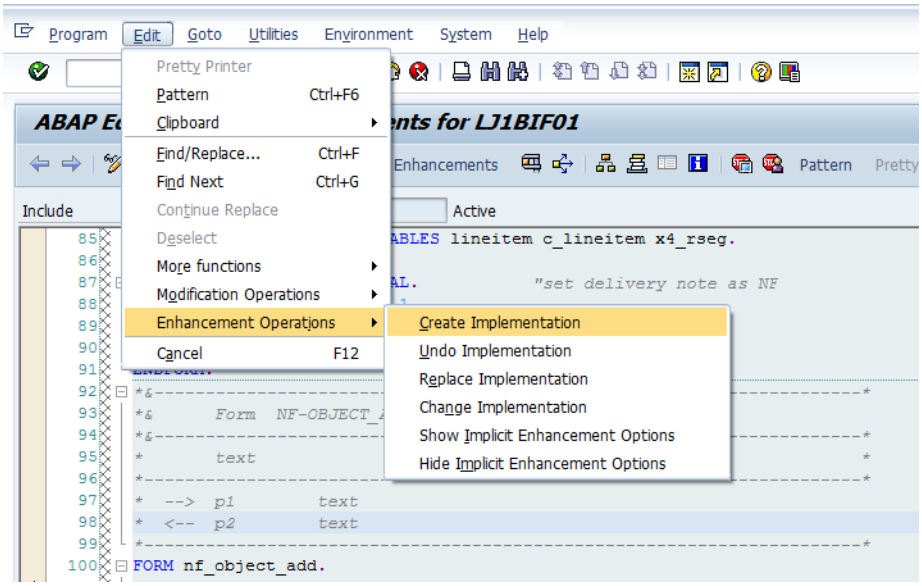
ADDITIONAL INCLUDE FOR DEBIT/CREDIT INDICATOR FIELD

To configure an enhancement:

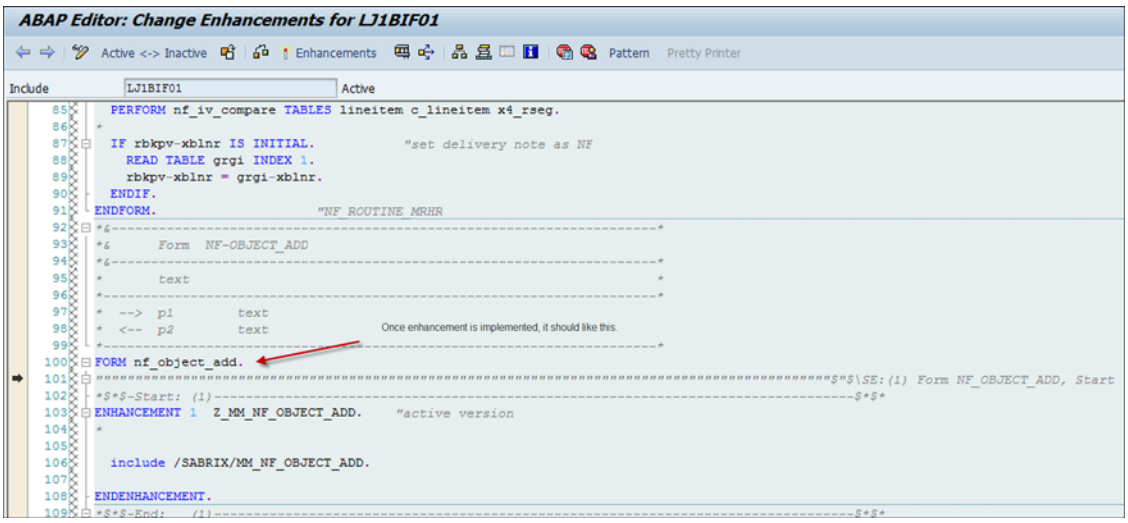
1. Find the location for enhancement and click the **Enhance** icon.



2. Create a new enhancement implementation.



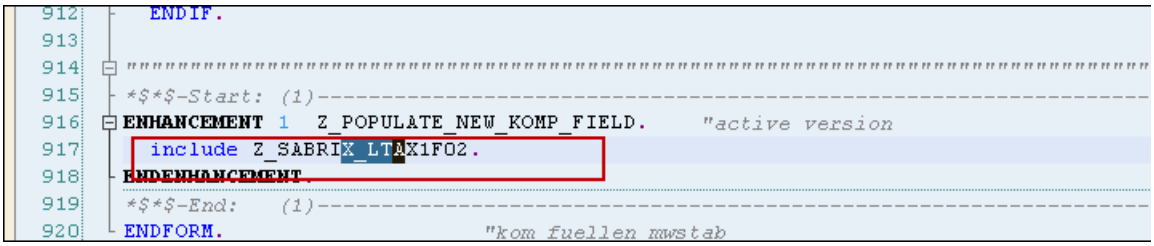
3. Once the implementation has been created add the call to the Sabrix *includes.*



4. Replicate these three steps for the enhancements shown on the next two pages.

Form enhancement:

- **INCLUDE**:*LTAX1F02*
- **FORM**:*KOM_FUELLEN_MWSTAB*
- **Type**: Enhancement
- **Enhancement Location**: create at the bottom of the form and include: Z_SABRIX_LTAX1F02



INVOICE PRINTING CHANGES

Follow the above three steps for the enhancement for the item below after you have implemented the International transport if you want to use invoice printing:

Class enhancement:

- **CLASS**:*CL_XTAX_SYSTEM_VER_TAXDOC00*
- **METHOD**:*IF_XTAX_SYSTEM~CALCULATE*
- **Enhancement Locatio**n: create at the bottom of the method and add include: ZTR_CL_XTAX_TAX_CALCULATE

```
""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
*$*$-Start: (1)---------------------------------------------------------
ENHANCEMENT 1  Z_AFTER_RFC_CALC_CALL.    "active version
  include ZTR_CL_XTAX_TAX_CALCULATE.
```

BRAZIL TRANSPORT ADJUSTMENT

If you have elected to implement the Brazil transport then the next four include processes will need to be completed:

1. **Class enhancement**:
   - **CLASS**:*CL_XTAX_SYSTEM_VER_TAXDOC00*
   - **METHOD**:*IF_XTAX_SYSTEM~CALCULATE*
   - **Enhancement Locatio**n: create at the bottom of the method and add include: Z_SABRIX_BRAZIL_TAX_CALCULATE

```
*
  endif.
*
""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
*$*$-Start: (1)---------------------------------------------------------
ENHANCEMENT 1  Z_AFTER_RFC_CALC_CALL.    "active version
  include ZTR_CL_XTAX_TAX_CALCULATE.

  include Z_SABRIX_BRAZIL_TAX_CALCULATE.

ENDENHANCEMENT.
*$*$-End:   (1)---------------------------------------------------------
endmethod.
```

2. **Logistics Invoice Verification (LIV):**
   - **Include**: *LJ1BIF01*
   - **Subroutine**: *NF_OBJECT_ADD*
   - **Type**: Enhancement

- **Enhancement Location**: top of subroutine include: *Z_SABRIX_MM_NF_OBJECT_ADD*

```
*---------------------------------------------------------------------*
FORM nf_object_add.
""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
*$*$-Start: (1)------------------------------------------------------*
ENHANCEMENT 1  Z_MM_NF_OBJECT_ADD.    "active version
  "include /SABRIX/MM_NF_OBJECT_ADD.
  include Z_SABRIX_MM_NF_OBJECT_ADD.
ENDENHANCEMENT.
*$*$-End:   (1)------------------------------------------------------*
*--- Goods issue / goods receipt ----------------------------------*
```

3. **Create SD Billing Document**:

- **Include**: *LJ1BGF01*
- **Subroutine**: *NF_CREATE_OBJECTS*
- **Type**: Enhancement
- **Enhancement Location**: top of subroutine include: *Z_SABRIX_SD_NF_CREATE_OBJECTS*

```
*"---------------------------------------------------------------------*
FORM nf_create_objects.
""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
*$*$-Start: (1)------------------------------------------------------*
ENHANCEMENT 1  Z_SBX_NF_CREATE_OBJECTS.    "active version
  "include /SABRIX/SD_NF_CREATE_OBJECTS.
  include Z_SABRIX_SD_NF_CREATE_OBJECTS.
ENDENHANCEMENT.
*$*$-End:   (1)------------------------------------------------------*
```

4. **Stock Transport Order:**

- **Function Module**: *CALCULATE_TAX_ITEM*
- **Type**: Enhancement
- **Enhancement Location**: At bottom of function module include: *Z_SABRIX_MM_CALCULATE_TAX_ITM*

```
""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
*$*$-Start: (1)------------------------------------------------------*
ENHANCEMENT 1  Z_CALCULATE_TAX_ITEM_BOTTOM.    "active version
  "include /SABRIX/MM_CALCULATE_TAX_ITM.
  include Z_SABRIX_MM_CALCULATE_TAX_ITM.
ENDENHANCEMENT.
*$*$-End:   (1)------------------------------------------------------*
```

CONFIGURE SAP TO ALLOW CALLS TO COMMUNICATE WITH DETERMINATION

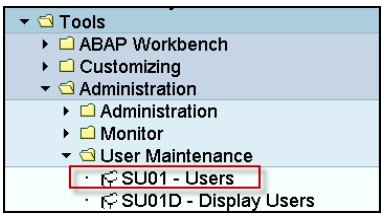
Before installing Integration for SAP, you must configure SAP to use Determination to calculate and return tax to all tax applications. All necessary configuration steps for SAP are described in detail in several documents released by SAP Labs ***REFERENCES TO RELATED DOCUMENTATION (page 8)***.

This chapter describes the minimum SAP configuration you must perform prior to installing Integration.

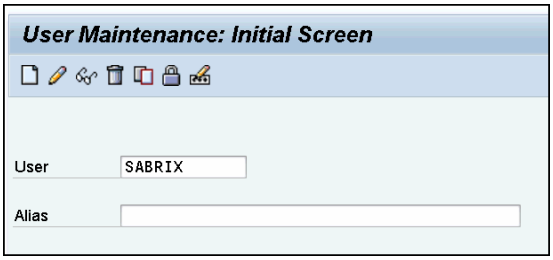
DEFINING A CPIC USER ACCOUNT

The JCo Client in Integration for SAP requires a background user account to log on to the SAP system and read necessary metadata from the system. This account is only used once, at Integration startup; it will be disconnected after the JCo Client has read the information from SAP.

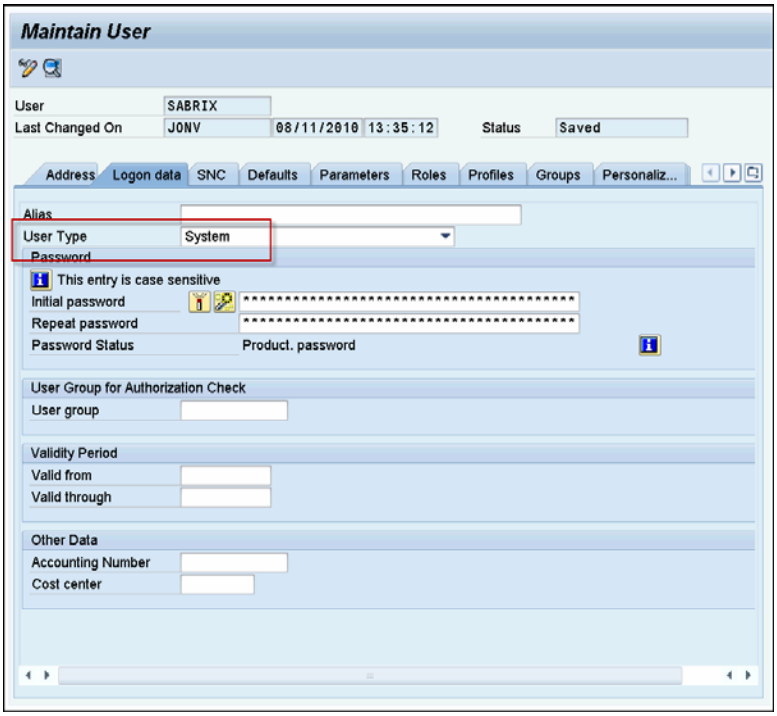
1. In the main menu, navigate to **Tools > Administration > User Maintenance > SU01 - Users; Transaction: SU01**.



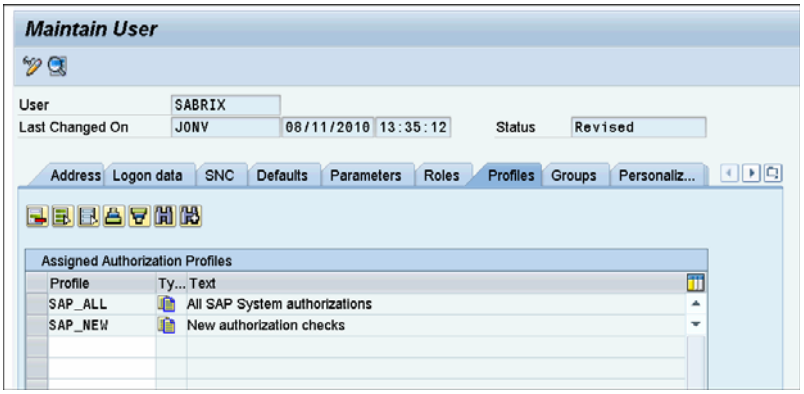
2. Create a new user or copy an existing one; this document uses the example *SABRIX*.



3. Navigate to the **Logon Data** tab. Enter a password, and make sure that the **User Type** is set to Communication or System(this picture shows a System user type).



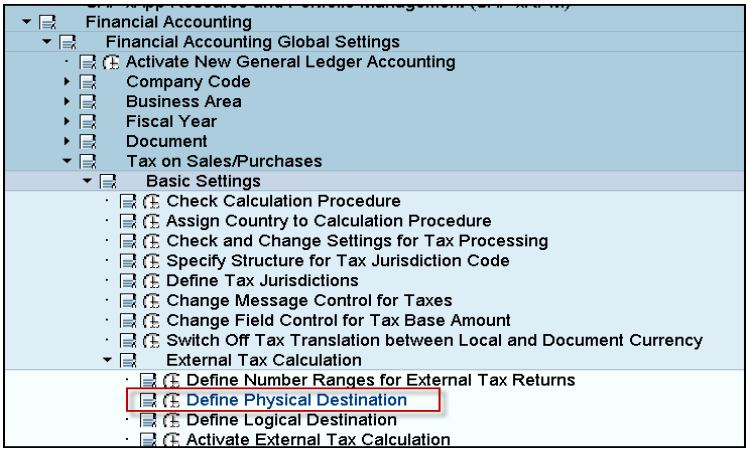
4. Navigate to the **Profiles** tab, and add the appropriate profile. This example uses *SAP_ALL and SAP_NEW*. Follow instructions in OSS note 460089 for more details on what authorization profile to use.



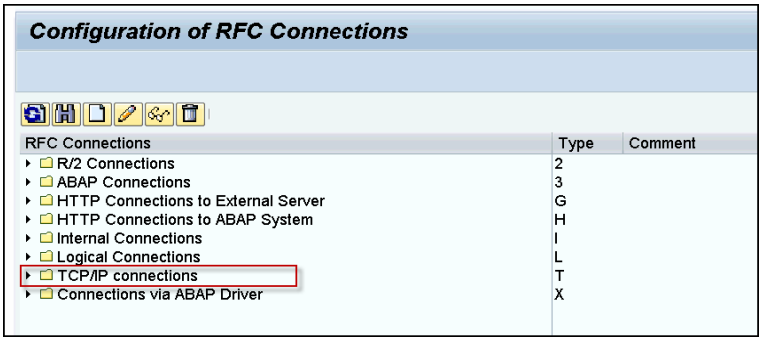
5. Save your entry.

DEFINING THE RFC DESTINATION, SM59

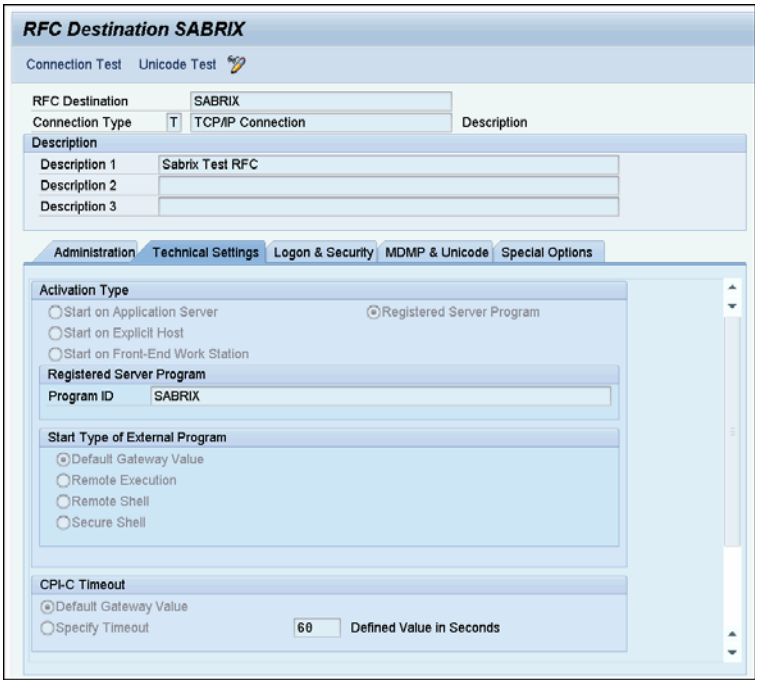
1. In the IMG navigate to **Financial Accounting > Financial Accounting Global Settings > Tax on Sales/Purchases > Basic Settings > External Tax Calculation > Define Physical Destination**.



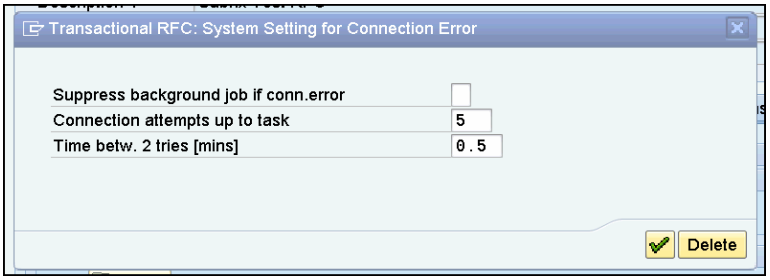
Open the file folder TCP/IP Connections. Once in this folder use the Create button to add a new entry.



2. Follow the instructions given in the SAP *R/3 Tax Interface Configuration Guide*. You must use the same **RFC Destination** name as given in the *Integration properties* file on ***(page 38)***. In this guide we use SABRIX as an example.

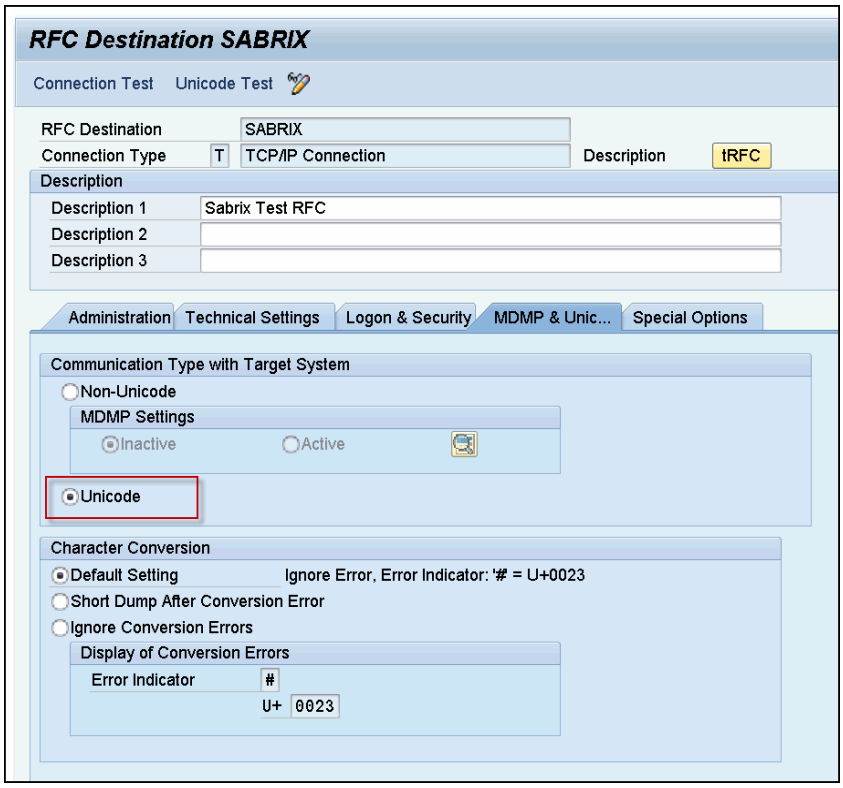


Optionally, maintain TRFC settings for your RFC destination, as shown in the example below. Use top menu EDIT/TRFC Options:

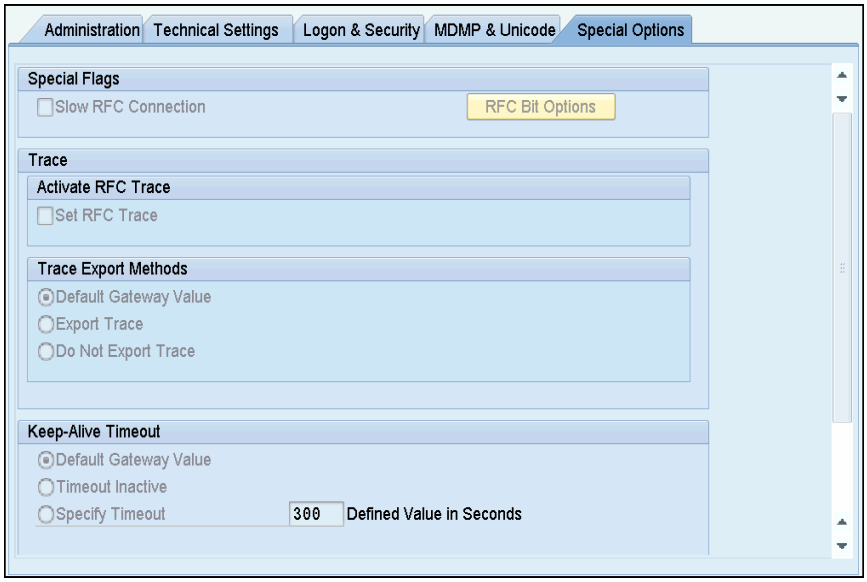


If your system uses Unicode, you must ensure that the Unicode settings of the RFC Destination are maintained accordingly. To do so, navigate to the **MDMP & Unicode** tab and set the radio button to *Unicode*.

You must also set the **rfc_unicode_enable** parameter to *TRUE* in the *SabrixConnection.properties* file ***(page 38)***.



T



INSTALLING AND CONFIGURING INTEGRATION FOR SAP

In the previous chapter you performed the minimum configurations necessary to enable the Tax Interface to communicate with Integration for SAP.

This chapter describes the process for installing, then configuring, Integration software on the runtime system. This includes:

DOWNLOADING JCO

The SAP Java Connector is used to communicate between the SAP system and other programs using remote function calls (RFCs). A copy of the JCo must be installed on each system where you want to run ONESOURCE Indirect Tax Integration for SAP.

SAP Customers can download JCo at *http://service.sap.com/connectors*. This is a password-protected area for SAP customers only. Click *SAP Java Connector (SAP JCo)*, then *Tools & Services*. The download files are in this area by release and platform.

Follow the instructions given for your release and platform. See the note below about which version of JCo to use.

When selecting the JCo, only select the 64-bit version if a 64-bit JVM is installed. The version of the JCo **is not related to the bit version of the operating system** installed on the server; the JCo version is only relevant to the bit version of the JVM (Java Virtual Machine).

You must follow each of the steps in this section to successfully install Integration for SAP.

DOWNLOADING INTEGRATION FOR SAP

1. Download the following file from the **Customer Center** web site (*https://customercenter.sabrix.com/sabrixcc*).

   Contact ONESOURCE Indirect Tax Technical Support if you have any questions about the download process.

File Description	File Name
ONESOURCE Indirect Tax Integration for SAP (Enhanced Global Version)	ONESOURCEIDTIntegrationSAP_5200E.zip

2. Unzip the files into the desired directory (you may need to create it first).
3. Copy the necessary JCo files into a separate directory or the directory to which you extracted Integration for SAP.

For more details on JCo install please consult the SAP help files at *<directory where JCo was extracted to>/docs/jco/intro.htm*. See the *Installation* section for detailed instructions on installation and the *Configuration* section on troubleshooting and the runtime environment.

When defining Java directories, avoid using spaces in the name because this can lead to errors in certain instances.

CONFIGURING INTEGRATION PROPERTIES FILE

Edit the Sabrix*Connection.properties* file found in the directory in which you unzipped the files. The table below lists all parameters in the properties file and their usage.

ONESOURCE Indirect Tax Integration Properties File Parameters	
Attribute	**Description**
jco.client.user	Username set up in ***DEFINING A CPIC USER ACCOUNT (page 32)***, (for example, *SABRIX*.
jco.client.passwd	Password set up in ***DEFINING A CPIC USER ACCOUNT (page 32)***, (for example, *SABRIX*).
jco.client.ashost	The SAP host to connect to. See note below.
jco.client.sysnr	The SAP system number to connect to.
jco.client.client	The SAP System Client number to connect to.
jco.client.lang	Language used to log on to SAP; set to *EN* for English.
jco.client.mshost	SAP Message Server. See note below.
jco.client.group	SAP Logon Group. See note below.
jco.client.r3name	SAP System ID. See note below.

