

ADMINISTRATION GUIDE | PUBLIC

Document Version: 1.0.9 - 2019-09-30

SAP Tax Declaration Framework for Brazil - Administrator's Guide



Content

1	Getting Started	5
1.1	About This Guide	5
1.2	Global Definitions	5
1.3	Important SAP Notes	6
1.4	Related Information	7
2	Installation Information	9
2.1	Release Strategy	9
2.2	Assign SAP System Aliases to OData Service	9
2.3	Installation of Enterprise Services	10
3	Operations Information	13
3.1	Technical System Landscape	13
3.2	Monitoring of SAP Tax Declaration Framework	13
3.3	Application of SAP Tax Declaration Framework	15
3.4	Software Change Management	18
3.5	Troubleshooting	20
3.6	Support Desk Management	20
4	Security Information	21
4.1	Authorizations	21
5	Appendix	. 23

Document History

The following table provides an overview of the most important document changes.

Version	Date	Description
1.01	2014-10-17	Revised version.
1.02	2015-02-13	New log objects were added to the Monitoring of SAP Tax Declaration Framework section
		New configuration tools were added to the Application of SAP Tax Declaration Framework section.
		The SAPUI5 Version section was created.
		The Assign SAP System Aliases to OData Service section was created.
1.03	2015-08-24	The SAP TDF Release Information Notes (RIN) were added to the <i>Impor-</i> <i>tant SAP Notes</i> section.
		A link to the Installation Guide was added to the <i>Related Guides</i> subsection of the <i>Related Information</i> section.
		A link to the SAP Help Portal documentation was added to the <i>Related Information</i> section.
		In the <i>Installation of Enterprise Services</i> section, some steps were updated and a new step was added.
		In the Trace and Log Files subsection of the Monitoring of SAP Tax Declaration Framework section, the description of the EFD suboject was changed to SPED EFD ICMS/IPI and the PCO Suboject was added.
		The /TMF/PCO authorization object was added to the <i>Authorizations</i> section.
1.04	2016-09-19	Three services were added to the Assign SAP System Aliases to OData Service section.

Version	Date	Description
		The Authorizations section was removed from the administrator's Guide. A reference to the TDF Roles on SAP Library was added under Security section.
1.05	2017-09-25	The Important SAP Notes section was updated.
		The prerequisites of the <i>Installation of Enterprise Services</i> section changed.
		The Related Information section was updated.
1.06	2018-03-12	The Important SAP Notes section was updated.
		A service was updated to the Assign SAP System Aliases to OData Service section.
1.07	2018-09-24	The Important SAP Notes section was updated.
1.08	2019-09-30	The <i>Related Information</i> section was updated.
		The Important SAP Notes section was updated.

1 Getting Started

1.1 About This Guide

This guide is the central source of information for the technical implementation of *SAP Tax Declaration Framework for Brazil 1.0*. The guide provides information that is specific to the localization. All other information is available in the guides for *SAP Tax Declaration Framework for Brazil 1.0*.

This guide contains the following:

- Installation information
- Operations information
- Security information

1.2 Global Definitions

SAP Application

An SAP application is an SAP software solution that serves a specific business area like ERP, CRM, PLM, SRM, and TDF.

Business Scenario

From a microeconomic perspective, a business scenario is a cycle, which consists of several different interconnected logical processes in time. Typically, a business scenario includes several company departments and involves other business partners. From a technical point of view, a business scenario needs at least one SAP application (for example, SAP ERP, SAP TDF, or others) for each cycle and possibly other third-party systems. A business scenario is a unit which can be implemented separately and reflects the customer's prospective course of business.

Component

A component is the smallest individual unit considered within the Solution Development Lifecycle; components are separately produced, delivered, installed and maintained.