ONESOURCE Indirect Tax Integration Properties File Parameters	
Attribute	**Description**
gwhost	The SAP host server you like to connect to. Consult your SAP system administrator for help with this value.
gwserv	The SAP gateway server to connect to. Consult your SAP system administrator for help with this value.
progid	As defined in your RFC destination; SABRIX is used in this document.
SABRIX_version_url	Location of Determination version file.
SABRIX_calc_url	Location of Determination *xmlinvoice servlet*.
SABRIX_address_url	Location of Determination *addressvalidation servlet*.
SABRIX_user	If calc authentication has been enabled in Determination, a user name and password must be defined. By default, this field is not used. See ***APPENDIX 1: MAPPING SAP FIELDS TO ONESOURCE INDIRECT TAX XML (page 95)*** for further details.
SABRIX_password	If calc authentication has been enabled in Determination, a user name and password must be defined. By default, this field is not used. See ***APPENDIX 1: MAPPING SAP FIELDS TO ONESOURCE INDIRECT TAX XML (page 95)*** for further details.
encrypt_passwords	Default setting is *FALSE* (do not encrypt the password). Set to *TRUE* to encrypt the password. See ***APPENDIX 1: MAPPING SAP FIELDS TO ONESOURCE INDIRECT TAX XML (page 95)*** for further details.
proxy_host	In cases where you need to route Integration through a firewall, defining your local proxy host is required. Your system or network administrator can help with this setting.
proxy_port	In cases where you need to route Integration through a firewall, defining your local proxy port is required. Your system or network administrator can help with this setting.
num_servers	Determines how many instances of Integration will be started and registered with SAP. This is based on the speed of your machine and the expected processing load of SAP. To achieve multi-threading at least two servers should be started. The default is 5.
rfc_unicode_enabled	Specifies whether the SAP system uses Unicode (*TRUE,* default) or does not (*FALSE*). See ***DEFINING THE RFC DESTINATION, SM59 (page 33)***for more information.
freight_prod_code	Default product code used in Determination to determine freight taxability; this entry must match the freight product code entry in ONESOURCE Indirect Tax.
max_jurisdiction_addresses	Limits the number of address records returned by the jurisdiction lookup. Default is set to *99* as this is the maximum SAP can return to the UI.

ONESOURCE Indirect Tax Integration Properties File Parameters	
Attribute	**Description**
truncate_to_max_addresses	Setting to control if error message should be raised when *max_jurisdiction_addresses* is reached (*FALSE*), or if instead the max number of addresses specified should be returned (*TRUE*). The default is *FALSE*.
county_flag	Controls check of state address attribute returned by ONESOURCE Indirect Tax during jurisdiction determination against SAP submitted value. If set to *TRUE* only matching entries will be returned. The default is *FALSE*.
city_flag	Controls check of state address attribute returned by ONESOURCE Indirect Tax during jurisdiction determination against SAP submitted value. If set to *TRUE* only matching entries will be returned. The default is *FALSE*.
override_supplied_county	If set to *TRUE* then value returned by ONESOURCE Indirect Tax address validation servlet will override the value supplied by the address master record. If set to *FALSE* then the value is not changed. The default is *TRUE*.
override_supplied_city	If set to *TRUE* then value returned by ONESOURCE Indirect Tax address validation servlet will override the value supplied by the address master record, unless the value is *UNINCORPORATED*. In that case, the SAP value will not be overwritten. If set to *FALSE* then the value is not changed.This parameter applies to the US only. The default is *FALSE*.
external_company_id_prepend	Prepend option for company code to uniquely define a company in ONESOURCE Indirect Tax (optional).
remove_leading_zeros	Enables removal of leading zeros. If set to *TRUE*, leading zeros will be removed in fields marked as such in ***LEADING ZEROS (page 96)***. NOTE: This setting is for backward compatibility only and should not be changed from *FALSE* unless you are instructed to do so by ONESOURCE Indirect Tax Support.
gzip_disabled	Determination Integration sends information to Determination via HTTP in a gzip format for performance improvement. For troubleshooting it might be desired to switch gzip off, to do so set gzip_disabled=true.Default is false.
is_rounded	If IS_ROUNDED set to *TRUE* (default), the value will be the document rounded amount from the output XML.If IS_ROUNDED set to *FALSE*, the value will be the document unrounded amount from the output XML.NOTE: If you removed the IS_ROUNDED property, the value will be set to IS_ROUNDED = false.This is used to calculate ONLY the effective tax rate that is returned to SAP. It does not affect the tax amount.
user_defined_field_populator	Package-qualified name of class to use to populate user-defined results. If no user-defined fields are needed this should be left blank.

A template version of the *SabrixConnection.properties* file is available in the top-level directory to which you extracted the distribution*.zip* file.

Determine if you want the connection to logon using an individual app server or if you want to use logon groups. In order to use logon groups, the **ashost** setting must be blank. Setting **ashost** will override any settings made in **mshost**, **group**, and **r3name**.

CONFIGURING JAVA AND JCO START UP PARAMETERS

MICROSOFT WINDOWS

Integration runs as a Windows Service.

To install a single instance, follow these steps:

1. Make sure you have configured the *SabrixConnection.properties* file with information specific to your environment. ***(page 38)***
2. Edit the *Start.lax* file in the *SabrixNTService directory*, making the following changes:
   - Indicate the correct location of *sapjco3.jar* by replacing *$SAP_JCO-JAR$* with the path to the jar file.
   - add the {sapjco3-install-path} to the PATH environment variable.
3. Run the installation batch script, *InstallSabrix-NT.bat*. This script should complete with a message stating that the service has been installed.

UNIX AND LINUX

Startup Parameters

In the top level directory, find the file *IntegrationServerStartup.sh* and modify it according to the table below:

IntegrationServerStartup.sh Parameters	
Variable	**Description**
SAP_HOME	Directory for the JCo file location. The default is the same directory containing the *.sh* script. ONESOURCE Indirect Tax recommends that you separate the JCo files into a separate directory by JCo version number and reference that directory here.
PROPERTIES	Location for *SabrixConnection.properties* file. The default is the same directory containing the *.sh* script.
SBX_PATH	Directory of Integration library files. By default a */lib* directory is created when extracting the *.zip* file. Do not change this path.
MEMARGS	Memory setting for Integration JVM. **Xms** and **Xmx** are the lower and upper memory allocation limits (the default for both is 512 MB).
Other optional parameters: The variables below are optional and not used by ONESOURCE Indirect Tax, but you may opt to add them to the startup script.	

IntegrationServerStartup.sh Parameters	
Variable	**Description**
JAVA_HOME	The directory in which JAVA is installed.
JCO Library	LIBPATH for AIX and IBM, SHLIB_PATH for HP-UX, LD_LIBRARY_PATH for Sun and Linux, PATH for Windows. Consult your JCo install instructions for more detail on how to set the JCo library path.

CONFIGURING LOGGING OPTIONS

The Logger allows for the information passed between SAP and Integration to be captured in log records to be later viewed for process debugging. The logs will show, depending on the log level selected, the data passed back to SAP, program information, and system error messages helpful in problem solving. The log level setting determines how much data is captured in the logs and the appender settings determine the number of log files stored and how they are updated, maintained and overwritten.

The recommended process would be to set these options differently between production, test, and development client instances of SAP on your system. Because of the size of the log files, normally you would set production instances to ERROR or FATAL errors only in order to limit log size and storage constraints on your production system. DEBUG or INFO level settings produce exponentially larger data logs and are more appropriate for test client instances where transaction levels are lower and more information is needed for debugging test cases and testing system enhancements. Ask your ONESOURCE Indirect Tax Product Services Representative for recommend settings for your system environment.

The *SABRIXIntegrationServerLoggingConfig.xml* file is used to configure Integration for SAP logging options.

This configuration file has two main components (**logger** and **appender**), which can be customized to meet your logging requirements.

DEFINING LOG LEVEL AND APPENDER SETTINGS

The logger component is found towards the end of the file. For example:

```
<logger>
   <logger name="com.sabrix.integration" additivity="false">
   <level value="DEBUG"/>
   <appender-ref ref="CompositeRollingFileAppender"/>
</logger>
```

Within the logger component:

- The **level** component represents the logging level to be written to log file.
- The **appender-ref component** refers to the active appender that being used for logging.

```
- <logger name="com.sabrix.integration" additivity="false">
      <level value="DEBUG"/>
      <appender-ref ref="CompositeRollingFileAppender"/>
  </logger>
      <!-- Determination Integration startup logging -->
- <logger name="com.sabrix.integration.configuration.ConfiguredTypeImplementation">
      <level value="INFO"/>
      <appender-ref ref="ConsoleAppender"/>
  </logger>
      <!-- Default log4j logger -->
- <root>
      <level value="ERROR"/>
          <!-- This appender must match the appender used above if they are using the same log location. They can be
      <appender-ref ref="CompositeRollingFileAppender"/>
  </root>
</log4j:configuration>
```

Setting the Log Level

Use the **level** component to set the log level to any of the following:

- *DEBUG*: Detail level programming messages
- *INFO*: Input/Output XML; Connection Info
- *ERROR*: Core errors/exceptions
- *FATAL*: VM ERRORS
- *NONE*: No logging enabled

For example, to set logging to the *INFO* level, modify the level in the **logger** component block as shown here:

```
<logger>
    <logger name="com.sabrix.integration" additivity="false">
   <level value="INFO" />
   <appender-ref ref="CompositeRollingFileAppender" />
</logger>
```

The **appender-ref component** refers to the active appender that is being used for logging. There are six appenders defined in this configuration file. For a given integration, only one appender out of the six can be active at a time, which is reflected by the value of **ref** in:

```
<appender-ref ref="CompositeRollingFileAppender" />
```

CONFIGURING THE APPENDER

Each appender is enclosed in an <appender> </appender> block.

The ***ZippingFileAppender*** is the default used by the Integration for SAP and comes pre-configured for the product. If you desire to use one of the other appender file formats then use one of the five types below. You will find additional information on how to change the configuration for the appender in the appendix under the section titled ***APPENDER FILE CONFIGURATION FOR THE 6 APPENDER FORMATS (page 81)***.

Suggestion: You can direct your logs to the location of the Sabrix.log in ONESOURCE UI. This can be much more helpful for development and QA troubleshooting so that users can access the log themselves without getting access to the server where the connection is located.

Contact your Professional Services Representative if you have multiple integration servers in the same environment and need assistance in redirecting the logs.

The six appenders are:

1. *The SimpleFileAppender:* Simple logging written to a file. This option has neither the ability to perform daily log rolling, nor does it let the user specify the maximum file size for the log file.

2. The DailyRollingFileAppender: Enables daily log rolling with a date and time stamp on the log file.

3. The CompositeRollingFileAppender: Log rolling with a date and time stamp on the log file. This appender also allows you to specify the maximum file size for the log file, as well as the maximum backup number of files to keep.

4. The ConsoleAppender: Provides startup information on the console.

5. The RollingFileAppender: The rolling file appender does file size log rolling with date time stamp on the logfile.

6. The ZippingFileAppender: File size log rolling with zipped output in the log directory. This is the default appender used by Integration for SAP. This appender will roll every hour and on roll, will zip the contents of the file.

Use the parameter file to set the log directory to your desired location. The default is *./log/SabrixIntegrationServer.log*

RUNNING INTEGRATION FOR SAP IN THE JVM

The following steps start and stop your Integration for a single server, but if you are setting up a system for heavy load and failover, you can also start this process on multiple computers. For more information on that topic, see the *SAPLoadBalancing.pdf* document distributed with this release.

Follow the instructions in one of these sections based on your operating system:

- MICROSOFT WINDOWS
- UNIX AND LINUX

MICROSOFT WINDOWS

Now that you have installed the service ***(page 42)***, start the service by using standard Windows service management tools.

Upon startup, the service should write startup messages to the log directory. It will create two log files: *SabrixError.txt* and *SabrixOut.txt*. If the service has any problems starting up, it will log it to one of these files.

Once the service has been successfully started, it is ready for use. To stop the service, you can use the standard Windows service management tools.

To uninstall the service, run the *UninstallSabrix-NT.bat* script provided.

To install more than one instance on the same computer running Microsoft Windows:

1. Make a second copy of the installation directory (or unzip *SBXIntegrationSAP5.X.X.XE.zip* into another directory).
2. Edit the *InstallSabrix-NT.bat* and *UninstallSabrix-NT.bat* files to modify the settings for the service name.

   The following example is from *InstallSabrix-NT.bat:*

   ```
   set_SERVICENAME=SabrixBasicConnection2
   set_DISPLAYNAME=”Sabrix Basic Connection2”
   ```

When you run the installation script, it creates a second copy of the service.

If you forget to also change the **SERVICENAME** in the Uninstall script, it will uninstall your first integration.

UNIX AND LINUX

Starting Integration for SAP

After you modify *IntegrationServerStartup.sh* file, you can execute it from a command line. To confirm that it has started correctly, check for the message, “Successfully initialized and accepting transactions” in the console.

If you encounter an error message during start-up, please review the *SabrixConnection.properties* file to ensure you have entered the correct settings.

Stopping Integration for SAP

To stop Integration, execute the file *IntegrationServerShutdown.sh*. If you are launching multiple instances of Integration from the same directory, this script stops only the latest process.

NOTE If you wish to run multiple instances of Integration from the same UNIX or Linux server, ONESOURCE Indirect Tax recommends that you launch each from a separate directory. For more information, please contact ONESOURCE Indirect Tax Technical Support.

TROUBLESHOOTING INTEGRATION FOR SAP

This section describes how to test SAP to ONESOURCE Indirect Tax connectivity. It assumes that Integration has been installed correctly as shown in this chapter.

The objective of this test is to make sure that Integration installation, Integration configurations, and SAP configurations are all working together and that the SAP RFCs are communicating with Determination through Integration for SAP.

Testing JCo installation

To check if JCo is deployed correctly, SAP provides the following JAVA commands.

For **Windows**-based environments use:

```
java -jar {sapjco-install-path}/sapjco3.jar
```

For **UNIX/Linux** environments use:

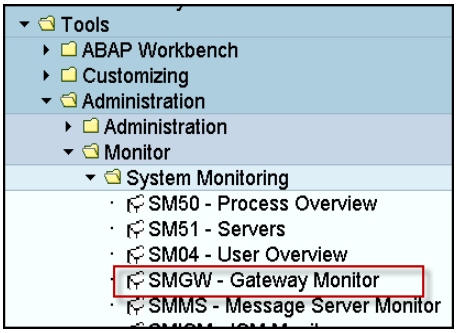
```
java -jar {sapjco-install-path}/sapjco3.jar -stdout
```

Both commands should generate a version dialog which indicates the proper JCo installation.

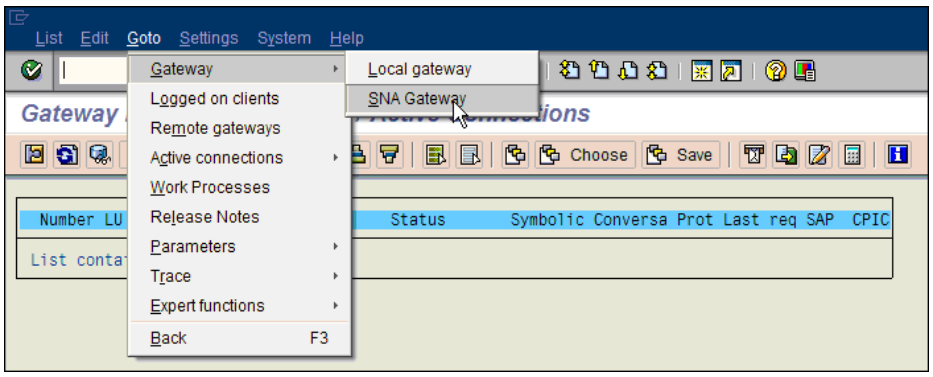
Checking the Gateway for Registered Programs

1. Log on to your SAP system and navigate to transaction **SMGW** for the **Gateway Monitor**.

   TOOLS > ADMINISTRATION > MONITOR > SYSTEM MONITORING > SMGW - GATEWAY MONITOR

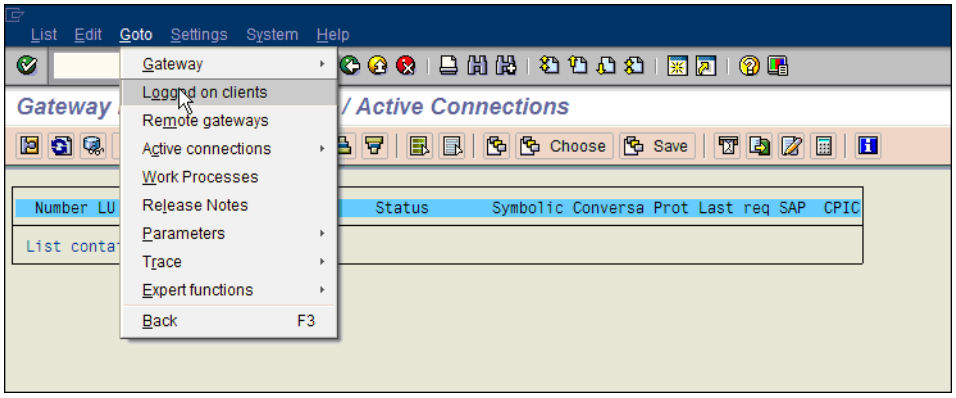


2. Navigate to **Goto > Gateway > SNA Gateway.**

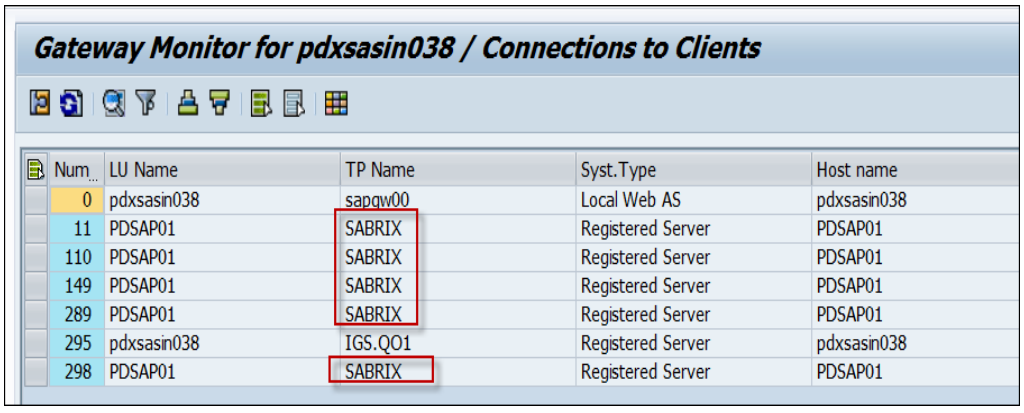


NOTE This step may not be necessary if there is only one gateway, but in configurations with multiple gateways, it switches the view to the central gateway.

3. Navigate to **Goto > Logged on clients**.



4. On the overview screen you should see several instances of ONESOURCE Indirect Tax (usually, there are five instances, based on the **num_servers** variable in your *SabrixConnection.properties* file).

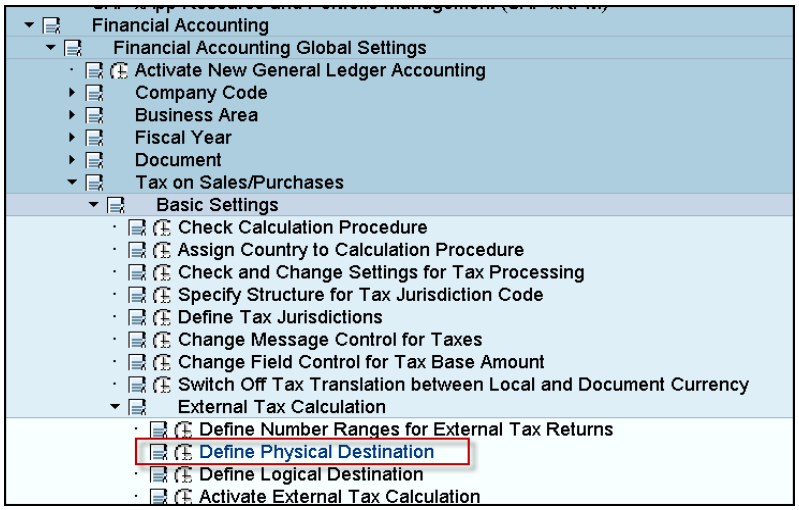


Num	LU Name	TP Name	Syst.Type	Host name
0	pdxsasin038	sapgw00	Local Web AS	pdxsasin038
11	PDSAP01	SABRIX	Registered Server	PDSAP01
110	PDSAP01	SABRIX	Registered Server	PDSAP01
149	PDSAP01	SABRIX	Registered Server	PDSAP01
289	PDSAP01	SABRIX	Registered Server	PDSAP01
295	pdxsasin038	IGS.QO1	Registered Server	pdxsasin038
298	PDSAP01	SABRIX	Registered Server	PDSAP01

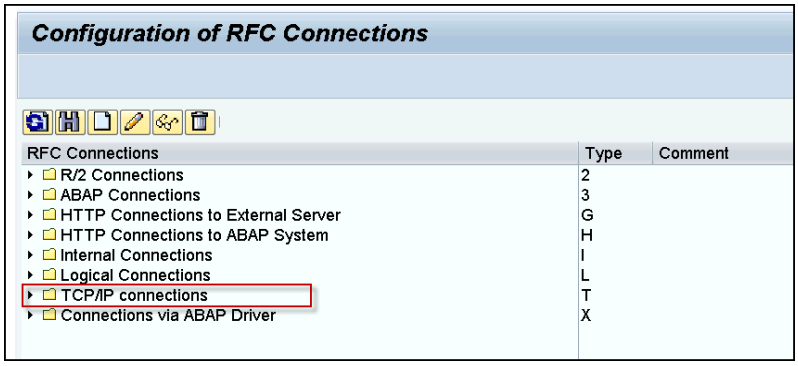
If you do not see a connection for SABRIX, Integration for SAP did not reach the SAP system you are currently logged on to and indicates that the *SabrixConnection.properties* file settings point to a different SAP instance. Please review with your system DBA.

Testing the RFC Destination

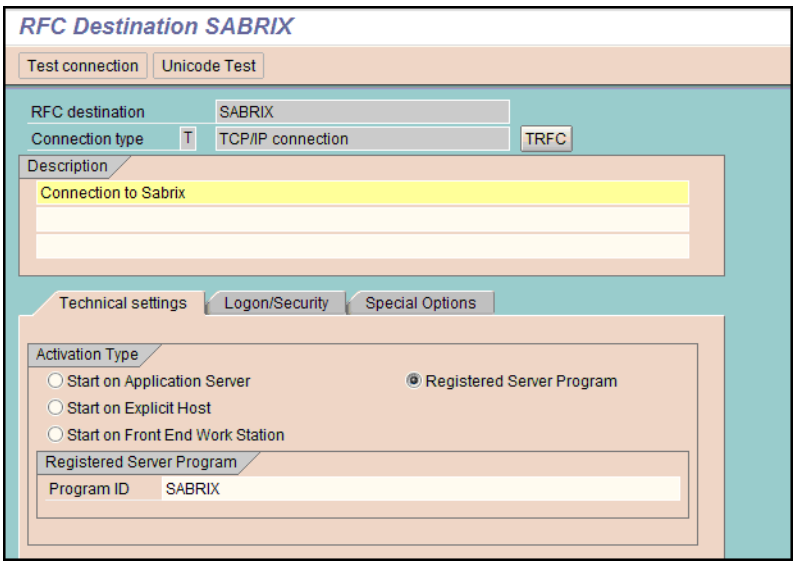
1. In the IMG navigate to **Financial Accounting > Financial Accounting Global Settings > Tax on Sales/Purchases > Basic Settings > External Tax Calculation > Define Physical Destination**.



2. Double click on Define Physical Destination to get to next screen and then select TCP/IP connections.

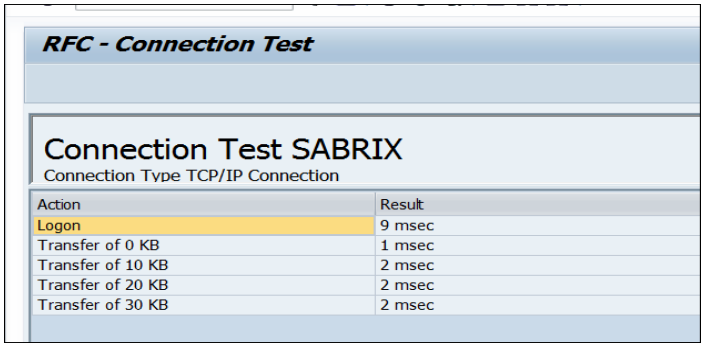


3. In the RFC destination, click **Test Connection**.

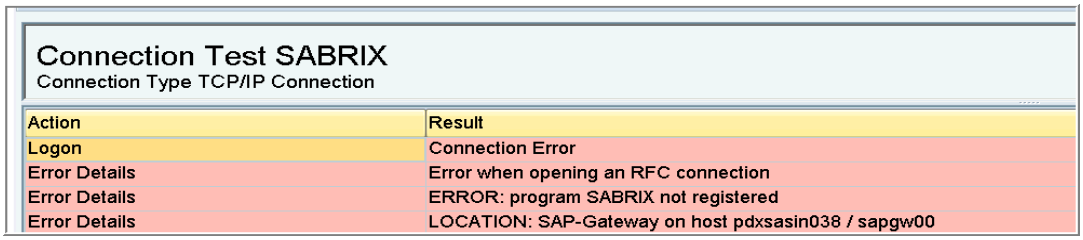


4. A results screen should display communication speeds

.



An unsuccessful test would show the following error message.

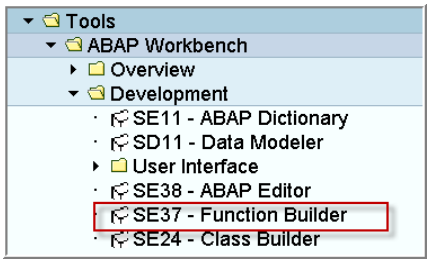


In this case, verify that all the settings in the *SabrixConnection.properties* file are correct and that you are connected to this SAP system.

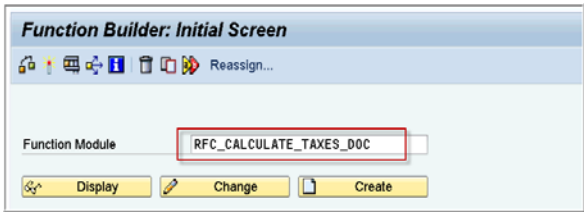
Testing Tax Calculations using Transaction SE37

This procedure assumes that you have Determination installed and configured to include at least one ONESOURCE Indirect Tax Company. If you have not, follow the steps mentioned in the chapter ***DEFINING A COMPANY IN DETERMINATION FOR RFC TESTING (page 57)***and then complete this procedure.

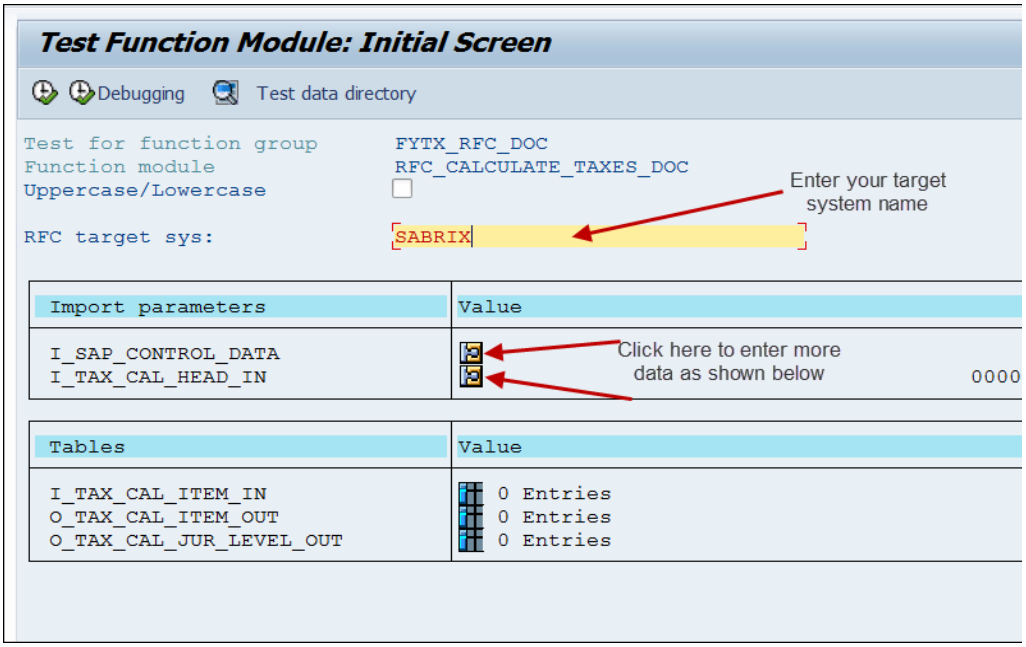
1. Navigate to transaction **SE37** for a tax calculation test using the **SAP Workbench**.



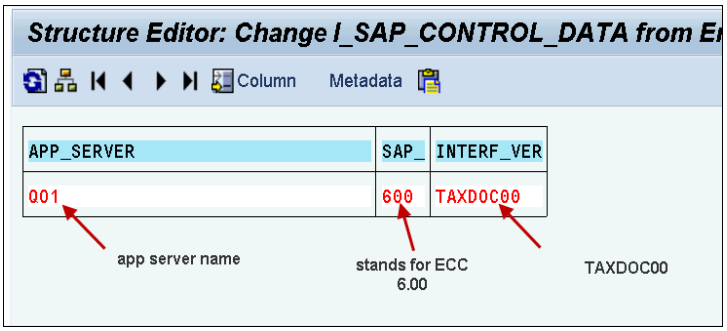
2. Use Function Module **RFC_CALCULATE_TAXES_DOC** and select **Test** or F8.



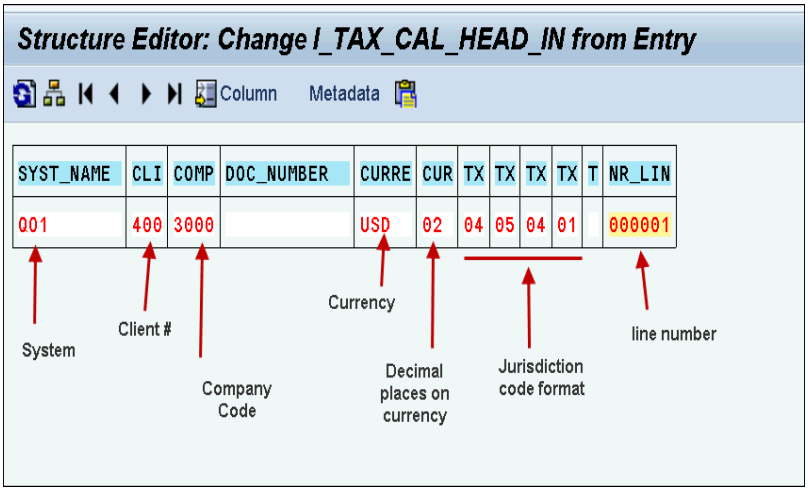
3. Enter the necessary information for control data, header, and item and then select **Execute** or F8.



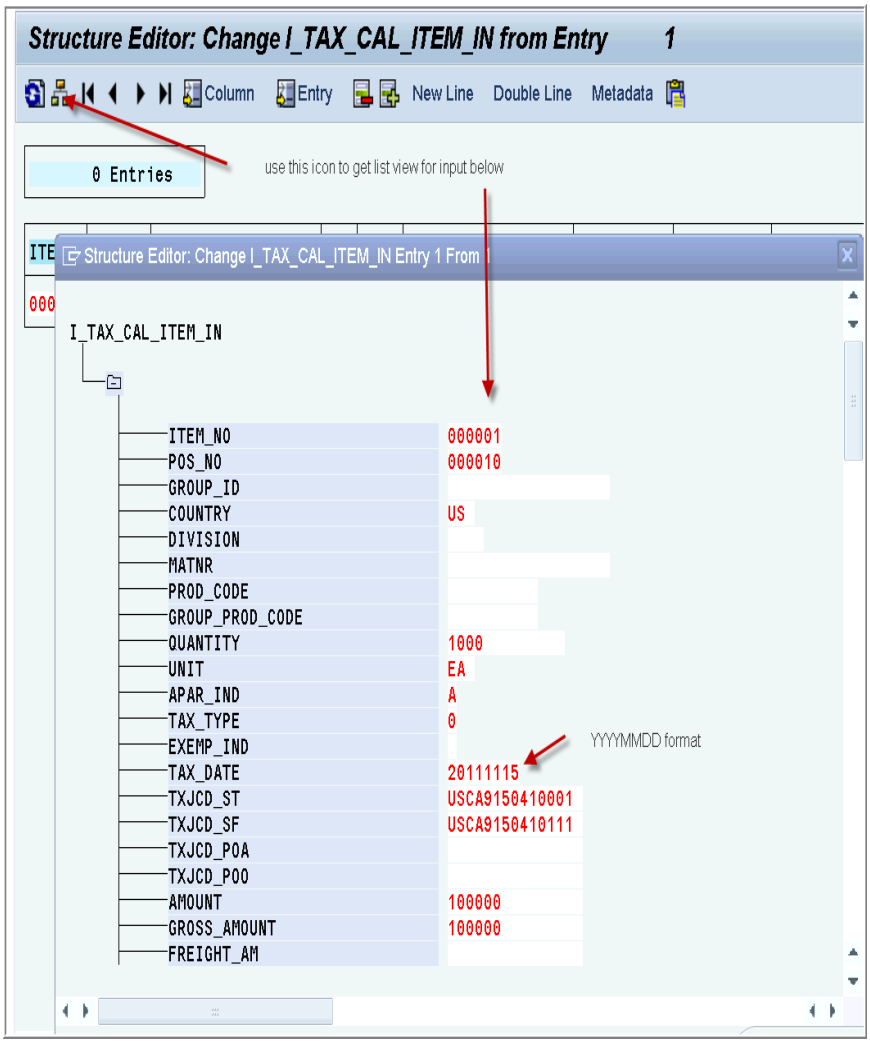
Example of data to enter when clicking on control data icon.



Example of data to enter when clicking on tax calc header info icon.



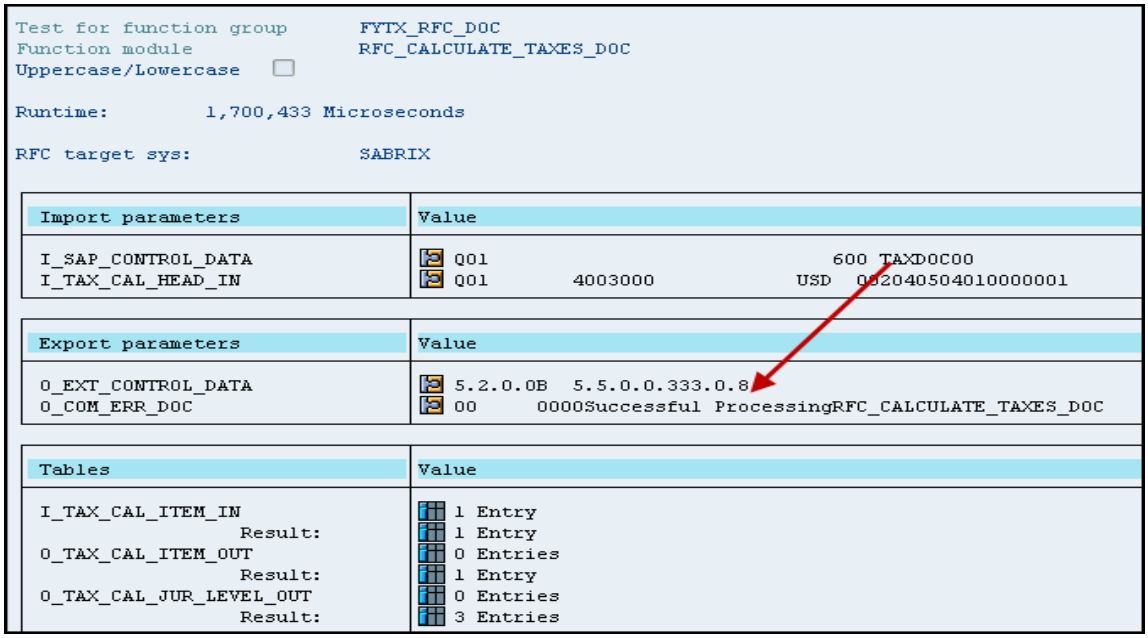
Example of data to enter on Tax_CAL_ITEM_IN icon 



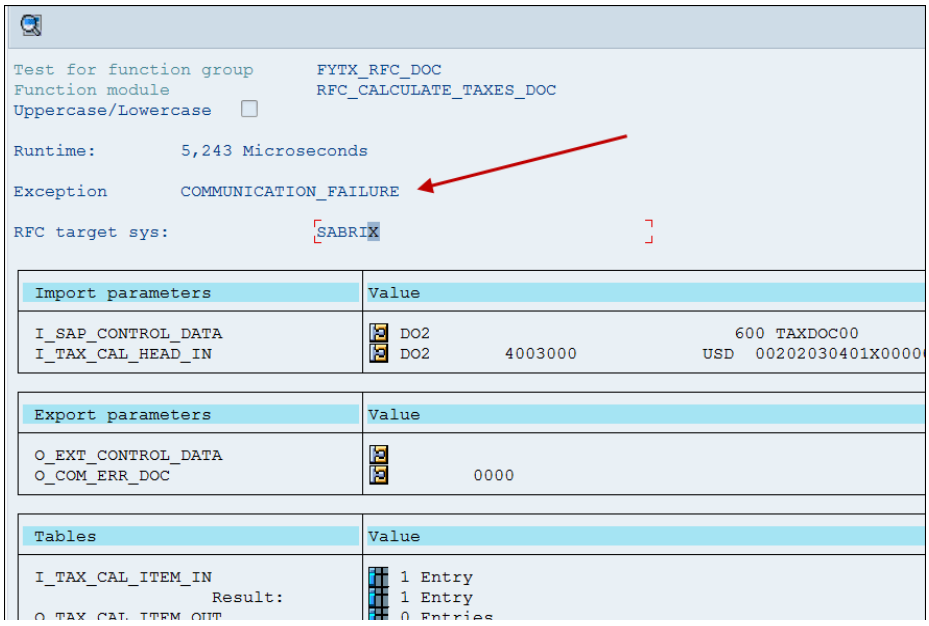
After input of the data above, hit the execute button (F8) to get the following output screen.

See screen view on the next page:

A tax call has been successfully made to Determination if the return structure contains a message similar to *Successful Processing RFC_CALCULATE_TAXES_DOC* in **O_COM_ERR_DOC**.



An error indicates that Determination could not be reached.

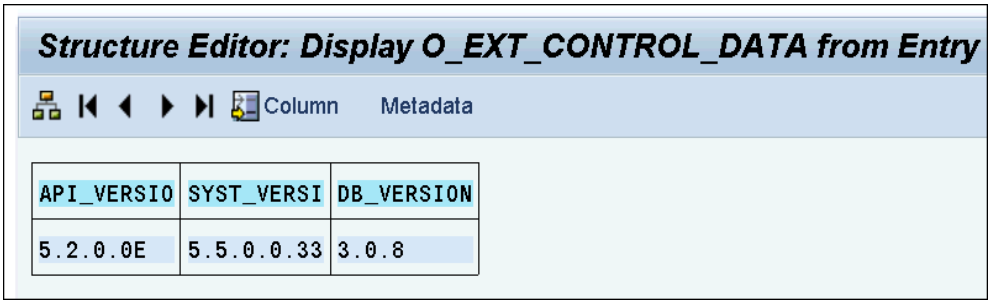


In the sample above, the URL for Determination is wrong.

Please make sure you can reach Determination using the Internet Explorer browser and the URL. If you cannot reach ONESOURCE Indirect Tax using Internet Explorer, then either Determination is not running or the URL provided is wrong. Consult with your DBA.

Checking Version Compatibility

Structure **O_EXT_CONTROL_DATA** includes detailed information on versions of software that the SAP Integration uses.



Field	Description
API_VERSION	Release of Integration for SAP delivered by ONESOURCE Indirect Tax. (Example: 5.2.0.0E)
SYST_VERSI	Determination version. (Example: 5.5.0.0)
DB_VERSION	Version of the SAP JCo (Java Connector) provided by SAP for Integration. (Example: 3.0.8)

Resolving Installation Errors

If you followed the above test sequence and all tests were successful, you have confirmed that communication between SAP and ONESOURCE Indirect Tax is established and works properly.

If there are any issues with connection results, please verify the settings in the document list outlined in the note below. If this situation persists, follow the note instructions below

In case of a repeated unsuccessful start, please open a support ticket with ONESOURCE Indirect Tax and attach the following files or contact your Professional Services Representative.

SabrixConnection.properties

SABRIXIntegrationServerLoggingConfig.xml

SABRIXError.txt (if running on Windows)

SABRIXOut.txt (if running on Windows)

SABRIXCommand.bat (if used)

IntegrationServerStartup.sh (if running on UNIX/Linux)

Nohup.out (if running on UNIX/Linux)

SABRIXIntegrationServer.log

Start.lax

REGISTERING INTEGRATION FOR SAP WITH SAP SOLUTION MANAGER

1. Log on to the server where Integration for SAP is installed.
2. Execute one of these batch files:
   - *SolutionManagerSubmit.bat* on Windows *or*
   - *SolutionManagerSubmit.sh* on UNIX/Linux.
3. Enter the URL for the Solution Manager.
4. Refer to the table in ***SITE-SPECIFIC SYSTEM CONFIGURATION (page 4)***.
5. Enter your settings for the following fields (the last three rows of the table):
   - **Port** (normally *50000*).
   - **User ID**.
   - **Password**.

DEFINING A COMPANY IN DETERMINATION FOR RFC TESTING

This chapter describes the required steps you need to take to configure Determination after installing Integration.

For information about additional configuration to further customize your integration, see ***CUSTOMIZING INTEGRATION (page 11)***.

ONESOURCE INDIRECT TAX DETERMINATION CONFIGURATION

On Determination side, you need to:

- Create the appropriate companies to map to SAP ***(page 58)***. This might be a single company or multiple companies associated with each SAP Company Code for which you would like to have ONESOURCE Indirect Tax calculate tax. You may want to create a single company for testing purposes only.
- Select the correct Tax Data Provider for each company on ***(page 60)***.

CREATING A COMPANY

The following is a brief process for creating companies in Determination. For complete information, see Determination *Help*.

If you will be running transactions through a company that has already been created, skip to the next section.

1. Log into Determination as the *dba* for your implementation.
2. Navigate to **System > Companies**.

3. Click **Add**.
4. Enter identifying information for the company, including its name, short name, parent company, and home menu URL.
5. Click **Submit**.

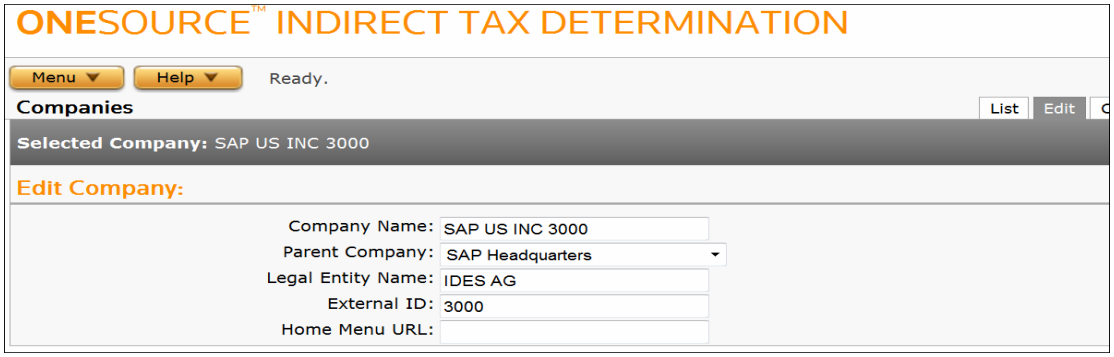
Next, configure the **External Company ID** as shown in the following section.

MAPPING A COMPANY TO A SAP COMPANY CODE

When transaction data (in the form of input XML) is passed into Determination, an XML element tag determines which company's rules, rates, and other processing logic are applied. The *<External_Company_ID>* tag is set on the **Companies Edit** page for a selected company in Determination. The name you enter here corresponds to the SAP company code sending tax transactions.

To set the External Company ID:

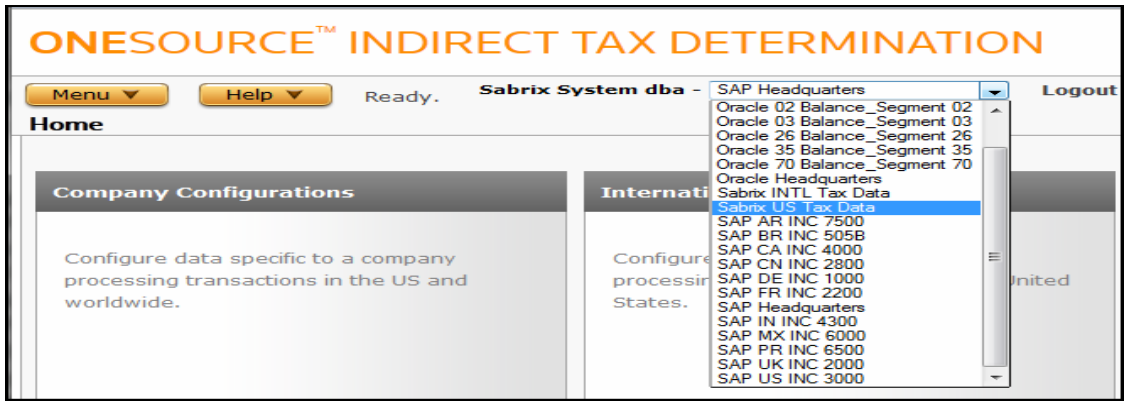
1. Display the **Companies Edit** page for the desired company.
2. Enter the **External Company ID** and click **Submit**.



NOTE If your implementation makes use of the optional *.properties* parameter **external_company_id_prepend** ***(page 38)***, then your external company ID will be a concatenation of the value of **external_company_id_prepend** plus the SAP *company code*.

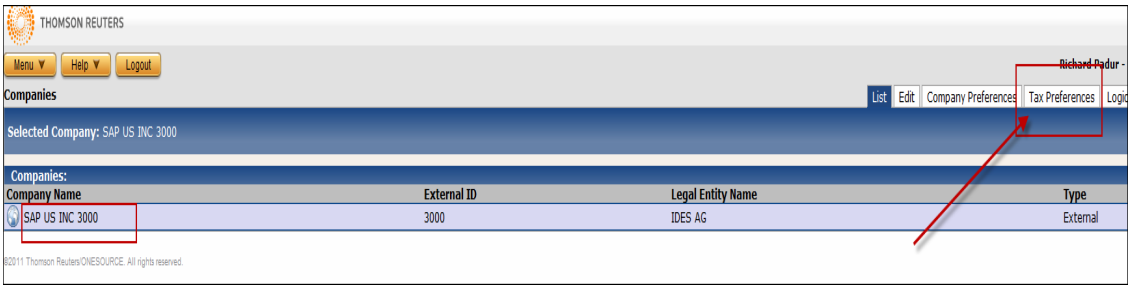
SELECTING TAX DATA PROVIDERS

Determination tax data providers maintain data such as rules, rates, and product exceptions. The ***Sabrix INTL Tax Data*** provider contains special tax codes that enable integration with SAP for Canadian & Global transactions while the **Sabrix *US Tax Data*** provider contains rates and rules for US transactions.

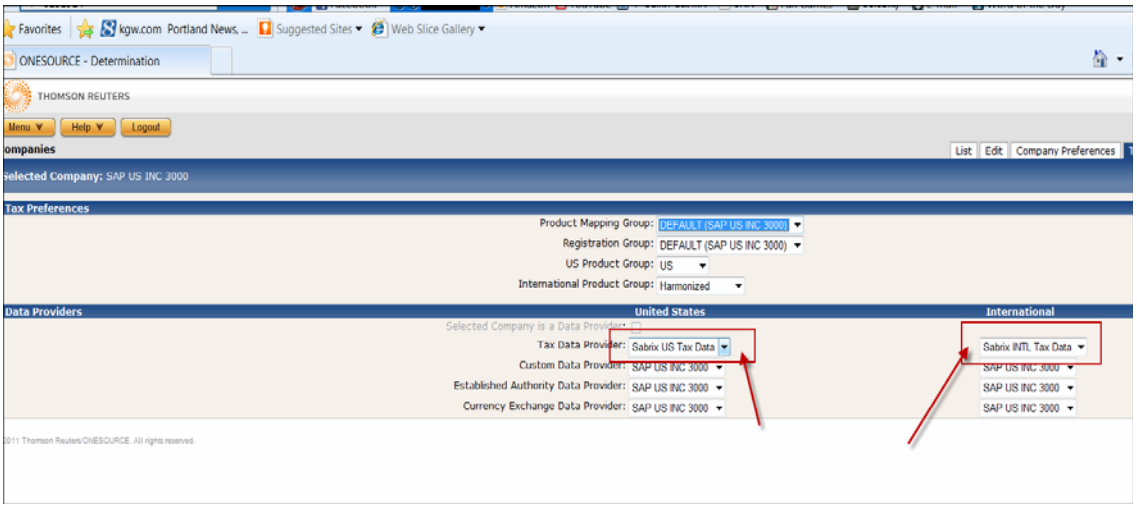


Select the correct tax data provider(s)**:**

1. In Determination, select the desired company and navigate to the **Tax Preferences** page.



2. Select **Sabrix US Tax Data** as the US Tax Data Provider and **Sabrix INTL Tax Data** as the International Tax Data Provider.



3. Click **Submit** to save your settings.

ADVANCED CONFIGURATIONS IN INTEGRATION FOR SAP

In order to meet new tax challenges, we have provided additional means to evaluate transactions and calculate tax. The improvements have lead to more complexity in both Determination and Integration software for SAP. To help you take advantage of the new capabilities, we have introduced *Advanced Configurations* within Integration software.