1.3 Important SAP Notes

SAP Note Number	Title	
1661202	Support for multiple applications on SAP HANA	
1923804	Release Information Note: SAP Tax Declaration Framework for Brazil 1.0	
2019829	SAPK-10001INTMFLOCBR: Support Package 1 for TMFLOCBR	
2058478	SAPK-10002INTMFLOCBR: Support Package 2 for TMFLOCBR	
2104907	SAPK-10003INTMFLOCBR: Support Package 03 for TMFLOCBR	
2148331	SAPK-10004INTMFLOCBR: Support Package 04 for TMFLOCBR	
2215394	SAPK-10005INTMFLOCBR: Support Package 05 for TMFLOCBR	
2267307	SAPK-10006INTMFLOCBR: Support Package 06 for TMFLOCBR	
2300579	SAPK-10007INTMFLOCBR: Support Package 07 for TMFLOCBR	
2343556	SAPK-10008INTMFLOCBR: Support Package 08 for TMFLOCBR	
2425721	SAPK-10008INTMFLOCBR: Support Package 09 for TMFLOCBR	
2486921	SAPK-10008INTMFLOCBR: Support Package 10 for TMFLOCBR	
2610312	SAPK-10008INTMFLOCBR: Support Package 11 for TMFLOCBR	
2692681	SAPK-10008INTMFLOCBR: Support Package 12 for TMFLOCBR	
2735415	SAPK-10008INTMFLOCBR: Support Package 13 for TMFLOCBR	
2791877/	SAPK-10014INTMFLOCBR: Support Package 14 for TMFLOCBR	

1.4 **Related Information**

Planning Information

For more information about implementation topics not covered in this guide, see the following content:

Content	Location on sap.com
Sizing, calculation of hardware requirements – such as CPU, disk and memory resource – with the Quick Sizer tool	http://service.sap.com/quicksizer
Released platforms and technology-related topics such as	http://service.sap.com/platforms
maintenance strategies and language support	To access the Product Availability Matrix directly, enter http://service.sap.com/pam/
Network Security	http://service.sap.com/securityguide
Performance	http://service.sap.com/performance
Information about Support Package Stacks, latest software versions and patch level requirements	https://support.sap.com/en/my-support/software-down-loads/support-package-stacks.html
Information about Unicode technology	http://www.sdn.sap.com/irj/sdn/i18n

Further Useful Links

The following table lists further useful links:

Content	Location on sap.com
Information about creating error messages	http://service.sap.com/messages
SAP Notes search	https://support.sap.com/en/my-support/knowledge-base.html
SAP Software Distribution Center (software download and ordering of software)	https://support.sap.com/en/my-support/software-down-loads.html
SAP Online Knowledge Products (OKPs) – role-specific learning maps	http://service.sap.com/rkt

SAP Help Portal

You can find more information about the relevant applications in the product page of SAP Tax Declaration Framework for Brazil on SAP Help Portal:

Title	Location on SAP Help Portal
SAP Tax Declaration Framework for Brazil	https://help.sap.com/viewer/product/SAP_TAX_DECLARA-TION_FRAMEWORK_FOR_BRAZIL/latest/en-US

2 Installation Information

You must read the following SAP Notes before you start the installation. These SAP Notes contain the most recent information on the installation, as well as corrections to the installation documentation. Make sure that you have the latest version of each SAP Note, which you can find on SAP Service Marketplace at http://service.sap.com/notes.

2.1 Release Strategy

The following table lists the SAP Notes that describe the restrictions and other details when you install the **TMFLOCBR** software components:

SAP Note Number	Title	Description
1861609	TMFLOCBR 100: Release strategy	Describes the minimal requirements and technical steps for the installation of software component TMFLOCBR of the SAP Tax Management Framework for Brazil

2.2 Assign SAP System Aliases to OData Service

To assign SAP system aliases to OData service, perform the following configuration steps:

- 1. Run SM30 transaction.
- 2. Enter / IWFND/V_MGDEAM in the Table/View field
- 3. Choose the Maintain pushbutton.
- 4. Choose the *New Entries* pushbutton.
- 5. Enter /TMF/TM TMF NFV01 0001 in the Service Doc. Identifier field.
- 6. Enter LOCAL in the SAP System Alias field.
- 7. Choose the *Default System* pushbutton.
- 8. Save your entries.