When you install Integration for SAP, ONESOURCE Indirect Tax provides preset *Basic Configuration* settings so you can calculate tax quickly. If you have a business requirement for one of the functions below, *Advanced Configuration* settings supports these needs.

Similar to Determination concept of *Tax Data Provider (TDP)* and *Custom Data Provider (CDP)* data, the advanced configuration settings you enable in Integration for SAP will append, augment, or override the standard settings built and shipped with Integration for SAP.

The following areas are supported in Advanced Configurations:

- Custom Authorities, ***(page 64)***
- Invoice Print Languages, ***(page 70)***
- Jurisdiction Determination and Address Mapping, ***(page 72)***
- Country-Specific Jurisdiction Code Mapping, ***(page 76)***

CUSTOM AUTHORITIES

You can create custom authorities to extend the functions of Determination by managing transaction tax scenarios that are industry- or company-specific. When using custom authorities, Integration for SAP receives tax results in addition to the regular Sales and Use Tax or VAT. These taxing authorities must be managed and mapped by Integration for SAP.

To do so, use the *taxMappingsExtension.xml* configuration file provided in Integration for SAP distribution. This file configures how tax results are returned to SAP. The purpose of this file is to manage authorities not already mapped by ONESOURCE Indirect Tax, but you may opt to override the standard mappings in this file as well.

Changes to any of the *Advanced Configuration* files require that you stop and restart Integration for SAP for the changes to take effect.

TAXMAPPINGSEXTENSION.XML

The *taxMappingsExtension.xml* file has several sections:

- **taxFilters:** defines which tax results from ONESOURCE Indirect Tax are **not** returned to SAP.
- **taxVatAdjustments:** defines which tax results have to be returned as a negative value to SAP. This is to support Input/Output transactions.
- **taxJurisdictionLevels:** defines what tax is returned to which SAP tax/pricing condition based on the SAP field **TXJLV** (Tax jurisdiction code level) in the RFC structure.
- **taxOverrides:** defines how taxes are sent to ONESOURCE Indirect Tax during a FORCE transaction.
- **buyerRoleSwitches**: defines mappings that can be used to identify those scenarios that cause Integration to switch roles.
- **businessSupplyMappings**: used in Brazil; this section enables material usage to change how business supply is mapped from SAP.
- **commodityCodeMappings**: defines mapping that picks either the Control Code or Commodity Code to send to Determination.
- **invoiceTextSources**: defines which element is sent back to SAP for invoice text (Invoice Description or Jurisdiction Text).

With the exception of the **taxOverrides, commodityCodeMappings, businessSupplyMappings, and buyerRoleSwitches**, the following Output XML fields from the <LINE>.<TAX> block can be used in the *taxMappingsExtension.xml* file:

- <AUTHORITY_NAME>
- <AUTHORITY_TYPE>
- <EFFECTIVE_ZONE_LEVEL>
- <TAX_DIRECTION>
- <TAX_RATE_CODE>
- <TAX_TYPE>
- <TAXABLE_COUNTRY>
- <ERP_TAX_CODE>

ONESOURCE Indirect Tax includes a sample *taxMappingsExtension.xml* file in Integration for SAP distribution *.zip* file.

TaxFilters

Tax Filters provide the ability to filter (eliminate) a tax result returned from Determination to be put into SAP. By default Integration does not filter any results.

SAP does not post zero-tax conditions to the G/L account. Therefore the following four tax types from Sabrix: **NL**, **ZC**, **ZE**, **ZR**: would not have conditions in the G/L.

- **NL**: Not Liable
- **ZC**: Zero-rated Intra-Community Exports within the European Union (EU)
- **ZE**: Zero-rated Exports leaving the EU, or Zero-rated Exports from non-EU countries
- **ZR**: Zero-rated Item (Rule specifies rate of zero)

These four tax types could be filtered in this section however doing so my cause some problems for invoice printing requirements if you need to print invoice line text for a zero tax item. If you need to add a filter the following example will help you insert the necessary code into the tax filters section of the TaxMappingExention.xml file:

Example 1: Filtering of a result based on Tax_Type.

<taxFilter Tax_Type=”NL”/>

Example 2: Filtering of a result based on a Tax_Type and Taxable_Country.

<taxFilter Taxable_Country=”DE” Tax_Type=”CA”/>

You must define your own tax exclusions if you want to exclude any tax results.

TaxVatAdjustments

This section describes the **taxVatAdjustments** section of *taxMappingExtensions.xml*.

In some cases a taxing authority will charge an Input and Output tax, whereas the Output tax has to be negated. This parameter has been introduced to allow this in Integration for SAP.

The standard tax types negated by Integration for SAP are **AC, IM, RC, ER, IR, IC, and VG.**

- **AC**: Acquisition
- **IM**: Import
- **RC**: Reverse Charge
- **ER**: Intra EU Reverse Charge
- **IR**: International Reverse Charge (supplier outside the EU)
- **IC**: Intra-Company
- **VG**:VAT Group

You must define your own entry if you want to define other taxes to be negated.

Tax Jurisdiction Levels

This section describes the **taxJurisdictionLevels** section of *taxMappingExtensions.xml*.

This section assigns every tax relevant for SAP to the appropriate tax jurisdiction code level (**TXJLV**) in the RFC structure, which then is returned to the calling application's pricing procedure (SD) or tax procedure (MM/FI). SAP ships with up to six condition types defined for six tax jurisdiction code levels, but can support up to 10 tax jurisdiction code levels. Integration for SAP takes advantage of these additional levels as needed.

Standard mapping relevant for the taxing country. This is the standard setup when Integration for SAP is installed. All tax results regardless of their nature will be mapped according to the standard mapping rules as outlined in table below:

STANDARD MAPPING			
Level	**United States**	**Canada**	**European Union**
1	State Sales & Use Tax	Country (GST)	VAT (Input or Output)
2	County Sales & Use Tax	Province (PST)	Import Tax (Input)
3	City Sales & Use Tax	Country (HST)	Import Tax (Output)
4	Local Sales & Use Tax (County)	Province (QST)	Acquisition Tax (Input)
5	Local Sales & Use Tax (Others)	Country (GST) Non-Recoverable	Acquisition Tax (Output)
6	Not Used	Not used	VAT (Input Non-Recoverable)
All other levels	Not Used	Not used	Not Used

The Canadian Authority Types are as follows:

- GST: Goods and Service Tax
- PST: Provincial Sales Tax
- HST: Harmonized Sales Tax
- QST: Quebec Sales Tax

If you previously used these jurisdiction levels in *taxMappingsextension.xml* file for another purpose, these standard mappings will not be in effect because custom configuration always takes precedence. Modify *taxMappingsextension.xml* file to assign these taxes to appropriate jurisdiction levels in SAP.

Custom Authority tax results can be returned to SAP tax jurisdiction code levels other than the ones shown in the standard mapping table.

For example, Determination uses tax jurisdiction code levels XR1 to XR5 in the US pricing and tax procedure. Conditions XR6 to XR0 could be used to map custom authorities, which allows up to five additional tax levels to be used for custom authorities. A sample mapping is outlined in the table below.

Override the standard mapping. if you want to override the standard mapping, you can do so in this file. Custom definitions always take precedence over defined mappings. Therefore, you could

opt to return all US Sales and Use taxes into one tax jurisdiction code level (for example XR1) and use the remaining for custom authority mappings. A sample of such mapping is outlined in the table below.The examples shown are for the United States.

CUSTOM MAPPINGS				
Level	**Standard Mapping**	**Scenario 1 - Custom Authorities based on standard**	**Scenario 2 - Custom Authorities into additional levels**	**Scenario 3 - Custom Authorities Free-From mapping**
1	State Sales & Use Tax	State Sales & Use Tax	State Sales & Use Tax	All Sales & Use Tax
2	County Sales & Use Tax	County Sales & Use Tax	County Sales & Use Tax	Custom Authority
3	City Sales & Use Tax	City Sales & Use Tax	City Sales & Use Tax	Custom Authority
4	Local Sales & Use Tax Zone County	Local Sales & Use Tax Zone County	Local Sales & Use Tax Zone County	Custom Authority
5	Local Sales & Use Tax others Taxes	Local Sales & Use Tax others	Local Sales & Use Tax others	Custom Authority
6	not used	not used	Custom Authority	Custom Authority
7	not used	not used	Custom Authority	Custom Authority
8	not used	not used	Custom Authority	Custom Authority
9	not used	not used	Custom Authority	Custom Authority
0	not used	not used	Custom Authority	Custom Authority

Where multiple authorities exist at the same level and the taxable basis is the same, Integration returns the summed tax amount and the summed tax rate, where the tax amount is not equal to zero. The exempt amount is calculated using the gross amount less the taxable basis.

Where multiple authorities exist at the same level and the taxable basis is the same, Integration returns the summed tax amount and the summed tax rate if the tax amount is not equal to zero. The exempt amount is calculated using the gross amount less the taxable basis. The tax amount is summed and the tax rate is calculated using the summed tax amount divided by the highest taxable basis. The exempt amount is calculated using the gross amount less the highest taxable basis.

Tax Overrides

This section describes the **taxOverrides** section of *taxMappingExtensions.xml*.

When taxes are posted to SAP, several authorities are combined into one SAP tax jurisdiction code level, if they fall into the same authority type and zone level mappings. At the time of a FORCE transaction from SAP, Integration for SAP places these tax results back into the appropriate authorities. This section of the XML file enables this placement. The following indicators are available for mapping and will determine which SAP tax jurisdiction value is posted to ONESOURCE Indirect Tax Input XML <LINE>.<OVERRIDE_AMOUNT>:

- isCountry
- isProvince
- isState
- isCounty
- isCity
- isDistrict
- isPostcode
- isGeocode

The values listed above correspond to Determination effective tax level definitions without the prefix *is* on an authority.

There are three variables for the definition:

- **ShipTo_Country:** SAP country to determine rule for overrides.
- **jurisLevel:** SAP tax jurisdiction level the tax amount comes from.
- ***<variable from above list>*:** for example, **isCountry** would place the value from the corresponding SAP tax jurisdiction into the <LINE>.<OVERRIDE_AMOUNT>.<COUNTRY> XML element.

Buyer Role Switches

This section describes the **buyerRoleSwitches** section of *taxMappingExtensions.xml*.

For some authorities in the US and US Territories, only a sales tax rate has been defined. Therefore, anytime a purchase-based transaction is run, use tax will not calculate. This means that for the A/P side, we need Determination to run the transaction as a seller when doing a vendor validation. By running the transaction as a seller we will capture the correct taxes. Integration for SAP will switch the Buyer and Seller role for the combinations below.

- **ShipFrom_Country**: country of the ship-from jurisdiction code.
- **ShipTo_Country**: country of the ship-to jurisdiction code.
- **switch**: true or false value used to trigger switching of role

Ship From Country	Ship To Country
US (United States)	US (United States)
PR (Puerto Rico)	PR (Puerto Rico)

Ship From Country	Ship To Country
AS (American Samoa)	AS (American Samoa)
VI (Virgin Islands (U.S.))	VI (Virgin Islands (U.S.))
GU (Guam)	GU (Guam)

BUSINESS SUPPLY MAPPING

This section describes the **businessSupplyMapping** section of *taxMappingExtensions.xml*, which allows you to map the material usage element in SAP to the business supply element.

- **Material_Usage**: value passed from SAP
- **Business_Supply_Flag**: true or false

COMMODITY CODE MAPPINGS

This section describes the **commodityCodeMappings** section of *taxMappingExtensions.xml*.

Determination is only able to handle one code (Commodity Code input element). Therefore Integration will need to figure out which code it should send for tax calculation. SAP has two different fields that it can use to store the commodity code - a Harmonized code and a Control code. The **commodityCodeMappings** block will be used to map the correct field in SAP to the commodity code element.

The three values that can be used to map the value are: **ShipFrom**, **ShipTo**, and **Point_Of_Title_Transfer**. By default Integration for SAP will default to using the Commodity Code for all cases except Brazil to Brazil transactions.

- **ShipFrom**: ship-from country from jurisdiction
- **ShipTo**: ship-to country from jurisdiction
- **Point_Of_Title_Transfer**: the 3 valid values are *D*, *O*, or *I*

INVOICE TEXT SOURCES

This section describes the **invoiceTextSources** section of *taxMappingExtensions.xml*.

Allows flexibility to configure ZZ_INV_TEXT to choose either from INVOICE_DESCRIPTION or JURISDICTION_TEXT field of output. The following elements can be used to correctly identify which tax block is selected.

- <AUTHORITY_NAME>
- <AUTHORITY_TYPE>
- <EFFECTIVE_ZONE_LEVEL>
- <TAX_DIRECTION>
- <TAX_RATE_CODE>
- <TAX_TYPE>
- <TAXABLE_COUNTRY>
- <ERP_TAX_CODE>

Once the mapping is set up, you can specify:

- jurisLevel: jurisdictionText or invoiceDescription

Changes to the standard mapping provided by the *Advanced Configuration* setup are supported by ONESOURCE Indirect Tax at a technical level. However, as with all ONESOURCE Indirect Tax functionality, we cannot take responsibility for any business or taxing implications which might result from mapping on your system. Thoroughly test any configurations to confirm that they provide the desired results before going into production. Testing should include all types of RFC calls from SAP, including RFC_CALCULATE_TAXES_DOC, RFC_UPDATE_TAXES_DOC, and RFC_FORCE_TAXES_DOC.

To confirm that your accounting needs are satisfied, we recommend that you thoroughly test end-to-end your order-to-cash and procure-to-pay processes to make sure that tax results generated by custom configurations are posting correctly to your G/L accounts.

INVOICE PRINT LANGUAGES

We have introduced additional elements to support invoice printing in SAP. To successfully return text information into an SAP text condition, a language key is required. Since we currently only support one language per message, a predefined mapping of countries to languages had to be selected. See “Invoice Printing” in ONESOURCE *Indirect Tax Integration for SAP Global Tax.*

Changes to any of the *Advanced Configuration* files require that you stop and restart Integration for SAP for the changes to take effect.

See Configuration Guide for more information on this topic.

AUTHORITY LANGUAGE MAPPINGS EXTENSION.XML

There are two sections in this file:

Default language definition. The default language is English (EN). We maintain all text in Determination in English by default.

Country-specific definitions. Where we have selected a language other then English this is reflected in this section. If you need to override or define your own languages, you can do so in this area. Keep in mind that changes to a language other than the defined language requires maintenance of all *Invoice Descriptions* for that given country's taxing authorities in Determination.

There are two variables for the definition:

- **country:** based on the <LINE>.<TAX>.<TAXABLE_COUNTRY> value returned in the Output XML.
- **languageKey:** a valid SAP language key as defined in table T002.

Here is a sample of a possible *authorityLanguageMappings.xml* file.

```
<?xml version="1.0" encoding="UTF-8" ?>
!-->Default is language EN if not specified-->!
<authorityLanguageMappings defaultLanguageKey="EN">
!-->Country specific language mappings-->!
<authorityLanguage country="DE" languageKey="DE"/>
<authorityLanguage country="FR" languageKey="FR"/>
</authorityLanguageMappings>
```

You should refer to the *authorityLanguageMappings.xml* file in the extracted Integration for SAP distribution; the actual file differs from the example shown above.

See Invoice Printing in ONESOURCE *Indirect Tax Integration for SAP Global Tax Configuration Guide* for more information on this topic.

JURISDICTION DETERMINATION AND ADDRESS MAPPING

Jurisdiction Codes are retrieved from ONESOURCE Indirect Tax during the creation or the change of any master record that has an address. A Remote Function Call from the SAP Tax Interface System is then made to the *addressvalidation* servlet which evaluates the Zone Tree. The results are sent back to SAP through the SAP Tax Interface System in the form of a Jurisdiction Code. The Jurisdiction code is stored on the SAP master record.

The SAP Jurisdiction Determination function calls the servlet to find the most accurate jurisdiction, given the information in the transaction. The system behavior is based on the country in which the transaction takes place, and in some cases, is based on the information provided.

Basic behavior for all countries except United States of America:

All SAP address elements provided in the RFC_JURISDICTION_CODE are sent to Determination for Zone Tree evaluation. Determination will return all found zones and their appropriate Jurisdiction Codes to the SAP system. In the case where there is more than one zone returned, Determination default zone is the top row entry.

Special behavior for United States of America:

ONESOURCE Indirect Tax does not store every ZIP Plus 4 (Geocode) in the United States. It only stores Plus 4 data that affects taxability. The return behavior of the addressvalidation servlet depends on whether 5-digit ZIP or 9-digit ZIP Plus 4 information is sent.

If only 5-digit ZIP information is sent to the servlet, all possible jurisdiction choices are returned to SAP so you can determine the appropriate address for the master data record. The default zone is always the first record returned.

If ZIP Plus 4 information is sent to the servlet, it always returns only one jurisdiction code to SAP:

- If ONESOURCE Indirect Tax stores the Plus 4 value, only one Jurisdiction Code is returned.
- If ONESOURCE Indirect Tax does not store the Plus 4 value, the Jurisdiction Code returned represents ONESOURCE Indirect Tax default zone for that area. This is always the correct zone.

ONESOURCE Indirect Tax strongly suggests sending ZIP Plus 4 address information for best tax accuracy.

CITY/COUNTY MATCHING LOGIC

Integration for SAP has four *.properties* parameters that support matching for United States of America transactions. These parameters assist in data consistency and provide additional benefits when evaluating the Zone Tree. The parameters are:

- **city_flag**
- **override_supplied_city**
- **county_flag**
- **override_supplied_county**

city_flag: If the parameter is set to *TRUE*, an address returned by Determination is discarded if the city name does not match the city name in the address provided by SAP. If Determination returned one or more addresses, but they were discarded because of city name matching, an error is returned to SAP. A null value supplied by SAP always matches a value returned by Determination, regardless of the string match setting.

Note: the city UNINCORPORATED is always considered a match, even if city_flag is set to *TRUE*. If the flag is set to *FALSE* then no matching is performed between Determination cities and SAP provided cities.

override_supplied_city: If set to *FALSE*, then the value supplied by SAP is returned; if set to *TRUE* the value returned by Determination addressvalidation servlet is used, unless the value is UNINCORPORATED. In that case, the SAP value will not be overwritten. This parameter applies to US only. Default is *FALSE*.

county_flag: If the parameter is set to *TRUE*, an address returned by Determination is discarded if the county name does not match the county name in the address provided by SAP. If Determination returned one or more addresses, but they were discarded because of city name matching, an error is returned to SAP. A null value supplied by SAP is not evaluated for a match. If the flag is set to *FALSE*, no matching is performed between Determination counties and SAP provided counties.

override_supplied_county: If the parameter is set to *FALSE*, the county supplied by SAP is returned. A null value from SAP will not return a value to SAP. If the parameter is set to *TRUE*, the county found in Determination Zone Tree is returned to SAP and the address is supplemented with that information. If county_flag is set to *TRUE*, the value supplied by SAP is the value returned by Determination.

TAX JURISDICTION CODE BREAK-DOWN

UNITED STATES STRUCTURE (FOR EXAMPLE, PROCEDURE TAXUSX)				
	SAP Field			
	TAXJCD_L1	TAXJCD_L2	TAXJCD_L3	TAXJCD_L4
USA	Country & State (4)	Zip Code (5)	Location (4)	Indicator (1)
Sample	USNY	14744	8703	0
Explanation	The two character country code and two character US state combined.	The five digit US zip code.	The four digit US plus four data. *If null, Determination changes to XXXX as a placeholder.	The indicator on whether the address is located within or outside city limits. 0 = in city, 1 = out of city.

Determination uses XXXX as the placeholder for a null Plus 4 because 0000 and 9999 are valid Plus 4's in the United States. SAP requires data in those positions and XXXX is not a valid Plus 4.

CANADA STRUCTURE (FOR EXAMPLE PROCEDURE TAXCAX)				
	SAP Field			
	TAXJCD_L1	TAXJCD_L2	TAXJCD_L3	TAXJCD_L4
Canada	Country (2)	Province Code (2)	Not Used (0)	Not Used (0)
Sample	CA	BC		
Explanation	The two character country code for Canada.	The two character province abbreviation.		

GLOBAL COUNTRY STRUCTURES (UNIQUE TO CUSTOMER IMPLEMENTATIONS)				
	SAP Field			
	TAXJCD_L1	TAXJCD_L2	TAXJCD_L3	TAXJCD_L4
Argentina	Country (2)	Province(1)	Not Used (0)	Not Used (0)
Sample	AR	H		
Explanation	The two character country code	Province of Chaco		
Brazil	Country (3)	City(7)	Not Used (0)	Not Used (0)
Sample	BRB	3550308		
Explanation	The two character country code with a single character state code	Sao Paulo municipal code defined by IBGE		
Chile	Country (2)	Province(2)	City(3)	Not Used (0)
Sample	CL	TA	IQQ	
Explanation	The two character country code	Province of Tarapaca	City of Iquique	
China	Country (2)	Province(2)	Not Used (0)	Not Used (0)
Sample	CN	SH		
Explanation	The two character country code	Province of Shanghai		
India	Country (2)	Province(2)	Not Used (0)	Not Used (0)
Sample	IN	HR		
Explanation	The two character country code	Province of Haryana		
Mexico	Country (2)	Province(3)	City(3)	Not Used (0)
Sample	MX	CHA	CJS	
Explanation	The two character country code	Province of Chihuahua	City of Ciudad Juarez	
Puerto Rico	Country (2)	County(3)	Not Used (0)	Not Used (0)
Sample	PR	ADJ		
Explanation	The two character country code	County (Municipio) of Adjuntas		

GLOBAL COUNTRY STRUCTURES (UNIQUE TO CUSTOMER IMPLEMENTATIONS)				
	SAP Field			
	TAXJCD_L1	TAXJCD_L2	TAXJCD_L3	TAXJCD_L4
Venezuela	Country (2)	City(3)	Not Used (0)	Not Used (0)
Sample	VE	IDM		
Explanation	The two character country code	City of Margarita Island		
All Others	Country (2)	Not Used (0)	Not Used (0)	Not Used (0)
Sample	DE			
Explanation	The two character country code			

COUNTRY-SPECIFIC JURISDICTION CODE MAPPING

ONESOURCE Indirect Tax Data Updates sometimes include changes to a country's scope on short notice. To support these changes without having to patch Integration for SAP, you can now configure the *jcExtensionsMapping.xml* file as needed. You can also override the standard mappings provided by us if desired.

Overrides may be necessary when a country changes from one multi-level format to a more granular multi-level format. For example, India currently uses a format of 2-2-0-0 (Country-State). It is possible that India will be updated to support City-level taxation and will then require a format of 2-2-2-0 or 2-2-3-0 (Country-State-City).

To support mappings of SAP values to Determination Zone Tree values, you can map the following three attributes:

- **code**: Two digit code (for example, US)
- **code3**: Three digit code (for example, USA)
- **iso**: Numeric ISO code (for example, 840)

Each of these codes can be combined with a specific zone level, such as country, state, province, and county. By mapping these settings, you are instructing Integration how to translate an SAP value to a Determination value. This determines how Determination uses that value during Zone Tree lookup. For example, a `country.code` value instructs Determination to match the SAP value against the value stored in the Zone Tree **code** field.

As of 5.2.0.0E release China jurisdiction code was changed to 2-2 as Shanghai provincial tax was added. See release update notes and knowledge base article "China VAT Reform"

https://customer.sabrix.com/app/answers/detail/a_id/1115 on ONESOURCE Indirect Tax web site for specific instructions pertaining to update of master data.

Below is a code sample of how such a change could be implemented in the *jcMappingsExtension.xml file*:

```
<?xml version="1.0" encoding="UTF-8"?>
<jurisdictionCodeMappings>
     <addressMappings>
      <!-- Determining the jurisdiction code for India -->
          <jurisdictionCode country="IN">
               <jurisdictionCodeSegment>
                    <jurisdictionField name="country.code" length="2"/>
               </jurisdictionCodeSegment>
               <jurisdictionCodeSegment>
                    <jurisdictionField name="province.code" length="2"/>
               </jurisdictionCodeSegment>
               <jurisdictionCodeSegment>
                    <jurisdictionField name="city.code3" length="3"/>
               </jurisdictionCodeSegment>
               </jurisdictionCode>
     </addressMappings>
</jurisdictionCodeMappings>
```

COUNTRY-SPECIFIC ZIP CODE MAPPING

When SAP sends address master data to *RFC_DETERMINE_JURISDICTION* the address fields are mapped as follows:

RFC_DETERMINE_JURISDICTION	
SAP Address Field	**SAP RFC Field**
COUNTRY	COUNTRY
REGION	STATE
DISTRICT	COUNTY
CITY	CITY
POSTCODE	ZIPCODE

Integration uses these fields for Determination AddressValidation based on the mapping provided at ***MAPPING FOR RFC_DETERMINE_JURISDICTION (page 97)***. Some countries may use a different mapping than the one SAP has implemented, but you can use the *jcMappingsExtension.xml* file to configure how the ZIPCODE field should be parsed and which fields Integration should evaluate when sending data to Determination.

A Puerto Rico sample is below (this has been already implemented in Integration as standard):

```
<zipCodeMapping country="PR"
postalLength="5"
geoLength="4"
overrideSuppliedCountry="false"
overrideSuppliedState="false"
overrideSuppliedCounty="true"
overrideSuppliedCity="false"
overrideSuppliedZipcode="false" />
```

In the above sample, the split of the ZIPCODE is based on a length of 5 for the postal code and a length of 4 for the geocode. This is done based on logic that the ZIPCODE is always parsed from the beginning, where the geocode is started from the end of the ZIPCODE string. If there is an overlap between the two parsed strings, an error will be generated. Elements such a dash will be omitted.