Repeat the same steps for the services listed below:

Service

/TMF/ECF_SRV_0001
/TMF/MF_MONITOR_SRV_0001
/TMF/RTF_UPLOAD_SRV_0001
/TMF/SPED_EFD_SERVICE_0001
/TMF/TM_TMF_NFV01_0001
/TMF/TM_TMF_TOM01_0001
/TMF/TOM_API_SRV_0001
/TMF/TS_TMF_ORGSTR_0001

2.3 Installation of Enterprise Services

Use

This section describes the installation requirements and procedure for SAP Tax Declaration Framework for Brazil 1.0.

Prerequisites

- SAP HANA 1.0 SP7
- SAP NetWeaver 7.40 SP15, 7.50 SP04 or 7.51 SP01 on SAP HANA
- SAP HANA Studio

Features

Perform the following configuration steps:

- 1. Apply existing notes as specified in SAP Note 1923804.
- 2. Configure selective SLT (only relevant data for reporting/analytics) from EHP5 or later. After this, it is necessary to replicate to all used instances (for example, *DEV*, *Quality*, and *Productive*)
- 3. Complete the SLT initial load for the tables required in HANA to activate the CTR listed in the SAP Note 2190963.

i Note

It is recommended that the SLT load does not include old data that will not be used in SAP TDF (for example, notas fiscais with a posting date older than five years).

- 4. Map schemes, as follows:
 - 1. Execute HANA Studio.
 - 2. Select the Modeler perspective.
 - 3. Choose Quick Launch.
 - 4. Choose Schema Mapping.
 - 5. Select the physical schema to configure. For more information, see HANA Studio help under *Mapping* the Authoring Schema to the Physical Schema.
- 5. Set the flag in table SNHI_DUP_PREWORK in HANA systems, as follows.

i Note

The user who executes the schema to update data must have read access to database. Beyond that, the flag PREWORK on table SNHI_DUP_PREWORK must be set just for the installation of the last release.

- 1. Execute transaction SM30.
- 2. Maintain view SNHI_DUP_PREWORK.
- 3. Register the software component **TMFLOCBR** and set the flag PREWORK.
- 4. Choose Save.

i Note

You install SP 0, 1 and 2 with PREWORK unflagged and set the flag for SP 3 installation.

- 6. Install add-on **TMFLOCBR** 100 on SAP NetWeaver 7.4. For more information about installation, see *SAP Help*.
- 7. Configure view /TMF/D_SYS_INF
- 8. Check configuration of the following views:
 - /TMF/D_REP_FISC
 - /TMF/D_REP_VERS
 - o /TMF/D_VIEW_VERS
 - /TMF/D_REG_PROFI
 - o /TMF/D_REG_PRIO

More Information

The following table lists the SAP Notes that describe the installation instructions of enterprise services and the associated documentation:

SAP Note Number	Title	Description
1224284	Enterprise Services, Installing and Accessing the SOA Documentation	Describes which sets of enterprise services are available, how to install and access the documentation for the enterprise services, and which product versions, software components they require.
1564359	Installation of ESMFS 400 (ESM FS 400)	Describes how to install the documentation about implementing SOA processes.

3 Operations Information

This section contains the operations information specific to SAP Tax Declaration Framework for Brazil 1.0.

3.1 Technical System Landscape

Related Documentation

The following table lists where you can find more information about the technical system landscape.

Topic	Guide/Tool	Quick Link on SAP Service Market- place
Application- and Industry-specific Components such as SAP Financials and SAP Retail	Master Guide	http://service.sap.com/instguides
Technology Components such as SAP Web Application Server	Master Guide	http://service.sap.com/instguides/
Sizing	Quick Sizer Tool	http://service.sap.com/sizing
Technical Configuration	Master Guide	http://service.sap.com/instguides/
Scalability	Master Guide	http://service.sap.com/instguides/
High Availability	Master Guide	http://service.sap.com/instguides
Security	Security Map	http://service.sap.com/security
	Application Security Guide	http://service.sap.com/instguides/

3.2 Monitoring of SAP Tax Declaration Framework

Within the management of SAP Technology, monitoring is an essential task. A section has therefore been devoted solely to this subject.