- In the sample, the COUNTY field from SAP has been set to be ignored (overrideSuppliedCounty="**true**"). This is needed in Puerto Rico since the information stored in the SAP **District** field of an address represents urbanization information, not County/Municipal information. Determination does not store urbanizations in the zone tree; therefore that information should not be sent to Determination.

In cases where a SAP address value is not sent to Determination, it will not be changed or overridden by the jurisdiction determination process; it will be preserved as originally entered in the address.

INSTALLING BRAZIL NOTA FISCAL SUPPORT

The Brazil tax calculation logic is notably complex with many calculations and configuration requirements. It is a challenge to implement even by the most experienced, and requires a lot of adjustments and configurations that are specific to your company requirements, customers, products, business models, and reporting needs. Therefore it should be understood that the current ONESOURCE Indirect Tax support for Brazil should be looked at as a beginning template or initial platform with which to aid in your successful implementation of Brazil VAT logic rather than a be-all end-to-end solution. In addition to what we offer here, you will need to partner closely with your ONESOURCE Indirect Tax Professional Services representative to identify and complete all company specific requirements necessary for your successful Brazil implementation.

The transport ***ONESOURCE Indirect Tax Integration for SAP - Brazil template. (page 15)*** includes the following nine items:

Name	Type	Purpose
Z_SABRIX_NF_TAX_POPULATOR	ABAP Class	Used to create Nota Fiscal base amounts.
Z_SABRIX_BRAZIL	Function Group	Common function modules used for Brazil processing.
Z_SABRIX_MM_CALCULATE_TAX_ITM	Include	Stock Transfer Order tax calculation include.
Z_SABRIX_MM_NF_OBJECT_ADD	Include	LIV include used during MIRO transactions.
Z_SABRIX_SD_NF_CREATE_OBJECTS	Include	SD Billing document Nota Fiscal generation.
Z_SABRIX_BRAZIL_TAX_CALCULATE	Include	Include used for exporting tax results into memory that will be used for Nota Fiscal generation.
Z_SABRIX_ENIM_BRAZIL_AP	Enhancement implementation	Adding Brazil specific logic to include ZXFYTU03_SABRIX.
Z_SABRIX_ENIM_BRAZIL_FORMS	Enhancement implementation	Adding Brazil specific logic to include ZXFYTF01_SABRIX.
Z_SABRIX_ENIM_BRAZIL_ZXM06U15	Enhancement implementation	Adding Brazil specific logic to include ZXM06U15_SABRIX.

You will also have to complete four manual inserts of includes as part of the Brazil implementation. See ***BRAZIL TRANSPORT ADJUSTMENT (page 29)***.

ENABLING CUSTOM ATTRIBUTES

The SAP Standard Tax Interface provides predefined structures containing fields sent to the external tax system for tax calculation. These fields are usually enough to calculate standard tax scenarios. But when trying to solve the most complex tax requirements, the SAP Standard Tax Interface has considerable shortcomings.

To bridge that gap, ONESOURCE Indirect Tax allows 40 additional fields to be appended to the SAP system for tax calculation. The additional fields are mapped to Determination as Input XML Custom Attributes. Integration for SAP already includes the fields. You must maintain the tax user exit to fill the new tax-relevant fields in the appended structures and use TransEditors or Rule Qualifiers to either map the resulting Custom Attributes fields to relevant Input XML elements or trigger rule selection to ensure proper calculation.

This chapter provides an overview of the tax process and user exits, explains how to append the SAP Standard Tax Interface, and describes a use-case involving TransEditors and Rule Qualifiers.

TECHNICAL OVERVIEW

To better understand the magnitude and complexity of the proposed change to an SAP system, you must understand SAP's change management system process. SAP separates changes to their system into the following categories:

System Configuration: Business-specific definitions to uniquely represent a company's structure, processes and entities using the IMG (Implementation Guide) within SAP as part of a system implementation. Fully supported by SAP.

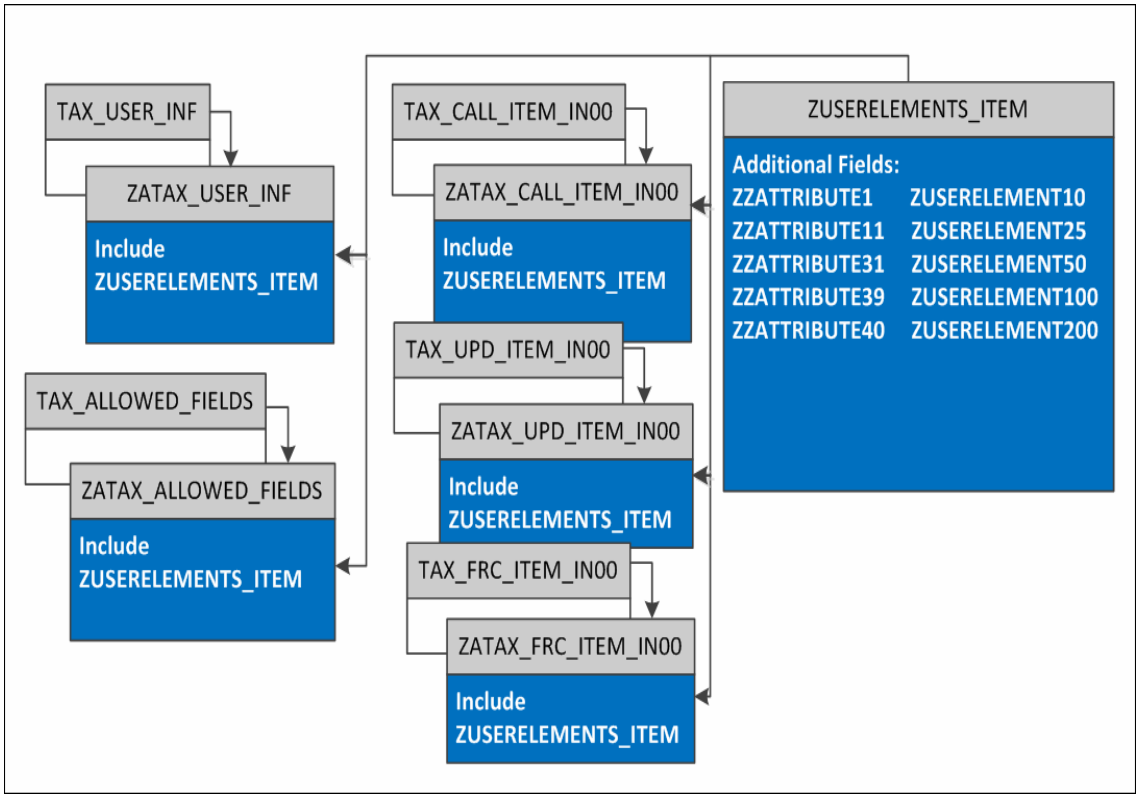
System Enhancements/Appends: Change made to an SAP system for a particular customer requirement using a predefined place within the SAP processing logic (user exit in ABAP code, APPEND in tables, structures, etc.). SAP guarantees upward compatibility and never overwrites the enhancements if performed according to SAP recommended guidelines.

System Modifications: Change to an SAP repository object altering core code or structures. Modifications have to be reviewed, and where necessary, adapted during an upgrade. Modifications are not supported by SAP.

Changes to support the 40 additional attributes described in this chapter are included in the “System Enhancements / Appends” category and are therefore fully supported by SAP. These enhancements strictly follow SAP guidelines.

PHYSICAL OVERVIEW

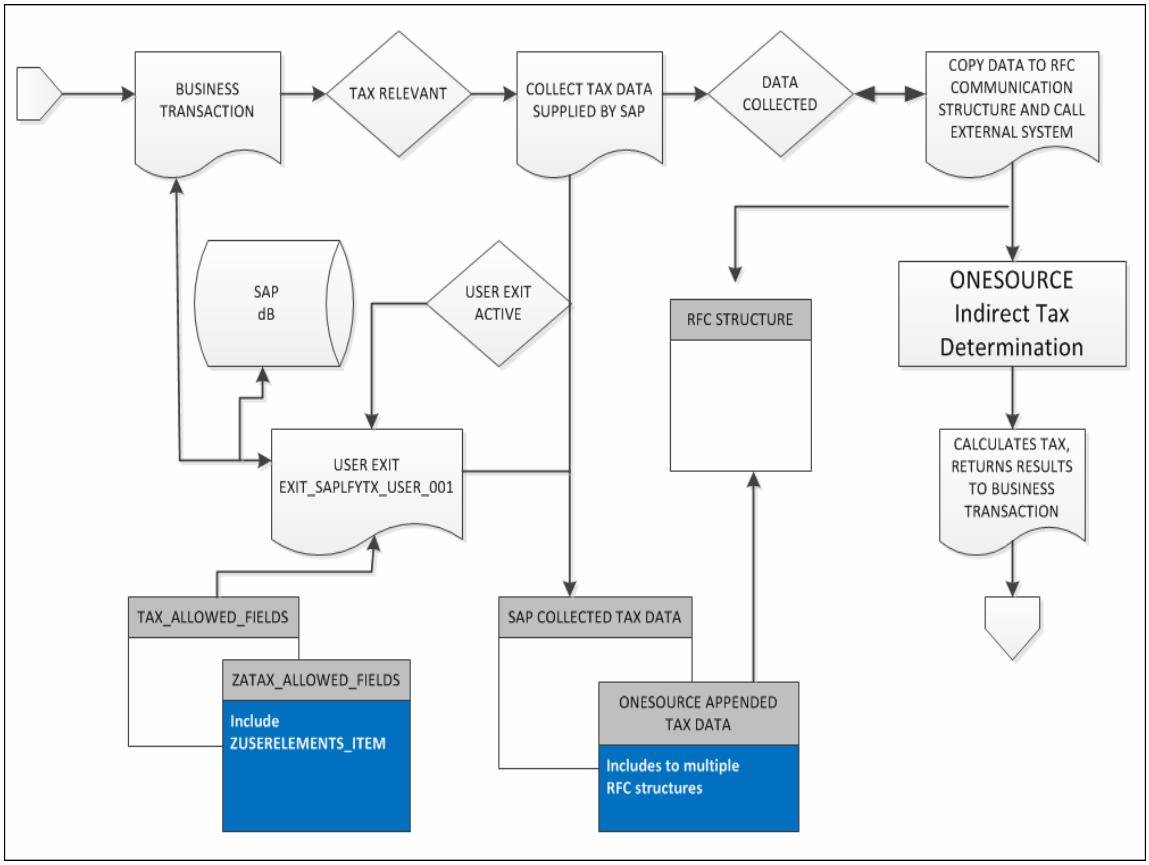
The actual implementation of the append consists of a newly created structure containing the 40 additional fields, their definitions, and their descriptions. This structure is then appended as an *include* structure to the three SAP Standard Tax Interface structures as well as to two additional tables used internally by the SAP system during the tax call.



TAX PROCESS OVERVIEW

Each business transaction is checked for tax relevancy. If tax needs to be calculated, SAP starts the collection process. At that point, the Tax user exit EXIT_SAPLFYTX_USER_001 is called and any custom code runs. Within the user exit, only fields listed in the TAX_ALLOWED_FIELDS structure can be used with the tax interface. Business transaction data as well as other stored data can be accessed and mapped in the user exit.

After successful collection, SAP copies the collected data, including customer specific data in the APPEND structure, into the RFC structure that communicates with the external tax software. The call to Integration for SAP is made and ONESOURCE Indirect Tax determines tax based on the SAP-supplied fields. ONESOURCE Indirect Tax returns tax results, using Integration for SAP, to the SAP business application.



POPULATING DATA FIELDS WITH THE USER EXIT

Now that the additional fields have been defined in the SAP Standard Tax Interface, you can move content into the new fields. You should determine what needs to be moved and mapped based on your company's business process, tax requirements, and system configuration. Engage your SAP Functional Analyst or Consultant, your Tax Expert, and your ABAP Programmer.

USER EXIT USAGE: EXAMPLE

Assume a material's net weight is a requirement for accurate tax determination in a given business scenario. The material weight is not part of the SAP Standard Tax Interface, therefore it has to be added using the appended fields and retrieved from the SAP Material Master tables in the user exit.

Assume that the net weight was added as a new tax element to the SAP Standard Tax Interface. The value was assigned to ZZATTRIBUTE1 in SAP by the user exit. Now that the SAP user exit has moved the net weight value to ZZATTRIBUTE1, Integration for SAP will map that value to <USER_ELEMENT>.<ATTRIBUTE1>. Therefore, the value is now available to ONESOURCE Indirect Tax in this element.

There are several ways you may use this element:

- You can simply pass the value through to audit for reporting purposes.
- You can use a TransEditor to map the value of this element to another element. For example, you might use the value of this custom attribute to populate the <MASS> input XML element.
- You can use a Rule Qualifier to test for the presence of a value contained within this custom attribute. For example, a qualifier may test that the net weight is over a certain amount or the rule will not apply.

Please consult Determination *Help* for information on how to configure both TransEditors and Rule Qualifiers.

TESTING RFCS WITH ADDED CUSTOM ATTRIBUTES

This procedure assumes that you have installed Determination and have configured at least one Company. If not, you must first complete the instructions in the chapter ***DEFINING A COMPANY IN DETERMINATION FOR RFC TESTING (page 57)*** and then continue with this procedure.

1. Follow the same steps as noted on ***Testing Tax Calculations using Transaction SE37 (page 50)***.

Please make sure you can reach Determination using the Internet Explorer browser and the URL. If you cannot reach Determination using Internet Explorer, then either Determination is not running or the URL provided is wrong. Consult with your DBA.

2. Add values to the 22 attribute number fields in the RFC test workbench, i.e. ATT1 for ATTRIBUTE1, ATT2 for ATTRIBUTE2, etc.
3. Once you execute the RFC, check the connection log to make sure that your attributes are mapped to the Input XML fields.

```
<USER_ELEMENTS><USER_ELEMENT>
<NAME>ATTRIBUTE1</NAME>
<VALUE>ATT1</VALUE>
</USER_ELEMENT>
<USER_ELEMENT>
<NAME>ATTRIBUTE2</NAME>
<VALUE>ATT2</VALUE>
</USER_ELEMENT>
<USER_ELEMENT>
<NAME>ATTRIBUTE3</NAME>
<VALUE>ATT3</VALUE>
</USER_ELEMENT>
<USER_ELEMENT>
<NAME>ATTRIBUTE4</NAME>
<VALUE>ATT4</VALUE>
</USER_ELEMENT>
<USER_ELEMENT>
<NAME>ATTRIBUTE5</NAME>
<VALUE>ATT5</VALUE>
</USER_ELEMENT>
<USER_ELEMENT>
<NAME>ATTRIBUTE6</NAME>
<VALUE>ATT6</VALUE>
</USER_ELEMENT>
```

OBTAINING ADDITIONAL DATA FROM DETERMINATION

Most authorities impose a statutory requirement to print specified information on invoices. These requirements differ from authority to authority, but in the European Union many are common across the associated authorities.

With the current SAP Standard Tax Interface, only the basic tax results (taxable basis, tax rate, and tax amount) can be returned to SAP. This chapter describes how to enhance the Standard Tax Interface to enable Determination to return to SAP detailed information which meets statutory invoice requirements.

This implementation has the following limitations:

- The main focus of this functionality is the European Union (EU), but conceptually this can apply to all invoice printing requirements.
- The invoice printing solution is only for the Order to Cash process in SAP (SD), as well as population of the SAP Nota Fiscal for Brazil.(SD, MM)

This chapter describes the append to the SAP RFC return structure to include places to return Output XML information. We have also with the 5.2.0.0E upgrade release added the addition of 5 user defined fields that can aid in invoice printing requirements as well as reporting needs. An additional ERP Tax Code Qualifier function was also added to Determination and is featured here as well. End-to-end configuration is described in ONESOURCE *Indirect Tax Integration for SAP Global Tax Configuration Guide*.

Sections in this chapter include:

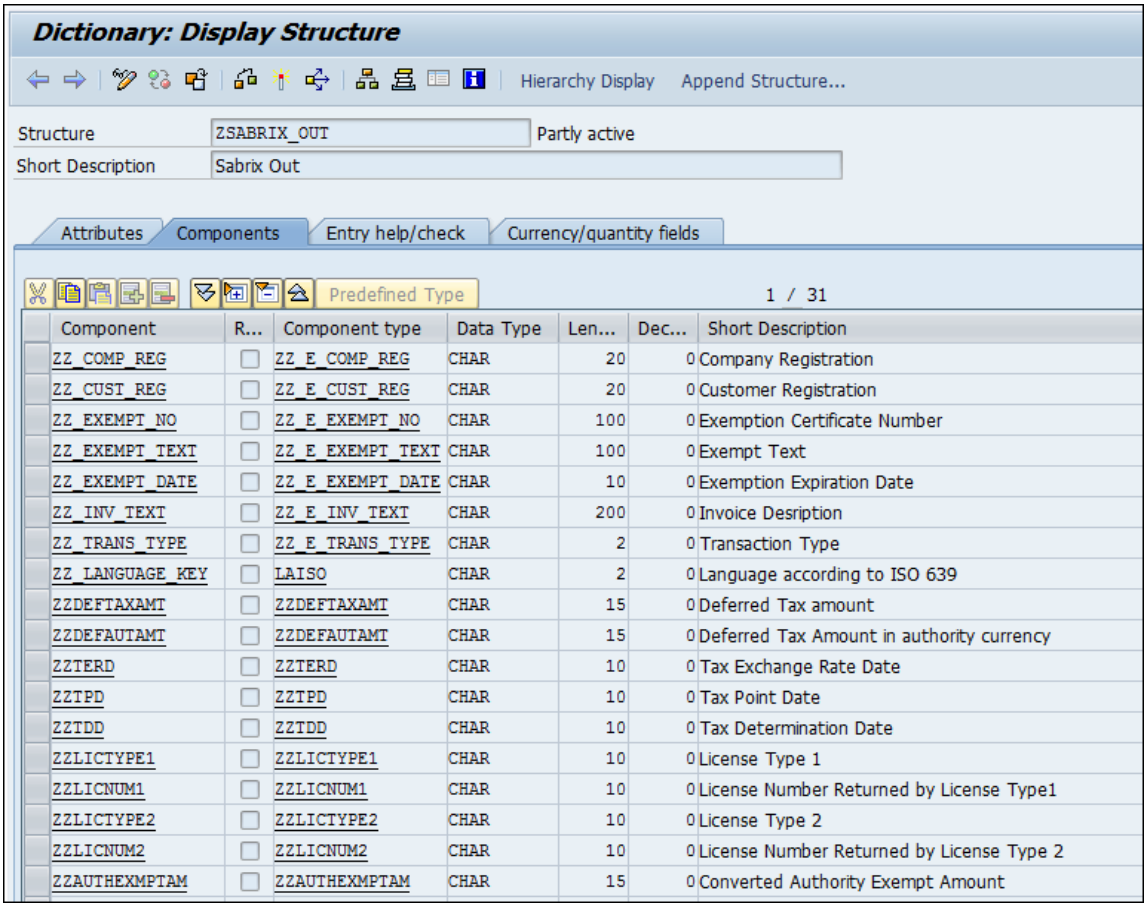
FUNCTIONAL DESIGN

Attributes Returned to SAP for Potential Printing and Nota Fiscal		
Attribute	**Description**	**Value**
Company Registration	If this is a triangulation scenario, then Middleman Registration number will be returned. Otherwise, the Company VAT Registration Number or VAT Group Number applied will be returned.	
Customer Registration	Customer VAT Registration Number applied.	
Exemption Certificate Number	Exemption Certificate Number.	
Exemption Certificate Text	Exemption Certificate Text.	
Exemption Expiration Date	Exemption Certificate Expiration Date.	
Invoice Description	A text description of the tax which you may choose to print on customer invoices. This value comes from the Authority or Rule used to generate the tax.	
Transaction Type	Transaction Type for grouping similar tax charges during the print process. This grouping is the responsibility of the customer.	
Language Key	Default language maintained in the *.properties* file per country.	
Deferred Tax Amount	If the tax block contains *tax treatment flag = D*, Integration will map the taxes in document currency to this field.	
Deferred Tax Amount in authority currency	If the tax block contains *tax treatment flag = D*, Integration will map the taxes in authority currency to this field.	
Tax Exchange Rate Date	Tax Exchange Rate used for exchange rate (TERD).	
Tax Point Date	Tax Point Date (TPD).	
Tax Determination Date	Tax Determination Date (TDD).	
License Type 1	For a given jurisdiction level, Integration will return the first two license types and corresponding license numbers associated with it.	
License Number Returned by License Type1	For a given jurisdiction level, Integration will return the first two license types and corresponding license numbers associated with it.	
License Type 2	For a given jurisdiction level, Integration will return the first two license types and corresponding license numbers associated with it.	
License Number Returned by License Type 2	For a given jurisdiction level, Integration will return the first two license types and corresponding license numbers associated with it.	

Attributes Returned to SAP for Potential Printing and Nota Fiscal		
Attribute	**Description**	**Value**
Converted Authority Exempt Amount	If there is a currency conversion, then converted exempt amount will be mapped to this field.	
Converted Authority Taxable Basis Amount	Taxable basis returned in the authority currency.	
Converted Authority Tax Amount	Tax Amount in the authority currency.	
Document Currency Key	Currency Code Provided by SAP on the document level.	
Intermediate Currency Code	If there is any intermediate currency involved during conversion, for example USD to EUR to GPB, this field will receive EUR as intermediate currency.	
Authority Currency Code	Authority Currency Code.	
Exchange Rate 1	Exchange Rate used to convert document currency to intermediate currency or authority currency.	
Exchange Rate 2	Exchange Rate used to convert intermediate currency to the authority currency.	
Number of decimal places for currency	Decimals available on currency code. This will be used in the billing user exit for appropriate conversion.	
Non Taxable Basis	Amount of taxable basis that was reduced using a Basis Percent.	
Authority Type	Authority Type.	
Business Supply	Flag for business supply.	
Is Exempt	Flag that identifies an Exempt Rule.	
Non Tax Basis	Non Taxable Basis.	
ERP Tax Code	Tax Code Qualifier.	
User 1	Customer programmable additional field 1.	
User 2	Customer programmable additional field 2.	
User 3	Customer programmable additional field 3.	
User 4	Customer programmable additional field 4.	
User 5	Customer programmable additional field 5.	
Document number	Tax Document Number.	

THE CUSTOM STRUCTURE FOR RETURNED DATA

If you use transaction SE11 for structure ZSABRIZ_OUT, you will see the following table. The resulting structure appears after all transports have been applied:



Dictionary: Display Structure

Hierarchy Display | Append Structure...

Structure: ZSABRIX_OUT — Partly active

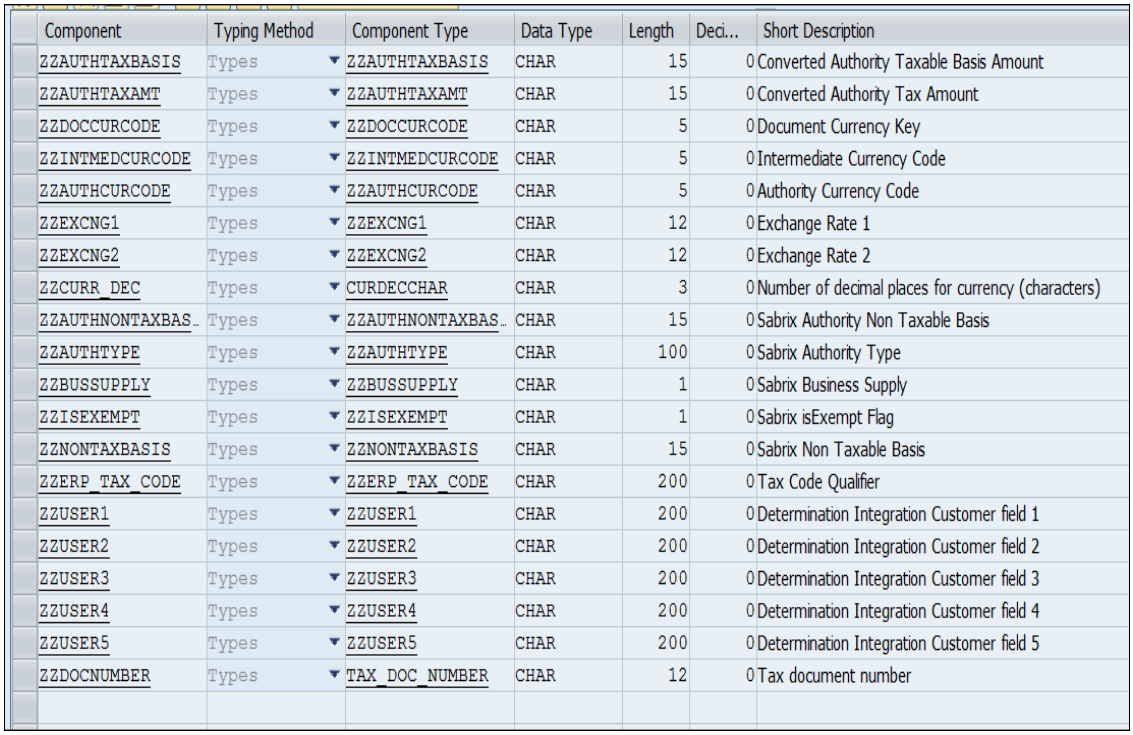
Short Description: Sabrix Out

Attributes | Components | Entry help/check | Currency/quantity fields

Predefined Type — 1 / 31

Component	R...	Component type	Data Type	Len...	Dec...	Short Description
ZZ_COMP_REG		ZZ_E_COMP_REG	CHAR	20	0	Company Registration
ZZ_CUST_REG		ZZ_E_CUST_REG	CHAR	20	0	Customer Registration
ZZ_EXEMPT_NO		ZZ_E_EXEMPT_NO	CHAR	100	0	Exemption Certificate Number
ZZ_EXEMPT_TEXT		ZZ_E_EXEMPT_TEXT	CHAR	100	0	Exempt Text
ZZ_EXEMPT_DATE		ZZ_E_EXEMPT_DATE	CHAR	10	0	Exemption Expiration Date
ZZ_INV_TEXT		ZZ_E_INV_TEXT	CHAR	200	0	Invoice Desription
ZZ_TRANS_TYPE		ZZ_E_TRANS_TYPE	CHAR	2	0	Transaction Type
ZZ_LANGUAGE_KEY		LAISO	CHAR	2	0	Language according to ISO 639
ZZDEFTAXAMT		ZZDEFTAXAMT	CHAR	15	0	Deferred Tax amount
ZZDEFAUTAMT		ZZDEFAUTAMT	CHAR	15	0	Deferred Tax Amount in authority currency
ZZTERD		ZZTERD	CHAR	10	0	Tax Exchange Rate Date
ZZTPD		ZZTPD	CHAR	10	0	Tax Point Date
ZZTDD		ZZTDD	CHAR	10	0	Tax Determination Date
ZZLICTYPE1		ZZLICTYPE1	CHAR	10	0	License Type 1
ZZLICNUM1		ZZLICNUM1	CHAR	10	0	License Number Returned by License Type1
ZZLICTYPE2		ZZLICTYPE2	CHAR	10	0	License Type 2
ZZLICNUM2		ZZLICNUM2	CHAR	10	0	License Number Returned by License Type 2
ZZAUTHEXMPTAM		ZZAUTHEXMPTAM	CHAR	15	0	Converted Authority Exempt Amount

.



Component	Typing Method	Component Type	Data Type	Length	Deci...	Short Description
ZZAUTHTAXBASIS	Types	ZZAUTHTAXBASIS	CHAR	15	0	Converted Authority Taxable Basis Amount
ZZAUTHTAXAMT	Types	ZZAUTHTAXAMT	CHAR	15	0	Converted Authority Tax Amount
ZZDOCCURCODE	Types	ZZDOCCURCODE	CHAR	5	0	Document Currency Key
ZZINTMEDCURCODE	Types	ZZINTMEDCURCODE	CHAR	5	0	Intermediate Currency Code
ZZAUTHCURCODE	Types	ZZAUTHCURCODE	CHAR	5	0	Authority Currency Code
ZZEXCNG1	Types	ZZEXCNG1	CHAR	12	0	Exchange Rate 1
ZZEXCNG2	Types	ZZEXCNG2	CHAR	12	0	Exchange Rate 2
ZZCURR_DEC	Types	CURDECCHAR	CHAR	3	0	Number of decimal places for currency (characters)
ZZAUTHNONTAXBAS...	Types	ZZAUTHNONTAXBAS...	CHAR	15	0	Sabrix Authority Non Taxable Basis
ZZAUTHTYPE	Types	ZZAUTHTYPE	CHAR	100	0	Sabrix Authority Type
ZZBUSSUPPLY	Types	ZZBUSSUPPLY	CHAR	1	0	Sabrix Business Supply
ZZISEXEMPT	Types	ZZISEXEMPT	CHAR	1	0	Sabrix isExempt Flag
ZZNONTAXBASIS	Types	ZZNONTAXBASIS	CHAR	15	0	Sabrix Non Taxable Basis
ZZERP_TAX_CODE	Types	ZZERP_TAX_CODE	CHAR	200	0	Tax Code Qualifier
ZZUSER1	Types	ZZUSER1	CHAR	200	0	Determination Integration Customer field 1
ZZUSER2	Types	ZZUSER2	CHAR	200	0	Determination Integration Customer field 2
ZZUSER3	Types	ZZUSER3	CHAR	200	0	Determination Integration Customer field 3
ZZUSER4	Types	ZZUSER4	CHAR	200	0	Determination Integration Customer field 4
ZZUSER5	Types	ZZUSER5	CHAR	200	0	Determination Integration Customer field 5
ZZDOCNUMBER	Types	TAX_DOC_NUMBER	CHAR	12	0	Tax document number

Appends have also been completed to the following structures as part of the transport process:

Append Data		
RFC Structure Name	**Short Description**	**Append Structure Name**
TAX_CAL_JUR_LEVEL_OUT	Results of tax calculation for one jurisdiction level.	ZATAX_CAL_JUR_LEVEL_OUT
TAX_CAL_JUR_LEVEL_OUT00	Results of tax calculation for one jurisdiction level.	ZATAX_CAL_JUR_LEVEL_OUT00
EXTAX_LEVEL_CALC_DATA	Tax data per level used for calculation (int. struc.).	ZAEXTAX_LEVEL_CALC_DATA
EXTAX_JUR_LEVEL	External document jurisdiction level tax data.	ZAEXTAX_JUR_LEVEL

TAX CODE QUALIFIER FUNCTIONALITY

The Tax Code Qualifier is a new feature that was added to Determination and allows the user to create a custom tax identifier up to 200 characters long. This can be populated into a new field in the RFC return structure and then accessed by ABAP programs created by the customer in order to pull this field into reports and invoice printing functionality.

How the Tax Code Qualifier works should be reviewed in the ONESOURCE Indirect Tax Determination User Guide version 5.5.0.0. Search this document for the terms “Tax Code Qualifier” and “ERP Tax Code” in order to find sections that explain the function and how it can be configured in Determination.

Determination offers two types of tax code qualifiers: Static and Dynamic.

STATIC

A static tax code qualifier replaces the existing ERP tax code with a constant value when the condition is met. When a static tax code qualifier group is selected for an invoice, Determination evaluates each tax result against all of the associated tax code qualifiers by order number or until it finds a matching qualifier (all of the qualifier's conditions match the Tax result). Once Determination selects a qualifier, the ERP tax code for the tax result is replaced with the qualifier's static tax code value.

DYNAMIC

A dynamic tax code qualifier replaces the existing ERP tax code with the value of a selected number of fields from the XML elements for invoice and line input and tax output. When a dynamic tax qualifier group is selected for an invoice, Determination replaces the ERP tax code for each tax result with a new tax code value specified by the first active tax code qualifier. The new tax code contains a string of concatenated elements associated with the qualifier. Determination evaluates against defined conditions before the new tax code value is applied. Elements are applied in the order you specify and all applicable elements are applied.

OPTIONAL FIVE PROGRAMMABLE USER FIELDS

FLEXIBLE MAPPING CAPABILITY FOR FIVE ADDTIONAL ATTRIBUTES IN RFC RETURN STRUCTURE

Occasionally there is need for a customer to return additional fields from the tax block. We have provided a new optional feature that allows for customer mapping of up to five additional fields to each tax level of the line level output data into the RFC return. From within the return RFC a user could use ABAP to capture and populate these additional data objects into any desired custom table or customer added fields within SAP tables for use in customer solutions for reporting or invoice printing requirements. The addition of this new feature is optional and has been offered through a separate transport into your system.

This has been accomplished by adding a configuration parameter to the SabrixConnection.properties file that specifies the package and name of a Java class. The specified class is looked up and instantiated when a request is received in Integration. The class implements an interface that is defined to allow processing of the tax blocks for a jurisdiction level in order to return a set of user-defined fields that are added to the response sent back to SAP.

The customer's Java programmer can then create a method that is called by the interface. Within the method the desired fields are listed as a string specifying the jurisdiction level and the list of the tax objects for that jurisdiction level. Any object within the tax block information can be passed in this manner.

When the Integration is processing the line level results from Determination, it will split up the tax blocks on the line by jurisdiction level and call the method on the provided class once for each bucket of tax results and populate the new user-defined field's results within the RFC return. This would only be done if the configuration parameter with the name of the class was filled in.

APPENDIX 1: MAPPING SAP FIELDS TO ONESOURCE INDIRECT TAX XML

This chapter describes the mapping between SAP fields and Determination Input and Output XML.

Determination XML is organized hierarchically. A single XML data file may contain multiple batches, invoices, and distribution lines. An element value set at the batch level is passed down to the invoice and distribution line levels, unless overridden at a lower level.

The tables in this chapter describe:

- How SAP fields are mapped to AddressValidation XML.
- How SAP fields are mapped to Invoice-level Input XML.
- How SAP fields are mapped to Line-level Input XML. Each line has a unique line ID within the invoice, allowing each invoice to specify line specific values (such as different Ship-To locations) for each line. This also includes custom attributes you created in the previous chapter.
- How SAP fields are mapped to Invoice-level Output XML.
- How SAP fields are mapped to Line-level Output XML.

The following RFC modules are called for tax calculation and jurisdiction determination:

RFC Modules Called by Integration for SAP		
SAP Release	**Tax Calculation**	**Jurisdiction Determination**
R/3 4.6 and up	RFC_CALCULATE_TAXES_DOC RFC_UPDATE_TAXES_DOC RFC_FORCE_TAXES_DOC	RFC_DETERMINE_JURISDICTION

Each table is displayed beneath the associated RFC. See:

- ***MAPPING FOR RFC_DETERMINE_JURISDICTION (page 97)***
- ***MAPPING FOR RFC_CALCULATE_TAXES_DOC (page 99)***
- ***MAPPING FOR RFC_UPDATE_TAXES_DOC (page 111)***
- ***MAPPING FOR RFC_FORCE_TAXES_DOC (page 113)***

PREPARING FOR MAPPING

Before you begin the mapping process, please review:

- Leading Zeros
- Freight Lines and Product Lines
- Mapping of SAP Dates

LEADING ZEROS

ONESOURCE Indirect Tax Determination maps SAP data without removing leading zeros. Therefore, if you set up TransEditors, Customers, Exemptions, Products, or other master data in ONESOURCE Indirect Tax, you should set them up with the leading zeros.

Alternatively, you can set the *remove_leading_zeros* parameter in the *SabrixConnection.properties* file to *TRUE*, which will remove leading zeros for the following elements:

- **MAT_NR**: Material Number
- **PROD_CODE**: Product Code
- **GROUP_PROD_CODE:** Group Code
- **ACCNT_NO**: Customer Number or Vendor Number depending upon **APAR_IND**
- **ACCNT_CLS:** G/L account number
- **COST_OBJECT:** Cost Center or other cost object (i.e. order number, etc.)
- **EXCERTIF**: Exempt Certificate Number (Not normally used)

FREIGHT LINES AND PRODUCT LINES

When freight is a condition in the pricing procedure for a line item in SAP, certain fields on the product line are copied onto the freight line created by Integration. This copying process makes the freight line identical to the product line with the exception of the following fields:

- **RELATED_LINE_NUMBER**: The value of this field is set to the value of the parent line number.
- **DESCRIPTION**: The value of this field is "Freight for line xx" where xx is the line number from the parent line.
- **GROSS_AMOUNT**: The value of this field is set based on RFC value *FREIGHT_AMT*.
- **LINE_NUMBER**: The value of this field is the line number of parent line filled to the sixth position with leading zeros and a one (1) added in front, for example, 10 will be *1000010*.
- **PRODUCT_CODE**: The value of this field is set from the *freight_prod_code* in the *SabrixConnection.properties* file.

MAPPING OF SAP DATES

For a detailed explanation and additional configuration options on dates please refer to Knowledge Base article 839 at:

https://customer.sabrix.com/cgi-bin/sabrix.cfg/php/enduser/std_adp.php?p_faqid=839

MAPPING FOR RFC_DETERMINE_JURISDICTION

RFC_DETERMINE_JURISDICTION		
XML Field	**SAP Component**	**Comment**
INPUT XML		
COUNTRY	COUNTRY	
STATE	STATE	For the US only, SAP field STATE is mapped to input XML field STATE.
PROVINCE	STATE	For all countries other than US, SAP field STATE is mapped to input XML field PROVINCE.
COUNTY	COUNTY	
CITY	CITY	
POSTCODE	ZIPCODE	For US, the first 5 digits of ZIP code are mapped to POSTCODE; for all others countries everything from ZIPCODE is mapped to POSTCODE.
GEOCODE	ZIPCODE	For US, the last 4 digits of ZIPCODE are mapped to this field; for all others countries, this field is blank.
N/A	TXJCD_L1	
N/A	TXJCD_L2	
N/A	TXJCD_L3	
N/A	TXJCD_L4	
N/A	TXJCD	
N/A	OUTOF_CITY	
OUTPUT XML		
SEVERITY	RETCODE	A value of *0* indicates successful communication with Determination. A value of *1* indicates that an exception has occurred either in Integration itself or in its communication with Determination. A value of *2* indicates a severe error within Determination.
SEVERITY	ERRCODE	A value of *1* indicates that an exception has occurred either in Integration itself or in its communication with Determination. A value of *2* indicates a severe error within Determination.
MESSAGE_TEXT	ERRMSG	
COUNTRY	COUNTRY	
STATE	STATE	For the US only, SAP field STATE is mapped to input XML field STATE.

RFC_DETERMINE_JURISDICTION		
XML Field	**SAP Component**	**Comment**
PROVINCE	STATE	For all countries other than US, SAP field STATE is mapped to input XML field PROVINCE.
COUNTY	COUNTY	
CITY	CITY	
POSTCODE	ZIPCODE	
GEOCODE	ZIPCODE	
N/A	TXJCD_L1	Based on jurisdiction settings in TTXD.
N/A	TXJCD_L2	Based on jurisdiction settings in TTXD.
N/A	TXJCD_L3	Based on jurisdiction settings in TTXD.
N/A	TXJCD_L4	Based on jurisdiction settings in TTXD.
N/A	TXJCD	Build based on TTXD settings, see also below.
CITY	OUTOF_CITY	If CITY = UNINCORPORATED set OUTOF_CITY = X.

MAPPING FOR RFC_CALCULATE_TAXES_DOC

RFC_CALCULATE_TAXES_DOC INPUT XML		
Input XML Field	**SAP Component**	**Comment**
SAP FIELDS INVOICE LEVEL		
N/A	APP_SERVER	
N/A	SAP_VERSION	
N/A	INTERF_VERSION	
HOST_SYSTEM	SYST_NAME	
CALLING_SYSTEM_NUMBER	CLIENT	
EXTERNAL_COMPANY_ID	COMP_CODE	Company for which transaction is taking place.
INVOICE_NUMBER	DOC_NUMBER	SAP document number which is applicable to tax calculation, for example sales order, purchase order etc.
CURRENCY_CODE	CURRENCY	Currency Code from Company.
N/A	CURR_DEC	Used to support decimal points on values.
N/A	TXJCD_L1	Based on jurisdiction settings in TTXD.
N/A	TXJCD_L2	Based on jurisdiction settings in TTXD.
N/A	TXJCD_L3	Based on jurisdiction settings in TTXD.
N/A	TXJCD_L4	Based on jurisdiction settings in TTXD.
IS_AUDIT_UPDATE	TAX_PER_ITEM	This flag is blank in Order to Cash SD transactions, in Procure to Pay Process, this flag is X.
N/A	NR_LINE_ITEMS	Internally used.
SAP FIELDS LINE LEVEL		
COMPANY_ROLE	APAR_IND	• If SAP TXJCD_SF = US and TXJCD_ST = US and APAR_IND = A and TAX Type - 0 or Blank, or 1, the Company Role = S (Seller) • If SAP TXJCD_SF = US and TXJCD_ST = US and APAR_IND = V and Tax Type = 0 or Blank, the Company Role = S (Seller) • If SAP TXJCD_SF = US and TXJCD_ST = US and APAR_IND = V and Tax Type = 1, then Company Role = B (Buyer)
TRANSACTION_TYPE	N/A	GS (Goods) by default, overwritten at line level.
INVOICE_DATE	TAX_DATE	If Tax User Exit Provides the invoice date in the ZZINVDATE, then TAX_DATE will be ignored. See ONESOURCE Indirect Tax *Integration for SAP Global Tax Configuration Guide* for more details.

RFC_CALCULATE_TAXES_DOC INPUT XML		
Input XML Field	**SAP Component**	**Comment**
LINE.REGIME	ITEM_NO	Item number in the tax document.
LINE_NUMBER	POS_NO	Item number in the SAP document, for example, ITEM NUMBER in the Sales Order.
RELATED_LINE_ID	GROUP_ID	Prior to release 5.0, GROUP_ID was mapped to USER_ELEMENT.ATTRIBUTE49.
COUNTRY_OF_ORIGIN	COUNTRY	This is the country of goods departure. • In AR transactions, it is the country of the plant from which goods will be shipped. • In AP transactions it is the country of the company code in which AP transactions are created.
USER_ELEMENT.ATTRIBUTE50	DIVISION	
PART_NUMBER	MATNR	Material Number from line item on SAP document.
PRODUCT_CODE	PROD_CODE	Product Code can be mapped with material group in the TTXP table. There is user exit code provided to query this in the tax interface.
USER_ELEMENT.ATTRIBUTE41	GROUP_PROD_CODE	
QUANTITY	QUANTITY	
SUPPLEMENTARY_UNIT and UNIT_OF_MEASURE	UNIT	
TRANSACTION_TYPE	TAX_TYPE	• SAP TAX_TYPE 0 or 1 = TRANSACTION_TYPE = GS. • TAX_TYPE = 2 TRANSACTION_TYPE = DS. • TAX_TYPE = 3 TRANSACTION_TYPE = RR. • All other TAX_TYPES error. Tax Type is derived from the properties of TAX Code where it is maintained on the field called Tax Category Field.
IS_EXEMPT.ALL	EXEMP_IND	• If SAP EXEMP_IND is 'null' or 0, IS_EXEMPT.ALL is not set. • If EXEMP_IND is 1, IS_EXEMPT.ALL is set to N, forcing no exemption. • If EXEMP_IND is 2, IS_EXEMPT.ALL is set to Y, forcing an exemption.
SHIP_FROM	TXJCD_SF	• In SD transaction, this jurisdiction code comes from Plant from which goods will be shipped. • In MM transaction, this jurisdiction code is derived from Vendor location.

RFC_CALCULATE_TAXES_DOC INPUT XML		
Input XML Field	**SAP Component**	**Comment**
SHIP_TO	TXJCD_ST	• In SD transaction, this jurisdiction code comes from ship-to-customer location. • In MM transaction, this jurisdiction code is derived from plant where goods will be received. • In SD/FI transactions, this is always derived from the Customer number entered on the transaction. • In MM/FI transactions, this is a jurisdiction code from cost object (Cost Center, Asset, Plant, Tax) entered on the line item of the transaction.
ORDER_ACCEPTANCE	TXJCD_POA	• In SD transaction, this jurisdiction code is derived from Plant. We have provided user exit code to derive this code from Sales Organization. • In MM transaction, this is derived from Vendor location. • In SD/FI transactions, this is always derived from the Customer number entered on the transaction. • In MM/FI transactions, this is a jurisdiction code from cost object (Cost Center, Asset, Plant, Tax) entered on the line item of the transaction.
ORDER_ORIGIN	TXJCD_POO	• In SD Transaction, this jurisdiction code is derived from Ship-to Customer. • In MM transaction, this is derived from Plant where goods will be received. • In SD/FI transactions, this is always derived from the Customer number entered on the transaction. • In MM/FI transactions, this is a jurisdiction code from cost object (Cost Center, Asset, Plant, Tax) entered on the line item of the transaction.
GROSS_AMOUNT	AMOUNT	Net Value for Tax Calculation as determined by SAP. If FREIGHT_AM is > 0, then GROSS_AMOUNT = AMOUNT - FREIGHT_AM.
USER_ELEMENT.ATTRIBUTE48	GROSS_AMOUNT	GROSS_AMOUNT is always equal to original AMOUNT value.
GROSS_AMOUNT	FREIGHT_AM	If FRIEGHT_AM is not equal to 0, Integration creates two lines for tax calculation. In that case a special freight line will be created in Integration for tax calculation purposes.

RFC_CALCULATE_TAXES_DOC INPUT XML		
Input XML Field	**SAP Component**	**Comment**
EXEMPT_AMOUNT.-STATE / COUNTRY	EXEMPT_AMT	For US = STATE, all others COUNTRY.
LINE.CUSTOMER_NUMBER or LINE.VENDOR_NUMBER	ACCNT_NO	Prior to release 5.0, USER_ELEMENT.ATTRIBUTE47 was mapped to ACCNT_NO if APAR_IND = A. As of release 5.0 release, this mapping is based on APAR_IND. If APAR_IND = A, this represents the line ship-to Customer Number from SAP. If APAR_IND = V, this represents the Vendor Number from SAP.
USER_ELEMENT.ATTRIBUTE42	ACCNT_CLS	
USER_ELEMENT.ATTRIBUTE43	COST_OBJECT	
POINT_OF_TITLE_TRANSFER	PTP_IND	Prior to the 5.0 release, there was user exit code to map PTP_IND based on INCO TERMS in SAP. We have still provided this code, but this code is optional with 5.0 release since Incoterms can be mapped with Point of Title Transfer. See Configuring User Exits for more information.
EXEMPT_CERTIFICATE- STATE / COUNTRY	EXCERTIF	For US = STATE, all others COUNTRY.
EXEMPT_REASON- STATE / COUNTRY	EXREASON	For US = STATE, all others COUNTRY.
USER_ELEMENT.ATTRIBUTE44	USER_DATA	
INTERNATIONAL FIELDS LINE LEVEL		
SELLER_PRIMARY	ZZTXJCD_SP	Seller: Company Code JCD from T001 address Buyer: Vendor JCD from LFA1 address
BUYER_PRIMARY>>	ZZTXJCD_BY	Seller: Sold-to JCD from KNA1 address Buyer: Company Code JCD from T001 address
MIDDLEMAN	ZZTXJCD_MM	Custom mapping via user exit
SUPPLY	ZZTXJCD_SU	Seller: Sold-to JCD from KNA1 address Buyer: Vendor JCD from LFA1 address
REGISTRATIONS.SELLER_ROLE	ZZSPREG_01	Seller: Company Code Registration from T001 Buyer: Vendor Registration from LFA1
REGISTRATIONS.SELLER_ROLE	ZZSPREG_02	Seller: Company Code Registrations from T001N Buyer: Vendor Registrations from LFAS

RFC_CALCULATE_TAXES_DOC INPUT XML		
Input XML Field	**SAP Component**	**Comment**
REGISTRATIONS.SELLER_ROLE	ZZSPREG_03	Seller: Company Code Registrations from T001N Buyer: Vendor Registrations from LFAS
REGISTRATIONS.SELLER_ROLE	ZZSPREG_04	Seller: Company Code Registrations from T001N Buyer: Vendor Registrations from LFAS
REGISTRATIONS.SELLER_ROLE	ZZSPREG_05	Seller: Company Code Registrations from T001N Buyer: Vendor Registrations from LFAS
REGISTRATIONS.SELLER_ROLE	ZZSPREG_06	Seller: Company Code Registrations from T001N Buyer: Vendor Registrations from LFAS
	ZZSPRV_01	Seller Provincial - Customer Specific
REGISTRATION.BUYER _ROLE	ZZBYREG_01	Seller: Sold-to Registration from KNA1 Buyer: Company Code Registration from T001
REGISTRATION.BUYER _ROLE	ZZBYREG_02	Seller: Sold-to Registrations from KNAS Buyer: Company Code Registrations from T001N
REGISTRATION.BUYER _ROLE	ZZBYREG_03	Seller: Sold-to Registrations from KNAS Buyer: Company Code Registrations from T001N
REGISTRATION.BUYER _ROLE	ZZBYREG_04	Seller: Sold-to Registrations from KNAS Buyer: Company Code Registrations from T001N
REGISTRATION.BUYER _ROLE	ZZBYREG_05	Seller: Sold-to Registrations from KNAS Buyer: Company Code Registrations from T001N
REGISTRATION.BUYER _ROLE	ZZBYREG_06	Seller: Sold-to Registrations from KNAS Buyer: Company Code Registrations from T001N
	ZZBYPRV_01	Buyer Provincial - Customer Specific
Not mapped, planned for future release.	ZZSPCTRY_01	Seller: Company Code Registration Country from T001 Buyer: Vendor Registration Country from LFA1
Not mapped, planned for future release.	ZZSPCTRY_02	Seller: Company Code Registration Countries from T001N Buyer: Vendor Registration Countries from LFAS

RFC_CALCULATE_TAXES_DOC INPUT XML		
Input XML Field	**SAP Component**	**Comment**
Not mapped, planned for future release.	ZZSPCTRY_03	Seller: Company Code Registration Countries from T001N Buyer: Vendor Registration Countries from LFAS
Not mapped, planned for future release.	ZZSPCTRY_04	Seller: Company Code Registration Countries from T001N Buyer: Vendor Registration Countries from LFAS
Not mapped, planned for future release.	ZZSPCTRY_05	Seller: Company Code Registration Countries from T001N Buyer: Vendor Registration Countries from LFAS
Not mapped, planned for future release.	ZZSPCTRY_06	Seller: Company Code Registration Countries from T001N Buyer: Vendor Registration Countries from LFAS
Not mapped, planned for future release.	ZZBYCTRY_01	Seller: Sold-to Registration Country from KNA1 Buyer: Company Code Registration Country from T001
Not mapped, planned for future release.	ZZBYCTRY_02	Seller: Sold-to Registration Countries from KNAS Buyer: Company Code Registration Country from T001N
Not mapped, planned for future release.	ZZBYCTRY_03	Seller: Sold-to Registration Countries from KNAS Buyer: Company Code Registration Country from T001N
Not mapped, planned for future release.	ZZBYCTRY_04	Seller: Sold-to Registration Countries from KNAS Buyer: Company Code Registration Country from T001N
Not mapped, planned for future release.	ZZBYCTRY_05	Seller: Sold-to Registration Countries from KNAS Buyer: Company Code Registration Country from T001N
Not mapped, planned for future release.	ZZBYCTRY_06	Seller: Sold-to Registration Countries from KNAS Buyer: Company Code Registration Country from T001N
DISCOUNT_AMOUNT	ZZDISC_AMT	Pricing Procedure Condition Sub Total 6; KZWI6
TRANSACTION_TYPE	ZZTRANS_TYPE	New Specific Table ZZTRANS_TYPE_MAP

RFC_CALCULATE_TAXES_DOC INPUT XML		
Input XML Field	**SAP Component**	**Comment**
COMMODITY_CODE	ZZCOM_CODE	Commodity Code from Material Master; MARC-STAWN
CONTROL_CODE	ZZCONTROL_CODE	Control code from Material Master; MARC-STEUC
IS_BUSINESS_SUPPLY	ZZMATERIAL_USAGE	Brazil Material Usage from Material Master; MBEW-MTUSE
ORIGINAL_INVOICE_NUMBER	ZZORIG_INV	Reference Document Number for cancellations
DELIVERY_TERMS	ZZINCO1	Incoterm on line item
TITLE_TRANSFER_LOCATION	ZZINCO2	Incoterm description on line item
INVOICE_DATE	ZZINVDATE	Date during invoice creation
MOVEMENT_DATE	ZZMOVDATE	Seller: Goods Issue date Buyer: Goods Receipt Date
SHIP_FROM.LOCATION_TAX_CATEGORY	ZZSHIPFRLOCCAT	Customer Specific
SHIP_TO.LOCATION_TAX_CATEGORY	ZZSHIPTOLOCCAT	Customer Specific
Not Used in Sabrix	ZZVBTYP	SD document category (Note: This flag has been used internally in the Tax user exit).
INCLUSIVE_TAX_INDICATORS.AUTHORITY_TYPE	ZZINCLU_AUTH1	Customer Specific
INCLUSIVE_TAX_INDICATORS.AUTHORITY_TYPE	ZZINCLU_AUTH2	Customer Specific
INCLUSIVE_TAX_INDICATORS.AUTHORITY_TYPE	ZZINCLU_AUTH3	Customer Specific
INCLUSIVE_TAX_INDICATORS.AUTHORITY_TYPE	ZZINCLU_AUTH4	Customer Specific
INCLUSIVE_TAX_INDICATORS.AUTHORITY_TYPE	ZZINCLU_AUTH5	Customer Specific
INCLUSIVE_TAX_INDICATORS.AUTHORITY_TYPE	ZZINCLU_AUTH6	Customer Specific
INCLUSIVE_TAX_INDICATORS.AUTHORITY_TYPE	ZZINCLU_AUTH7	Customer Specific
INCLUSIVE_TAX_INDICATORS.AUTHORITY_TYPE	ZZINCLU_AUTH8	Customer Specific
INCLUSIVE_TAX_INDICATORS.AUTHORITY_TYPE	ZZINCLU_AUTH9	Ship-To location Tax Category: Customer will maintain it on the relevant address and query it in the tax-interface user exit. ONESOURCE *Indirect Tax Integration for SAP Global Tax Configuration Guide* explains this in detail.