You can find more information about the underlying technology in the SAP NetWeaver Administrator's Guide – Technical Operations Manual in the SAP Library under SAP NetWeaver Library.

Alert Monitoring

Proactive, automated monitoring is the basis for ensuring reliable operations for your SAP system environment. SAP provides you with the infrastructure and recommendations needed to set up your alert monitoring to recognize critical situations for SAP Tax Declaration Framework as quickly as possible.

Monitoring Installation and Setup

We recommend that you set up the Monitoring Infrastructure as described in the *Monitoring Setup Guide for SAP NetWeaver 7.0* located on *SAP Service Marketplace* at http://service.sap.com/instguides

NetWeaverSAP ➤ NetWeaver 7.4 ➤ Operations Monitoring ■. The monitoring setup described in the Monitoring Setup Guide contains all the information relevant to monitoring the SAP NetWeaver components used in SAP Tax Declaration Framework.

To enable the auto-alert mechanism of CCMS, see SAP Note 617547.

Trace and Log Files

Trace and log files are essential for analyzing problems. In SAP Tax Declaration Framework, all business exceptions as well as technical exceptions that occur during the process are logged and can be reviewed within an exception workbench (transaction SLG1).

The following indicators are shown in the analyzing logs:

- A green light means the process was successful
- A yellow light means the process was successful, but with warnings.
- A red light means the process was unsuccessful.

TMFLOCBR provides the following log objects, accessibile in transaction SLG1:

Object	Subobject	Description
/TMF/BR	ECD	SPED ECD
/TMF/BR	ECF	SPED ECF
/TMF/BR	ECF-SHADOW	Shadow Services
/TMF/BR	EFD	SPED EFD ICMS/IP
/TMF/BR	EXTLOG	External Log Service
/TMF/BR	FIPOST	Log Sub-Object for FI Posting Services
/TMF/BR	FISCPER	Fiscal Period
/TMF/BR	NFAUDIT	NF Audit
/TMF/BR	NFCORRECT	Nota Fiscal Corrections
/TMF/BR	NFCORRLET	Nota Fiscal Correction Letter
/TMF/BR	NFCRE	Nota Fiscal Creation

Object	Subobject	Description
/TMF/BR	ORGSTR-BP	Log Object for Business Place Modifications
/TMF/BR	ORGSTR-CNPJ	Log Object for CNPJ Modifications
/TMF/BR	ORGSTR-CNPJ_ROOT	Log Object for CNPJ Root Modifications
/TMF/BR	ORGSTR-EFD	Log Object for Central EFD Modifications
/TMF/BR	ORGSTR-IE	Log Object for IE Modifications
/TMF/BR	ORGSTR-INI	Log Object for Initial Load Report
/TMF/BR	REPORTS	Reports
/TMF/BR	PCO	SPED EFD Contribuições

3.3 Application of SAP Tax Declaration Framework

SAP provides you with an infrastructure to help your technical support consultants and system administrators effectively manage all SAP components and complete all tasks related to technical administration and operation. You can find more information about the underlying technology in the *Technical Operations Manual* in the SAP Library under SAP NetWeaver.

Software Configuration

SAP Tax Declaration Framework for Brazil 1.0 was created to make it easier to meet fiscal obligations, as well as to perform the tracking and administration of the large amount of data that is generated monthly. The main transactions for using SAP TDF are listed in the table below:

Component	Configuration Tools	Description
TMFLOCBR	/TMF/EFD	Generate SPED EFD IPI/ICMS File
TMFLOCBR	/TMF/ECD	Generate SPED ECD File
TMFLOCBR	/TMF/ECF	Generate SPED ECF File
TMFLOCBR	/TMF/FP01	Fiscal Period Maintenance
TMFLOCBR	/TMF/TOM02	Tax Obligation Monitor

Component	Configuration Tools	Description
TMFLOCBR	/TMF/ORGSTR01	Organizational Structure
TMFLOCBR	/TMF/PCO	Generate SPED EFD Contribuições file

Backup and Restore

You need to back up your system landscape regularly to ensure that you can restore and recover it in case of failure. The backup and restore strategy for SAP TDF consists of two parts:

- Backup and restore coverage for each component (see the table below)
- Cross-system data dependencies and handling

The backup and restore strategy for your system landscape should not only consider SAP systems but should also be embedded in overall business requirements and incorporate your company's entire process flow. In addition, the backup and restore strategy must cover disaster recovery processes, such as the loss of a data center through fire. It is most important in this context that you ensure that backup devices are not lost together with normal data storage (separation of storage locations).

Category of System Component	Category Properties	Suggested Methods for Backup and Restore	Example
I	Only software, no configuration or application data	 No backup, new installation in case of a recovery or Initial software backup after installation and upgrade Backup of log files 	BDOC modeler
II	Only software and configuration information, no application data	 Backup after changes have been applied or No backup, new installation and configuration in case of a recovery Backup of log files 	 SAP Gateway Comm. Station SAP Business Connector SAP IPC (2.0C)
III	Only replicated application data, replication time is sufficiently small for a recovery	Data: No data backup needed Backup of software, configuration, log files	SAP IMS/Search EngineSAP IPC (2.0B)WebserverSAP ITS

Category of System Component	Category Properties	Suggested Methods for Backup and Restore	Example
IV	Only replicated application data, backup recommended because replication time is too long, data not managed by a DBMS	 Application specific file system backup or Multiple instances Backup of software, configuration, log files 	SAP IMS/Search EngineWebserver
V	Only replicated application data, backup recommended because replication time is too long, data managed by a DBMS	 Data: Database and log backup or Multiple instances Backup of software, configuration, log files 	SAP IPC (2.0B)Catalog Server
VI	Original application data, standalone system, data not managed by a DBMS	 Application specific file system backup Backup of software, configuration, log files 	Webserver
VII	Original application data, standalone system, data managed by a DBMS, not based on SAP WebAS	Data: Database and log backup Backup of software, configuration, log files	-
VIII	Original application data, standalone system, based on SAP WebAS	Data: Database and log backup, application log backup (such as job logs in file system) Backup of software, configuration, log files	Standalone SAP R/3
IX	Original application data, data exchange with other systems, data not managed by a DBMS	Application specific file system backup, data consistency with other systems must be considered Backup of software, configuration, log files	-

Category of System Component	Category Properties	Suggested Methods for Backup and Restore	Example
X	Original application data, data exchange with other systems, data managed by a DBMS, not based on SAP WebAS	Data: Database and log backup, data consistency with other systems must be considered Backup of software, configuration, log files	SAP liveCacheSAP Mobile Workbench
XI	Original application data, data exchange with other systems, based on SAP We- bAS	Data: Database and log backup, application log backup (such as job logs in file system), data consistency with other systems must be considered Backup of software, configuration, log files	

3.4 Software Change Management

Software Change Management standardizes and automates software distribution, maintenance, and testing procedures for complex software landscapes and multiple software development platforms. These functions support your project teams, development teams, and application support teams.

The goal of Software Change Management is to establish consistent, solution-wide change management that allows for specific maintenance procedures, global rollouts (including localizations), and open integration with third-party products.

This section provides additional information about the most important software components.

The following topics are covered:

- Transport and Change Management Enables and secures the distribution of software changes from the development environment to the quality assurance and production environment.
- Development Request and Development Release Management Enables customer-specific maintenance procedures and open integration with third-party products.
- Template Management Enables and secures the rollout of global templates, including localizations.
- Quality Management and Test Management
 Reduces the time, cost, and risk associated with software changes.

- Support Packages and SAP Notes Implementation
 Provides standardized software distribution and maintenance procedures.
- Release and Upgrade Management
 Reduces the time, cost, and risk associated with upgrades.

Transport and Change Management

For transport and change management issues, the procedures of SAP NetWeaver apply. For more information, see the SAP Library for SAP NetWeaver on SAP Help Portal at http://help.sap.com/nw74 under SAP NetWeaver SAP NetWeaver Library: Function-Oriented View Solution Lifecycle Management Software Logistics Change and Transport System.