RFC_CALCULATE_TAXES_DOC INPUT XML		
Input XML Field	**SAP Component**	**Comment**
INCLUSIVE_TAX_INDICATORS.AUTHORITY_TYPE	ZZINCLU_AUTH10	Ship-From Location Tax Category, Customer will maintain it on the relevant address and query it in the tax-interface user exit. ONESOURCE *Indirect Tax Integration for SAP Global Tax Configuration Guide* explains this in detail.
	ZZCRE_DBT	Credit debit indicator field.
40 ADDITIONAL FIELDS		
USER_ELEMENT.ATTRIBUTE1	ZZATTRIBUTE1	CHAR 10
USER_ELEMENT.ATTRIBUTE2	ZZATTRIBUTE2	CHAR 10
USER_ELEMENT.ATTRIBUTE3	ZZATTRIBUTE3	CHAR 10
USER_ELEMENT.ATTRIBUTE4	ZZATTRIBUTE4	CHAR 10
USER_ELEMENT.ATTRIBUTE5	ZZATTRIBUTE5	CHAR 10
USER_ELEMENT.ATTRIBUTE6	ZZATTRIBUTE6	CHAR 10
USER_ELEMENT.ATTRIBUTE7	ZZATTRIBUTE7	CHAR 10
USER_ELEMENT.ATTRIBUTE8	ZZATTRIBUTE8	CHAR 10
USER_ELEMENT.ATTRIBUTE9	ZZATTRIBUTE9	CHAR 10
USER_ELEMENT.ATTRIBUTE10	ZZATTRIBUTE10	CHAR 10
USER_ELEMENT.ATTRIBUTE11	ZZATTRIBUTE11	CHAR 25
USER_ELEMENT.ATTRIBUTE12	ZZATTRIBUTE12	CHAR 25
USER_ELEMENT.ATTRIBUTE13	ZZATTRIBUTE13	CHAR 25
USER_ELEMENT.ATTRIBUTE14	ZZATTRIBUTE14	CHAR 25
USER_ELEMENT.ATTRIBUTE15	ZZATTRIBUTE15	CHAR 25
USER_ELEMENT.ATTRIBUTE16	ZZATTRIBUTE16	CHAR 25
USER_ELEMENT.ATTRIBUTE17	ZZATTRIBUTE17	CHAR 25
USER_ELEMENT.ATTRIBUTE18	ZZATTRIBUTE18	CHAR 25
USER_ELEMENT.ATTRIBUTE19	ZZATTRIBUTE19	CHAR 25
USER_ELEMENT.ATTRIBUTE20	ZZATTRIBUTE20	CHAR 25
USER_ELEMENT.ATTRIBUTE21	ZZATTRIBUTE21	CHAR 25
USER_ELEMENT.ATTRIBUTE22	ZZATTRIBUTE22	CHAR 25
USER_ELEMENT.ATTRIBUTE23	ZZATTRIBUTE23	CHAR 25
USER_ELEMENT.ATTRIBUTE24	ZZATTRIBUTE24	CHAR 25
USER_ELEMENT.ATTRIBUTE25	ZZATTRIBUTE25	CHAR 25
USER_ELEMENT.ATTRIBUTE26	ZZATTRIBUTE26	CHAR 25
USER_ELEMENT.ATTRIBUTE27	ZZATTRIBUTE27	CHAR 25

RFC_CALCULATE_TAXES_DOC INPUT XML		
Input XML Field	**SAP Component**	**Comment**
USER_ELEMENT.ATTRIBUTE28	ZZATTRIBUTE28	CHAR 25
USER_ELEMENT.ATTRIBUTE29	ZZATTRIBUTE29	CHAR 25
USER_ELEMENT.ATTRIBUTE30	ZZATTRIBUTE30	CHAR 25
USER_ELEMENT.ATTRIBUTE31	ZZATTRIBUTE31	CHAR 50
USER_ELEMENT.ATTRIBUTE32	ZZATTRIBUTE32	CHAR 50
USER_ELEMENT.ATTRIBUTE33	ZZATTRIBUTE33	CHAR 50
USER_ELEMENT.ATTRIBUTE34	ZZATTRIBUTE34	CHAR 50
USER_ELEMENT.ATTRIBUTE35	ZZATTRIBUTE35	CHAR 50
USER_ELEMENT.ATTRIBUTE36	ZZATTRIBUTE36	CHAR 50
USER_ELEMENT.ATTRIBUTE37	ZZATTRIBUTE37	CHAR 50
USER_ELEMENT.ATTRIBUTE38	ZZATTRIBUTE38	CHAR 50
USER_ELEMENT.ATTRIBUTE39	ZZATTRIBUTE39	CHAR 200
USER_ELEMENT.ATTRIBUTE40	ZZATTRIBUTE40	CHAR 200

RFC_CALCULATE_TAXES_DOC OUTPUT XML		
Output XML Field	**SAP Component**	**Comment**
SAP FIELDS INVOICE LEVEL		
Read from Integration library	API_VERSION	Integration Version.
Read from Determination	SYST_VERSION	Determination Version.
Read from library	DB_VERSION	SAP JCo Version.
SEVERITY	RETCODE	A value of *0* indicates successful communication with Determination. A value of *1* indicates that an exception has occurred either in Integration itself or in its communication with Determination. A value of *2* indicates a severe error within Determination
USER_ELEMENT_ATTRBUTE49	ERROR_LINE	First line found with an error.
SEVERITY	ERRCODE	A value of NULL indicates that a connection could not be made with Determination. A value of *1* indicates that an exception has occurred either in Integration itself or in its communication with Determination. A value of *2* indicates a severe error within Determination.
MESSAGE_TEXT	ERRMSG	Message up to 200 characters.

RFC_CALCULATE_TAXES_DOC OUTPUT XML		
Output XML Field	**SAP Component**	**Comment**
SAP FIELDS LINE LEVEL		
LINE_REGIME	ITEM_NO	
N/A	TXJCD_IND	
N/A	TAXPCOV	Calculated within Integration as an effective rate.
TOTAL_TAX_AMOUNT	TAXAMOV	
N/A	EXMATFLAG	
N/A	EXCUSFLG	
TAX_EXEMPT_CERTIFICATE	EXT_EXCERTIF	
TAX_EXEMPT_REASON	EXT_EXREASON	
N/A	NR_JUR_LEVELS	
SAP FIELDS JURISDICTION LEVEL		
LINE.REGIME	ITEM_NO	
TAX_AUTHORITY_TYPE	TXJLV	
TAX_RATE	TAXPCT	
TAX_AMOUNT	TAXAMT	
TAX_TAXABLE_BASIS	TAXBAS	
TAX_EXEMPT_AMOUNT	EXAMT	
TAX_EXEMPT_REASON	EXCODE	
INVOICE PRINT AND BRAZIL NOTA FISCAL		
1st TAX.MIDDLEMAN_REGISTRATION 2nd TAX.VAT_GROUP_REGISTRATION 3rd TAX.SELLER_REGISTRATION	ZZ_COMP_REG	Company Registration /. Middleman Registration.
TAX_BUYER_REGISTRATION	ZZ_CUST_REG	Customer Registration.
TAX_EXEMPT_CERTIFICATE	ZZ_EXEMPT_NO	Exemption Certificate Number.
TAX_EXEMPT_REASON	ZZ_EXEMPT_TEXT	Exemption Text.
TAX_EXEMPT_CERTIFICATE_EXPIRE_DATE	ZZ_EXEMPT_DATE	Exemption Expiration Date.
1st TAX.JURISDICTION_TEXT 2nd TAX_INVOICE_DESCRIPTION	ZZ_INV_TEXT	Invoice Description.
LINE_TRANSACTION_TYPE	ZZ_TRANS_TYPE	Transaction Type.
Provided by mapping file	ZZ_LANGUAGE_KEY	Language according to ISO 639.

RFC_CALCULATE_TAXES_DOC OUTPUT XML		
Output XML Field	**SAP Component**	**Comment**
If TAX_TREATMENT = D in the output XML tax block, then Integration will map taxes to this field in the document currency. TAX_AMOUNT_DOCUMENT_AMOUNT>	ZZDEFTAXAMT	Deferred Tax Amount.
If TAX_TREATMENT = D in the output XML tax block, then Integration will map taxes to this field in the authority currency if exchange is applicable. TAX_AMOUNT_AUTHORITY_AMOUNT	ZZDEFAUTAMT	Deferred Tax Amount in authority currency.
EXCHANGE_RATE_DATE	ZZTERD	Tax Exchange Rate Date.
TAX_POINT_DATE	ZZTPD	Tax Point Date.
TAX_DETERMINATION_DATE	ZZTDD	Tax Determination Date.
LICENSES_LICENSE_TYPE_NAME	ZZLICTYPE1	License Type 1. Integration will pass the first license type to SAP.
LICENSES_LICENSE_NUMBER	ZZLICNUM1	License Number Returned by License Type1. Integration will pass the first license number associated with the first license type to SAP.
LICENSES_LICENSE_TYPE_NAME	ZZLICTYPE2	License Type 2.
LICENSES_LICENSE_NUMBER>	ZZLICNUM2	License Number Returned by License Type 2. All other license types and numbers will be ignored. Only two license types and license numbers will be passed on a given jurisdiction level.
EXEMPT_AMOUNT_AUTHORITY_AMOUNT	ZZAUTHEXMPTAM	Converted Authority Exempt Amount.
TAXABLE_BASIS_AUTHORITY_AMOUNT	ZZAUTHTAXBASIS	Converted Authority Taxable Basis Amount.
TAX_AMOUNT_AUTHORITY_AMOUNT	ZZAUTHTAXAMT	Converted Authority Tax Amount.
INVOICE_CURRENCY_CODE	ZZDOCCURCODE	Document Currency Key.

RFC_CALCULATE_TAXES_DOC OUTPUT XML		
Output XML Field	**SAP Component**	**Comment**
CONVERSION_STEPS (2) TO_CURRENCY_CODE	ZZINTMEDCURCODE	Intermediate Currency Code.
CONVERSION_STEPS (1) TO_CURRENCY_CODE	ZZAUTHCURCODE	Authority Currency Code.
EXCHANGE_RATE	ZZEXCNG1	Exchange Rate 1.
EXCHANGE_RATE	ZZEXCNG2	Exchange Rate 2.
This has been used internally in the billing user exit for conversion.	ZZCURR_DEC	Number of decimal places for currency (characters).
NON_TAXABLE_BASIS_AUTHORITY _AMOUNT	ZZAUTHNONTAXBASIS	Converted Authority Non Taxable Basis Amount.
AUTHORITY_TYPE	ZZAUTHTYPE	Authority Type.
IS_BUSINESS_SUPPLY	ZZBUSSUPPLY	Business Supply.
IS_EXEMPT	ZZISEXEMPT	Rule exempt indicator.
NON_TAXABLE_BASIS_DOCUMENT AMOUNT	ZZNONTAXBASIS	Document Currency Non Taxable Basis Amount.
ERP_TAX_CODE	ZZERP_TAX_CODE	New Distribution field for tax code qualifier.
N/A	ZZDOCNUMBER	Document number from the SAP transaction.
FIVE OPTIONAL USER DEFINED FIELDS		
	ZZUSER1	Mapping by Java Post Calculation.
	ZZUSER2	Mapping by Java Post Calculation.
	ZZUSER3	Mapping by Java Post Calculation.
	ZZUSER4	Mapping by Java Post Calculation.
	ZZUSER5	Mapping by Java Post Calculation.

MAPPING FOR RFC_UPDATE_TAXES_DOC

Mapping for RFC_UPDATE_TAXES_DOC requires the following types of mapping in addition to what is already displayed in the various sections of RFC_CALCULATE_TAXES_DOC. This is an incremental list.

For all other field mappings, see ***MAPPING FOR RFC_CALCULATE_TAXES_DOC (page 99)***.

RFC_UPDATE_TAXES_DOC		
Input XML Field	**SAP Component**	**Comment**
INVOICE-LEVEL INPUT XML		
IS_AUDIT_UPDATE	TAX_PER_ITEM	For SD Transactions, this field is always blank; for MM transactions, this field is always X since SAP makes a call on the line level for tax calculation. If it is X, then IS_AUDIT_UPDATE = Y.
N/A	NR_LINE_ITEMS	Internally used.
IS_AUDITED	N/A	If RFC CALL is UPDATE or FORCE, then IS_AUDITED = Y.
FISCAL_DATE	REP_DATE	From first line item where REP_DATE represents the posting date.
CALCULATION_DIRECTION	N/A	For UPDATE set to F.
LINE-LEVEL INPUT XML		
N/A	REP_DATE	Mapped to Invoice Input level.
N/A	CREDIT_IND	If APAR_IND = V and COUNTRY does not equal US or CA. • If CREDIT_IND = 0, the sign is positive and IS_CREDIT = N. • If CREDIT_IND = 1, the sign is negative and IS_CREDIT = Y. • IS_CREDIT is a line level input XML field.
LINE-LEVEL OUTPUT XML		
Read from Integration library	API_VERSION	Integration Version.
Read from Determination	SYST_VERSION	Determination Version.
Read from library	DB_VERSION	SAP JCo Version.
SEVERITY	RETCODE	A value of *0* indicates successful communication with Determination. A value of *1* indicates that an exception has occurred either in Integration itself or in its communication with Determination. A value of *2* indicates a severe error within Determination.
USER_ELEMENT.ATTRBUTE49	ERROR_LINE	First line found with an error.

RFC_UPDATE_TAXES_DOC		
Input XML Field	**SAP Component**	**Comment**
SEVERITY	ERRCODE	A value of *0* indicates successful communication with Determination. A value of *1* indicates that an exception has occurred either in Integration itself or in its communication with Determination. A value of *2* indicates a severe error within Determination.
MESSAGE_TEXT	ERRMSG	Message up to 200 characters.

MAPPING FOR RFC_FORCE_TAXES_DOC

Mapping for RFC_FORCE_TAXES_DOC requires the following types of mapping in addition to what is already displayed in the various sections of RFC_CALCULATE_TAXES_DOC. This is an incremental list.

For all other field mappings, see ***MAPPING FOR RFC_CALCULATE_TAXES_DOC (page 99)***.

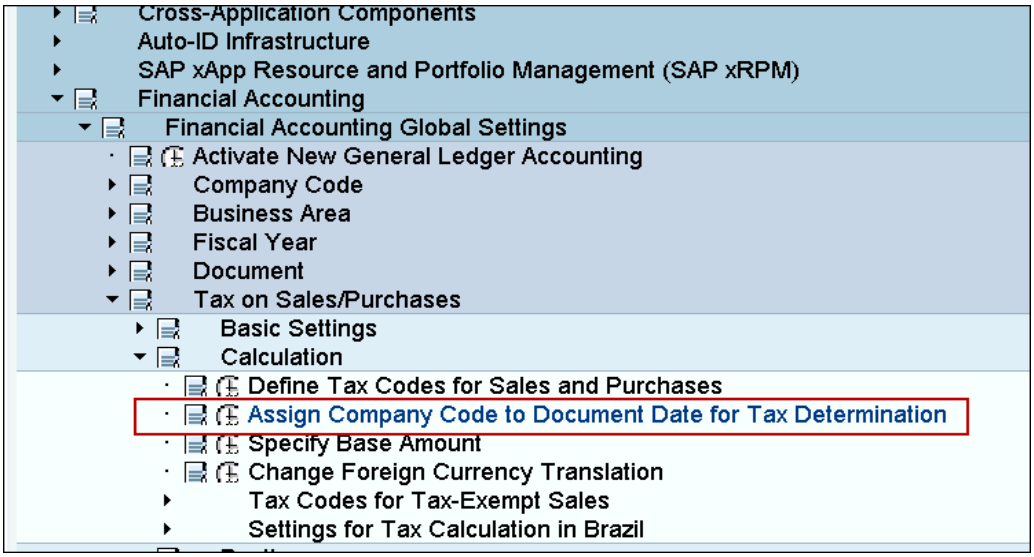
RFC_FORCE_TAXES_DOC		
Input XML Field	**SAP Component**	**Comment**
INVOICE-LEVEL INPUT XML		
IS_AUDIT_UPDATE	TAX_PER_ITEM	
N/A	NR_LINE_ITEMS	Internally used.
IS_AUDITED	N/A	For UPDATE and FORCE set to Y.
FISCAL_DATE	REP_DATE	From first line item.
CALCULATION_DIRECTION	N/A	For FORCE set to R.
LINE-LEVEL INPUT XML		
N/A	REP_DATE	Mapped to Invoice Input level.
N/A	CREDIT_IND	
USER_ELEMENT.ATTRIBUTE45	STORE_CODE	
USER_ELEMENT.ATTRIBUTE46	USER_REPT_DATA	
N/A	TXJCD_IND	
N/A	TAXPCOV	
TAX_AMOUNT	TAXAMOV	
N/A	EXMATFLAG	
N/A	EXCUSFLG	
N/A	EXT_EXCERTIF	
N/A	EXT_EXREASON	
N/A	NR_JUR_LEVELS	
LINE-LEVEL JURISDICTION XML		
LINE.REGIME	ITEM_NO	
N/A	TXJLV	
N/A	TAXPCT	
OVERRIDE_AMOUNT.<level>	TAXAMT	<level> according to tax jurisdiction level.
N/A	TAXBAS	
EXEMPT_AMOUNT.<level>	EXAMT	<level> according to tax jurisdiction level.
EXEMPT_REASON.<level>	EXCODE	<level> according to tax jurisdiction level.

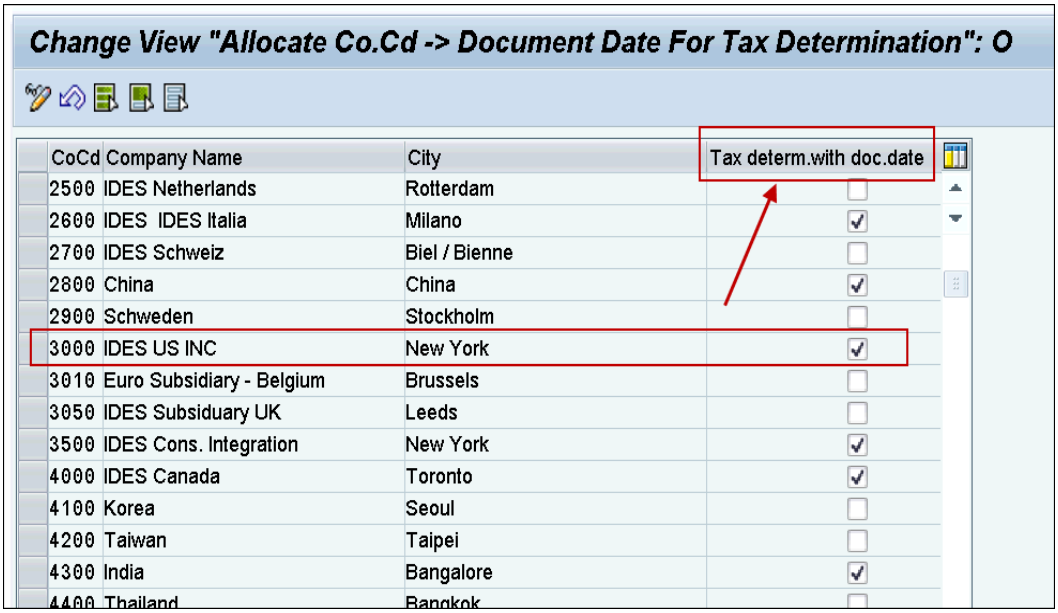
RFC_FORCE_TAXES_DOC		
Input XML Field	**SAP Component**	**Comment**
LINE-LEVEL OUTPUT XML		
Read from .profile	API_VERSION	Integration Version.
Read from library of .profile	SYST_VERSION	Determination Version.
Read from library	DB_VERSION	SAP JCo Version.
SEVERITY	RETCODE	A value of *0* indicates successful communication with Determination. A value of *1* indicates that an exception has occurred either in Integration itself or in its communication with Determination. A value of *2* indicates a severe error within Determination.
USER_ELEMENT.ATTRBUTE49	ERROR_LINE	First line found with an error.
SEVERITY	ERRCODE	A value of *0* indicates successful communication with Determination. A value of *1* indicates that an exception has occurred either in Integration itself or in its communication with Determination. A value of *2* indicates a severe error within Determination.
MESSAGE_TEXT	ERRMSG	Message up to 200 characters.

Configure SAP to send the Invoice date instead of the posting date to Audit:

By default SAP sends the posting date to ONESOURCE Indirect Tax audit in transactions FB60, FB70, MIRO, FB01 and FB05. If instead you would like to pass the Document/Invoice Date then you will need to follow the below steps in the FI area of configuration.

Use SPRO transaction: **Financial Accounting / Financial Accounting Global Settings / Tax on Sales and Purchases / Calculation / Assign Company Code to Document Type for Tax Determination.**





APPENDIX 2: TRANSPORTS

ONESOURCE INDIRECT TAX TRANSPORTS

Transports for the global installation guide are located on your computer. You will find them in the Code folder which is below SBXIntegrationSAP5.2.0.0E folder. They are not listed in transport order.

Have your basis person locate and install these transports in the order that they are shown in the table below.

Transport Number	Page Reference	Purpose	Apply Order
K900186.DO2 R900186.DO2	***ONESOURCE Indirect Tax Integration for SAP - 40 Input User Attributes. (page 14)***	SAP package for the transport, and append/addition of 40 attribute fields	1st
K900180.DO2 R900180DO2	***ONESOURCE Indirect Tax Integration for SAP - Enhanced Global template. (page 14)***	Adds international attributes to the SAP standard tax interface	2nd
K900182.DO2 R900182.DO2	***ONESOURCE Indirect Tax Integration for SAP - 5 Output User Attributes. (page 15)***	Optional transport of 5 programmable user fields	3rd
K900184.DO2 R900184.DO2	***ONESOURCE Indirect Tax Integration for SAP - Brazil template. (page 15)***	Optional transport. Adds package, base amounts, function modules, etc. used to support Brazil Nota Fiscal	4th

As your basis person adds each of these transports you can refer to the information below in order to confirm that the transports added all items as expected.