Development Requests and Development Release Management

The standard procedures of SAP NetWeaver apply. For more information, see SAP Library for SAP NetWeaver on SAP Help Portal at http://help.sap.com/nw74 > under | SAP NetWeaver > System Administration and Maintenance > Information > Technical Operations for SAP NetWeaver | ...

For more information about customer-specific development, see SAP Library for SAP NetWeaver on SAP Help Portal at http://help.sap.com/nw74 under SAP NetWeaver SAP NetWeaver Library: Function-Oriented View Application Server Application Server ABAP Administration of Application Server ABAP Change and Transport System Change and Transport System Overview Changing the SAP Standard (BC)

Support Packages and Patch Implementation

Read the corresponding Release Information Notes (RIN) listed in SAP Note 1923804 before you apply any support packages or patches of the selected SP Stack.

Use the Maintenance Optimizer (transaction DSWP) of the SAP Solution Manager to select, download, and install the needed usages, or software components and required support packages. For more information, see the following:

- SAP Solution Manager documentation on SAP Help Portal at http://help.sap.com/> under Application Lifecycle Management SAP Solution Manager System Administration and Maintenance Information
- SAP Service Marketplace at http://service.sap.com/solman-mopz
- The documentation for transaction SAINT (SAP Add-On Installation Tool)

For more information about the implementation of support packages as well as possible side effects, see http://service.sap.com/patches/>
under SAP Support Packages in Detail.

3.5 Troubleshooting

For information about troubleshooting SAP NetWeaver, see the Technical Operations Manual for SAP NetWeaver on SAP Help Portal at http://help.sap.com/nw74 under SAP NetWeaver System

Administration and Maintenance Information Technical Operations for SAP NetWeaver Administration of SAP NetWeaver Systems and components**.

3.6 Support Desk Management

Support Desk Management enables you to set up an efficient internal support desk for your support organization that seamlessly integrates your end users, internal support employees, partners, and SAP Active Global Support specialists with an efficient problem resolution procedure. For support desk management, you need the methodology, management procedures, and tools infrastructure to run your internal support organization efficiently.

Remote Support Setup

SAP Support needs to be able to work remotely for highest efficiency and availability. Therefore, all required support tools must be remotely accessible for SAP support. For SAP TDF, the standard SAP procedures for setting up remote support apply.

For information about Remote Support Setup, see SAP Service Marketplace at http://service.sap.com/access-support.

4 Security Information

This section contains security-relevant information SAP Tax Declaration Framework for Brazil 1.0.

SAP Tax Declaration Framework for Brazil 1.0 is based on SAP NetWeaver technology. All security information for SAP Tax Declaration Framework services applies to the localization for Brazil. We recommend that you read the fundamental security guides listed below.

Pay particular attention to the most relevant sections or specific restrictions as indicated in the table below.

Scenario, Application or Component Security Guide	Relevant Sections or Specific Restrictions
SAP NetWeaver Security Guide	Entire guide
SAP Exchange Infrastructure (XI) Security Guide	Entire guide
SAP HANA Security Guide	Security Guide

For a complete list of the available SAP Security Guides, see *SAP Service Marketplace* at http://service.sap.com/securityguide/>.

4.1 Authorizations

There are no specific standard roles for SAP Tax Declaration Framework for Brazil 1.0.

The following authorization classes are used to catalog the authorization objects of the Brazil localization:

• /TMF/ (Tax Management Framework)

The table below shows the security-specific authorization objects used by SAP Tax Declaration Framework for Brazil 1.0.

Authorization Object	Field	Value	Description
/TMF/FISCP	BUKRS	-	Fiscal Period – Company Code
/TMF/FISCP	BRANCH	-	Fiscal Period – Industry
/TMF/FISCP	/TMF/FISCP	000 - 100 - 200 - 300 - 400 - 500 - 600	Fiscal Period – Fiscal Period Status
/TMF/ECD	DUMMY	_	Attribute Value
/TMF/EFD	DUMMY	-	Attribute Value

Authorization Object	Field	Value	Description
/TMF/TOM	/TMF/REPID	-	Tax Obligation Monitor – Legal Report ID
/TMF/TOM	/TMF/REPKY	-	Tax Obligation Monitor –Report Key
/TMF/TOM	/TMF/REPAC	1-2-3-4-5-6-7	Tax Obligation Monitor – Report activities
/TMF/PCO	DUMMY	_	Attribute Value

5 Appendix

Related Operations Information

For more information about specific operations topics, see the following content on SAP Service Marketplace:

Content	Quick Link to the SAP Service Marketplace
Master Guide, Installation Guide and Upgrade Guide	http://service.sap.com/instguides
SAP Notes	http://service.sap.com/notes/
Released Platforms	http://service.sap.com/platforms
SAP Solution Manager	http://service.sap.com/solutionmanager/

Related Security Information

For more information about specific security topics, see the following content on SAP Service Marketplace:

Content	Quick Link on SAP Service Marketplace or SDN
Security	http://sdn.sap.com/irj/sdn/security
Security Guides	http://service.sap.com/securityguide
SAP Notes	http://service.sap.com/notes/
	http://service.sap.com/securitynotes
Release Information	http://service.sap.com/pam/
Network Security	http://service.sap.com/securityguide
SAP NetWeaver	http://sdn.sap.com/irj/sdn/netweaver

Important Disclaimers and Legal Information

Hyperlinks

Some links are classified by an icon and/or a mouseover text. These links provide additional information. About the icons:

- Links with the icon : You are entering a Web site that is not hosted by SAP. By using such links, you agree (unless expressly stated otherwise in your agreements with SAP) to this:
 - The content of the linked-to site is not SAP documentation. You may not infer any product claims against SAP based on this information.
 - SAP does not agree or disagree with the content on the linked-to site, nor does SAP warrant the availability and correctness. SAP shall not be liable for any
 damages caused by the use of such content unless damages have been caused by SAP's gross negligence or willful misconduct.
- Links with the icon 🚁: You are leaving the documentation for that particular SAP product or service and are entering a SAP-hosted Web site. By using such links, you agree that (unless expressly stated otherwise in your agreements with SAP) you may not infer any product claims against SAP based on this information.

Beta and Other Experimental Features

Experimental features are not part of the officially delivered scope that SAP guarantees for future releases. This means that experimental features may be changed by SAP at any time for any reason without notice. Experimental features are not for productive use. You may not demonstrate, test, examine, evaluate or otherwise use the experimental features in a live operating environment or with data that has not been sufficiently backed up.

The purpose of experimental features is to get feedback early on, allowing customers and partners to influence the future product accordingly. By providing your feedback (e.g. in the SAP Community), you accept that intellectual property rights of the contributions or derivative works shall remain the exclusive property of SAP.

Example Code

Any software coding and/or code snippets are examples. They are not for productive use. The example code is only intended to better explain and visualize the syntax and phrasing rules. SAP does not warrant the correctness and completeness of the example code. SAP shall not be liable for errors or damages caused by the use of example code unless damages have been caused by SAP's gross negligence or willful misconduct.

Gender-Related Language

We try not to use gender-specific word forms and formulations. As appropriate for context and readability, SAP may use masculine word forms to refer to all genders.

www.sap.com/contactsap

© 2019 SAP SE or an SAP affiliate company. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP SE or an SAP affiliate company. The information contained herein may be changed without prior notice.

Some software products marketed by SAP SE and its distributors contain proprietary software components of other software vendors. National product specifications may vary.

These materials are provided by SAP SE or an SAP affiliate company for informational purposes only, without representation or warranty of any kind, and SAP or its affiliated companies shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP or SAP affiliate company products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.

SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP SE (or an SAP affiliate company) in Germany and other countries. All other product and service names mentioned are the trademarks of their respective companies.

Please see https://www.sap.com/about/legal/trademark.html for additional trademark information and notices.