If you are an upgrade customer applying your transports as an upgrade to 5.2.0.0.E from a prior version then refer to the following Knowledge base article for other helpful information on pre-transport adjustments at:

https://customer.sabrix.com/app/answers/detail/a_id/1135

K900186.DO2/R900186.DO2

ONESOURCE Indirect Tax Integration for SAP - 40 Input User Attributes

After applying this transport, you will have the following items added to your system:

- Package Z_Sabrix_Connector
- Newly created structure ZUSERELEMENTS_ITEM that includes 40 new customer attributes.
- Appended Tax Tables. The following table lists the SAP tables that are now appended and within the appends, inclusion of the new ZUSERELEMENTS_ITEM Structure.

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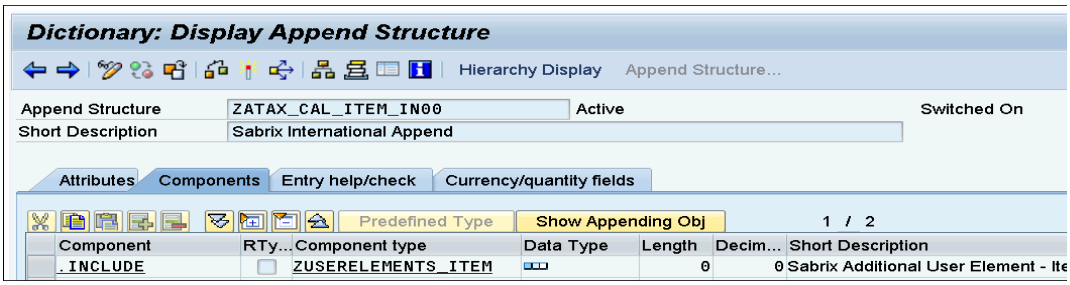
SAP Tables to Append		
Component	**Append**	**Append Name**
TAX_CAL_ITEM_IN00	ZATAX_CAL_ITEM_IN00	Sabrix Append
TAX_UPD_ITEM_IN00	ZATAX_UPD_ITEM_IN00	Sabrix Append
TAX_FRC_ITEM_IN00	ZATAX_FRC_ITEM_IN00	Sabrix Append
TAX_USER_INF	ZATAX_USER_INF	Sabrix Append
TAX_ALLOWED_FIELDS	ZATAX_ALLOWED_FIELDS	Sabrix Append



K900180.DO2/R900180.DO2

ONESOURCE Indirect Tax Integration for SAP - Enhanced Global template

Before processing the International Attributes Transport, make sure that customer exit FYTX0002 component structure CI_TAX_INPUT_USER is set up in your system. It is important that this be set up prior to the transport in order to avoid an error while doing the transport.

Before processing the International Attributes Transport make sure that the below list of fields are not in the structure CI_TAX_INPUT_USER as it will conflict with the transport and cause an error. See list below:

Component	Short Description
MATKL	Material group
EVRTP	Item number of purchasing document
EVRTN	Purchasing document number
KZWI4	Condition subtotal
VKORG	Sales organization
PSTYV	Sales document item category
PSTYP	Item category in purchasing document
INCO1	Incoterms (part1)
WERKS	Plant
ZZADRNR_BY	Address
KZWI6	Condition subtotal
VBTYP	SD document category
VGBEL	Document number of the reference document
ZZKUNNRJCD	Sold-to-party tax jurisdiction code
ZZKUNNR	Sold-to-party
INCO2	Incoterms (part2)
ZZINVDATE	Invoice date
ZZMOVDATE	GI-GR movement date
ZZ_CRE_DBT	Credit/debit indicator

If this is an upgrade rather than a new implementing make sure that none of the ONESOURCE Indirect Tax provided user exits, i.e.: (ZXFYTU03_SABRIX.txt, etc.) contain any custom code specific to your needs and environment. If so you will want to save a copy and re-apply any custom changes as the re-application via the transport may remove your custom additions.

The following list of items have been included in this transport:

Item Type	Name
TABLE DEFINITION	LIMU TABD ZATAX_ALLOWED_FIELDS
TABLE DEFINITION	LIMU TABD ZATAX_CAL_ITEM_IN00
TABLE DEFINITION	LIMU TABD ZATAX_FRC_ITEM_IN00
TABLE DEFINITION	LIMU TABD ZATAX_UPD_ITEM_IN00
TABLE DEFINITION	LIMU TABD ZATAX_USER_INF
DOMAIN	R3TR DOMA ZTRANS_TYPE
DATA ELEMENT	R3TR DTEL ZAD_TXJCD
DATA ELEMENT	R3TR DTEL ZBPRVREG_01

Item Type	Name
DATA ELEMENT	R3TR DTEL ZBTCTRY_01
DATA ELEMENT	R3TR DTEL ZBTCTRY_02
DATA ELEMENT	R3TR DTEL ZBTCTRY_03
DATA ELEMENT	R3TR DTEL ZBTCTRY_04
DATA ELEMENT	R3TR DTEL ZBTCTRY_05
DATA ELEMENT	R3TR DTEL ZBTCTRY_06
DATA ELEMENT	R3TR DTEL ZBYREG_01
DATA ELEMENT	R3TR DTEL ZBYREG_02
DATA ELEMENT	R3TR DTEL ZBYREG_03
DATA ELEMENT	R3TR DTEL ZBYREG_04
DATA ELEMENT	R3TR DTEL ZBYREG_05
DATA ELEMENT	R3TR DTEL ZBYREG_05
DATA ELEMENT	R3TR DTEL ZDISC_AMT
DATA ELEMENT	R3TR DTEL ZINCLU_IND
DATA ELEMENT	R3TR DTEL ZREF_DOC_NUMBER
DATA ELEMENT	R3TR DTEL ZSOURCE_TYPE
DATA ELEMENT	R3TR DTEL ZSPCTRY_01
DATA ELEMENT	R3TR DTEL ZSPCTRY_02
DATA ELEMENT	R3TR DTEL ZSPCTRY_03
DATA ELEMENT	R3TR DTEL ZSPCTRY_04
DATA ELEMENT	R3TR DTEL ZSPCTRY_05
DATA ELEMENT	R3TR DTEL ZSPCTRY_06
DATA ELEMENT	R3TR DTEL ZSPREG_01
DATA ELEMENT	R3TR DTEL ZSPREG_02
DATA ELEMENT	R3TR DTEL ZSPREG_03
DATA ELEMENT	R3TR DTEL ZSPREG_04
DATA ELEMENT	R3TR DTEL ZSPREG_05
DATA ELEMENT	R3TR DTEL ZSPREG_06
DATA ELEMENT	R3TR DTEL ZSPRVREG_01
DATA ELEMENT	R3TR DTEL ZTRANS_TYPE
DATA ELEMENT	R3TR DTEL ZTXJCD_BY
DATA ELEMENT	R3TR DTEL ZTXJCD_MM
DATA ELEMENT	R3TR DTEL ZTXJCD_SP
DATA ELEMENT	R3TR DTEL ZTXJCD_SU
DATA ELEMENT	R3TR DTEL ZZAUTHCURCODE

Item Type	Name
DATA ELEMENT	R3TR DTEL ZZAUTHEXMPTAM
DATA ELEMENT	R3TR DTEL ZZAUTHEXMPTAM1
DATA ELEMENT	R3TR DTEL ZZAUTHNONTAXBASIS
DATA ELEMENT	R3TR DTEL ZZAUTHTAXAMT
DATA ELEMENT	R3TR DTEL ZZAUTHTAXAMT1
DATA ELEMENT	R3TR DTEL ZZAUTHTAXBASIS
DATA ELEMENT	R3TR DTEL ZZAUTHTAXBASIS1
DATA ELEMENT	R3TR DTEL ZZAUTHTYPE
DATA ELEMENT	R3TR DTEL ZZBUSSUPPLY
DATA ELEMENT	R3TR DTEL ZZDEFAUTAMT
DATA ELEMENT	R3TR DTEL ZZDEFAUTAMT1
DATA ELEMENT	R3TR DTEL ZZDEFTAXAMT
DATA ELEMENT	R3TR DTEL ZZDEFTAXAMT1
DATA ELEMENT	R3TR DTEL ZZDOCCURCODE
DATA ELEMENT	R3TR DTEL ZZERP_TAX_CODE
DATA ELEMENT	R3TR DTEL ZZEXCNG1
DATA ELEMENT	R3TR DTEL ZZEXCNG11
DATA ELEMENT	R3TR DTEL ZZEXCNG2
DATA ELEMENT	R3TR DTEL ZZEXCNG21
DATA ELEMENT	R3TR DTEL ZZEXMPTDAT
DATA ELEMENT	R3TR DTEL ZZGIGRDATE
DATA ELEMENT	R3TR DTEL ZZINTMEDCURCODE
DATA ELEMENT	R3TR DTEL ZZINVDATE
DATA ELEMENT	R3TR DTEL ZZINVOICEDATE
DATA ELEMENT	R3TR DTEL ZZISEXEMPT
DATA ELEMENT	R3TR DTEL ZZLICNUM1
DATA ELEMENT	R3TR DTEL ZZLICNUM2
DATA ELEMENT	R3TR DTEL ZZLICTYPE1
DATA ELEMENT	R3TR DTEL ZZLICTYPE2
DATA ELEMENT	R3TR DTEL ZZMOVDATE
DATA ELEMENT	R3TR DTEL ZZNONTAXBASIS
DATA ELEMENT	R3TR DTEL ZZSHIPFRLOCCAT
DATA ELEMENT	R3TR DTEL ZZSHIPTOLOCCAT
DATA ELEMENT	R3TR DTEL ZZTDD
DATA ELEMENT	R3TR DTEL ZZTDD1

Item Type	Name
DATA ELEMENT	R3TR DTEL ZZTERD
DATA ELEMENT	R3TR DTEL ZZTERD1
DATA ELEMENT	R3TR DTEL ZZTPD
DATA ELEMENT	R3TR DTEL ZZTPD1
DATA ELEMENT	R3TR DTEL ZZ_E_COMP_REG
DATA ELEMENT	R3TR DTEL ZZ_E_CUST_REG
DATA ELEMENT	R3TR DTEL ZZ_E_EXEMPT_DATE
DATA ELEMENT	R3TR DTEL ZZ_E_EXEMPT_NO
DATA ELEMENT	R3TR DTEL ZZ_E_EXEMPT_TEXT
DATA ELEMENT	R3TR DTEL ZZ_E_INV_TEXT
DATA ELEMENT	R3TR DTEL ZZ_E_TRANS_TYPE
ENHANCEMENT IMPLEMENTATION	R3TR ENHS Z_SABRIX_ENHO_CHCK_DEST_CNTRY
ENHANCEMENT IMPLEMENTATION	R3TR ENHS Z_SABRIX_ENHO_UPDATE_CREDIT_IN
ENHANCEMENT SPOT	R3TR ENHS Z_SABRIX_ENSP_BRAZIL_AP
ENHANCEMENT SPOT	R3TR ENHS Z_SABRIX_ENSP_BRAZIL_AR
ENHANCEMENT SPOT	R3TR ENHS Z_SABRIX_ENSP_BRAZIL_FORMS
ENHANCEMENT SPOT	R3TR ENHS Z_SABRIX_ENSP_BRAZIL_ZXFYTU03
ENHANCEMENT SPOT	R3TR ENHS Z_SABRIX_ENSP_BRAZIL_ZXM06U14
ENHANCEMENT SPOT	R3TR ENHS Z_SABRIX_ENSP_BRAZIL_ZXM06U15
FUNCTION GROUP	R3TR FUGR ZZTRANS_TYPE_MAP
FUNCTION GROUP	R3TR FUGR Z-CHAR_TO_DECIMAL_CONVERT
FUNCTION GROUP	R3TR FUGR Z_EXPORT_SABRIX_DATA
PROGRAM	R3TR PROG ZTR_CL_XTAX_TAX_CALCULATE
PROGRAM	R3TR PROG ZTR_MV45AFZZ_PREPARE_TKOMK
PROGRAM	R3TR PROG ZTR_RV60AFZZ_FORMS
PROGRAM	R3TR PROG ZTR_RV60AFZZ_NUMBER-RANGE
PROGRAM	R3TR PROG ZTR_RV60AFZZ_PREPARE_TKOMK
PROGRAM	R3TR PROG ZTR_RV60AFZZ_PREPARE_TKOMP
PROGRAM	R3TR PROG ZXFYF01_SABRIX
PROGRAM	R3TR PROG ZXFYTTOP_SABRIX

Item Type	Name
PROGRAM	R3TR PROG ZXFYTU03_SABRIX
PROGRAM	R3TR PROG ZXM06U14_SABRIX
PROGRAM	R3TR PROG ZXM06U15_SABRIX
PROGRAM	R3TR PROG Z_SABRIX_LTAX1F02
TABLE	RSTR TABL ZACI_TAX_INPUT_USER_SABRIX
TABLE	RSTR TABL ZAEXTAX_JUR_LEVEL
TABLE	RSTR TABL ZAEXTAX_LEVEL_CALC_DATA
TABLE	RSTR TABL ZAKOMKAZ_SABRIX
TABLE	RSTR TABL ZAKOMPAX_SABRIX
TABLE	RSTR TABL ZAKONV_SABRIX
TABLE	RSTR TABL ZATAX_CAL_JUR_LEVEL_OUT
TABLE	RSTR TABL ZATAX_CAL_JUR_LEV EL_OUT00
TABLE	RSTR TABL ZCI_TAX_INPUT_USER_SABRIX
TABLE	RSTR TABL ZSABRIX_OUT
TABLE	RSTR TABL ZUSERELEMENTS_SABRIX
TABLE	RSTR TABL ZZTRANS_TYPE_MAP
DEFINITION OF A MAINTENANCE AND TRANSPORT OBJECT	R3TR TOBJ ZZTRANS_TYPE_MAPS

K900182.DO2/R900182.DO2

ONESOURCE Indirect Tax Integration for SAP - 5 Output User Attributes

This is an optional transport that allows the user to take advantage of 5 new user defined fields for use in reporting and invoice printing.

The following items have been added with this transport:

Item Type	Name
DATA ELEMENT	R3TR DTEL ZZUSER1
DATA ELEMENT	R3TR DTEL ZZUSER2
DATA ELEMENT	R3TR DTEL ZZUSER3
DATA ELEMENT	R3TR DTEL ZZUSER4
DATA ELEMENT	R3TR DTEL ZZUSER5
TABLE	RSTR TABL ZSABRIX_OUT APPEND
TABLE	RSTR TABL ZSABRIX_USER_FIELDS

Be aware that the 5 user fields are all 200 character objects that together will double the size of the effected tables in your system.

K900184.DO2/R900184.DO2

ONESOURCE Indirect Tax Integration for SAP - Brazil template

This is an optional transport that allows the user to take advantage of Brazil Nota Fiscal functionality via our initial template offering for configuration. Additional fields were already added via the International Attributes Transport above. This transport adds additional enhancement implementations, programs, a class, and a function group.

The following items have been added with this transport:

Item Type	Name
CLASS (ABAP OBJECT)	R3TR CLAS Z_SABRIX_NF_TAX_POPULATOR
ENHANCEMENT IMPLEMENTATION	R3TR ENHO Z_SABRIX_ENIM_BRAZIL_AP
ENHANCEMENT IMPLEMENTATION	R3TR ENHO Z_SABRIX_ENIM_BRAZIL_FORMS
ENHANCEMENT IMPLEMENTATION	R3TR ENHO Z_SABRIX_ENIM_BRAZIL_ZXM06U15
FUNCTION GROUP	R3TR FUGR Z_SABRIX_BRAZIL
PROGRAM	R3TR PROG Z_SABRIX_BRAZIL_TAX_CALCULATE
PROGRAM	R3TR PROG Z_SABRIX_MM_CALCULATE_TAX_ITM
PROGRAM	R3TR PROG Z_SABRIX_MM_NF_OBJECT_ADD
PROGRAM	R3TR PROG Z_SABRIX_SD_NF_CREATE_OBJECTS

APPENDIX 3: ADVANCED SECURITY AND LOGGING CONFIGURATIONS

PASSWORD ENCRYPTION AND USER AUTHENTICATION

ONESOURCE Indirect Tax provides integrated user authentication between Determination and Integration for SAP. When it starts, Integration authenticates with SAP and can optionally authenticate with Determination for each transaction. The username and password information for this authentication is contained in the *SabrixConnection.properties file*.

The following is a list of the usernames and passwords in the *SabrixConnection.properties* file:

- SABRIX_user
- SABRIX_password
- jco.client.user
- jco.client.passwd

Although you must supply the *jco.client.user* and *jco.client.passwd* values, you would only use *SABRIX_user* and *SABRIX_password* if you wanted to authenticate each transaction. To enable this, set the system configuration parameter CALC_AUTHENTICATION_REQUIRED. When this parameter is set to *Y* in Determination, it authenticates the user and password for every transaction.

To protect your username and password information, you can encrypt it in the *SabrixConnection.properties* file. Follow instructions below to encrypt these values, and after inserting these encrypted values into the *.properties* file, set the following:

```
encrypt_passwords=true
```

Once you have set this property to *true*, Integration for SAP assumes that you have encrypted all username and password information. If you mistakenly set this to *true* but do not actually encrypt the username and password values, then Integration will not authenticate with SAP.

Passwords are not shown in the *SABRIXIntegrationServer.log*; they are replaced with a value of "REMOVED FOR SECURITY".

To encrypt username and password information, follow the instructions for your operating system:

Microsoft Windows Systems

Use *IntegrationServerEncryptText.bat* file provided with Integration for SAP distribution. Run *IntegrationServerEncryptText.bat* from a command prompt, providing the text value that needs to be encrypted. For example, to encrypt the word *test* execute the following:

```
<Install Directory>IntegrationServerEncryptText test

**dAVzdG
```

The generated password is ***dAVzdG*. It can be copied into the *SabrixConnection.properties* file in place of the plain text.

UNIX Systems

Use *IntegrationServerEncryptText.sh* file provided with Integration for SAP distribution. Run *IntegrationServerEncryptText.sh* from a command prompt, providing the text value that needs to be encrypted. For example, to encrypt the word “test” execute the following:

```
./IntegrationServerEncryptText.sh test

**dAVzdG
```

The generated password is ***dAVzdG*. It can be copied into the *SabrixConnection.properties* file in place of the plain text.

APPENDER FILE CONFIGURATION FOR THE 6 APPENDER FORMATS

THE SIMPLEFILEAPPENDER

```
<appender name="SimpleFileAppender" class="org.apache.log4j.FileAppender">
    <param name="File" value="./log/SabrixIntegrationServer.log"/>
      <layout class="org.apache.log4j.PatternLayout">
<param name="ConversionPattern" value="%d %p [%t] %c - %m%n"/>
      </layout>
</appender>
```

You can modify the following parameters to meet your needs:

SIMPLEFILEAPPENDER PARAMETERS	
Parameter	**Purpose**
File	Specifies the log directory and the log file name. The default value is: `./log/SabrixIntegrationServer.log`

To use this appender, set the value of **appender-ref** in the **logger** component and **root** component to `SimpleFileAppender`. For example:

```
<logger name=”com.sabrix.integration” additivity=”false”>
<level value=”ERROR” />
<appender-ref ref=”SimpleFileAppender” />
</logger>

<root>
<level value=”ERROR” />
<appender-ref ref=”SimpleFileAppender” />
</root>
```

THE DAILYROLLINGFILEAPPENDER

```
<appender name=”DailyRollingFileAppender”
class=”com.sabrix.integration.log.CompositeRollingFileAppender”>
<param name=”File” value=”./log/SabrixIntegrationServer.log”/>
<param name=”DatePattern” value=”’.’yyyy-MM-dd”/>
<param name=”MaxBackupIndex” value=”10”/>
<layout class=”org.apache.log4j.PatternLayout”>
       <param name=”ConversionPattern” value=”%d %p [%t] %c - %m%n”/>
</layout>
</appender>
```

You can modify the following parameters to meet your needs:

DAILYROLLINGFILEAPPENDER PARAMETERS	
Parameter	**Purpose**
File	Specifies the log directory and the log file name. The default value is: `./log/SabrixIntegrationServer.log`
DatePattern	Specifies the date pattern to use in the time stamp. The default value is `yyyy-MM-dd`
MaxBackupIndex	Specifies the number of backup files to keep. The default value is `10`.

To use this appender, set the value of **appender-ref** in the **logger** component and **root** component to `DailyRollingFileAppender`. For example:

```
<logger name="com.sabrix.integration" additivity="false">
<level value="ERROR" />
<appender-ref ref="DailyRollingFileAppender" />
</logger>

<root>
<level value="ERROR" />
<appender-ref ref="DailyRollingFileAppender" />
</root>
```

THE COMPOSITEROLLINGFILEAPPENDER

```
<appender name="CompositeRollingFileAppender"
class="com.sabrix.integration.log.CompositeRollingFileAppender">
<param name="File" value="./log/SabrixIntegrationServer.log"/>
<param name="DatePattern" value="'.'yyyy-MM-dd"/>
<param name="MaxFileSize" value="100MB"/>
<param name="MaxBackupIndex" value="10"/>
<layout class="org.apache.log4j.PatternLayout">
<param name="ConversionPattern" value="%d %p [%t] %c - %m%n"/>
</layout>
</appender>
```

You can modify the following parameters to meet your needs:

COMPOSITEROLLINGFILEAPPENDER PARAMETERS	
Parameter	**Purpose**
File	Specifies the log directory and the log file name. The default value is: `./log/SabrixIntegrationServer.log`
DatePattern	Specifies the date pattern to use in the time stamp. The default value is `yyyy-MM-dd`
MaxFileSize	Specifies the maximum file size; once this limit is met, log rolling occurs. The default value is `100MB`.
MaxBackupIndex	Specifies the number of backup files to keep. The default value is `10`.

To use this appender, set the value of **appender-ref** in the **logger** component and **root** component to `CompositeRollingFileAppender`. For example:

```
<logger name=”com.sabrix.integration” additivity=”false”>
<level value=”ERROR” />
<appender-ref ref=”CompositeRollingFileAppender” />
</logger>

<root>
<level value=”ERROR” />
<appender-ref ref=”CompositeRollingFileAppender” />
</root>
```

THE CONSOLEAPPENDER

```
<appender name=”ConsoleAppender” class=”org.apache.log4j.ConsoleAppender”>
<layout class=”org.apache.log4j.PatternLayout”>
    <param name=”ConversionPattern” value=”%m%n”/>
</layout>
</appender>
```

THE ROLLINGFILEAPPENDER

```
   <appender name="RollingFileAppender"
class="org.apache.log4j.RollingFileAppender">
   <param name="File" value="./log/SabrixIntegrationServer.log"/>
   <param name="MaxFileSize" value="100MB"/>
```

Control the number of backup files to keep with **MaxBackupIndex**. Keep ten backup files; the value can be changed.

```
<param name="MaxBackupIndex" value="10"/>
<layout class="org.apache.log4j.PatternLayout">
<param name="ConversionPattern" value="%d %p [%t] %c - %m%n"/>
</layout>
</appender>
```

THE ZIPPINGFILEAPPENDER

```
<appender name=ZippingFileAppender"
class="org.apache.log4j.RollingFileAppender">
<param name="File" value="log/SabrixIntegrationServer.%d{yyyy-MM-
dd_HH}.zip"/>
```

You must use .gz or .zip at the end of the file location.

CONFIGURATION EXAMPLES

SimpleFileAppender with log level of ERROR:

```
<logger>
<level value=”ERROR” />
<appender-ref ref=”SimpleFileAppender” />
</logger>
```

DailyRollingFileAppender with a maximum backup index of 5 and a log level of INFO:

```
<logger>
<level value=”INFO” />
<appender-ref ref=”DailyRollingFileAppender” />
</logger>
...
<appender name=”DailyRollingFileAppender”
class=”com.sabrix.integration.log.CompositeRollingFileAppender”>
<param name=”File” value=”./log/SabrixIntegrationServer.log”/>
<param name=”DatePattern” value=”’.’yyyy-MM-dd”/>
<param name=”MaxBackupIndex” value=”5”/>
<layout class=”org.apache.log4j.PatternLayout”>
       <param name=”ConversionPattern” value=”%d %p [%t] %c - %m%n”/>
</layout>
</appender>
```

CompositeRollingFileAppender with a maximum file size 50 MB, maximum backup index of 10 and at log level of ERROR:

```
<logger>
         <level value=”ERROR” />
          <appender-ref ref=”CompositeRollingFileAppender” />
</logger>
...
```

```
   <appender name=”CompositeRollingFileAppender”
class=”com.sabrix.integration.log.CompositeRollingFileAppender”>
   <param name=”File” value=”./log/SabrixIntegrationServer.log”/>
   <param name=”DatePattern” value=”’.’yyyy-MM-dd”/>
   <param name=”MaxFileSize” value=”50MB”/>
   <param name=”MaxBackupIndex” value=”10”/>
   <layout class=”org.apache.log4j.PatternLayout”>
            <param name=”ConversionPattern” value=”%d %p [%t] %c - %m%n”/>
   </layout>
   </appender>
```