

Pick by Voice

How To Build a Voice-Enabled Transaction in EWM



Document History

Version	Date	Change
1.0	<2013-05-21>	First version
1.1	<2017-07-19>	Second version
1.2	<2022-11-09>	Guide now also relevant for EWM in SAP S/4HANA

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1 Objective

Note: The information contained in this how-to guide applies to both SAP EWM and EWM in SAP S/4HANA.

As of release SCM 9.0, EWM uses the existing functionality of RF (Radio Frequency) Framework, RF Picking transaction and ITS (Internet Transaction Server) template generator 'Mobile Devices with Speech Input' and put it all together into a new voice enabled RF transaction. The transaction will support picking process and internal moves in the warehouse. The transaction will support multi-modal data input like keyboard input, barcode scanning and voice.

The transaction will only use elements of XML language extension XHTML+Voice (X+V) which are support by ITS Mobile generator.

RF Framework and RF Picking transaction are available as of release SCM 5.0.

ITS Mobile generator for voice is available as of release

- o NetWeaver 7.1 from SAP Basis 7.10 SP5; Kernel patch 81
- o NetWeaver 7.0 from SAP Basis 7.00 SP15; Kernel patch 132
- o NetWeaver 04 from SAP Basis 6.40 SP22; Kernel patch 210
- o R/3 Enterprise from SAP Basis 6.20 SP64; ITS patch 28

This cookbook will explain which parts in EWM and ITS are used to create the voice enabled transaction.

2 Overview

2.1 Generation of XHTML+Voice template

Speech attributes

The screenshot shows a SAP Dynpro screen with various fields. Below the fields, a 'Details on Property Speech' dialog is open. It has three radio buttons for 'Effect of Speech Property': 'No Effect (Deletion of Property)', 'Effective without additional attributes', and 'Effective; additional attributes possible' (which is selected). Below these are 'Additional Attributes' with columns for 'Attribute', 'Value O...', and 'Value direct'. The attributes listed are 'PromptText', 'Grammar', and 'WebText', each with a dropdown menu.

ITS HTML generator

The screenshot shows the 'Web Application Builder: Copy HTML Template' dialog. It has fields for 'Internet Service' (set to /SCRM/RFUI), 'Theme' (set to 99), 'HTML Template Name' (set to /SCRM/SAPLAF_P8V), 'Screen number' (set to 501), and 'Generating Style' (set to Mobile Devices with Speech Input). There are 'Save' and 'X' buttons at the bottom right.

HTML template

The screenshot shows a code editor with the following HTML code:

```
<html>
<title>HTML</title>
<body>
This is HTML!
</body>
</html>
```

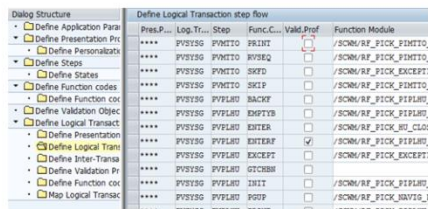
1. Create dynpro with its speech attributes on field level.
2. Use of ITS HTML Template Generator „Mobile Devices with Speech Input“.
3. Get HTML template.

i Note

Speech attributes can be found in dynpro on screen and field level. Use SE51 or SE80 to change them. ITS HTML generator can be found in SE80. On the screen object use context menu 'Other Functions' -> 'Create Template'. Use generating style 'Mobile Devices with Speech Input'.

2.1.1 Integration into SAP EWM RF Framework

RF configuration

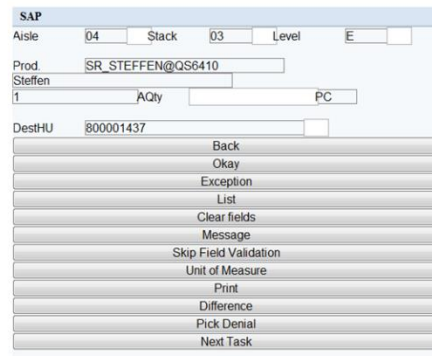


Pres.P...	Log.Tr...	Step	Func.C...	Valid.Prof	Function Module
****	PVSISG	PVMTIO	PRINT	<input type="checkbox"/>	/SOM/RF_PICK_FDMTIO
****	PVSISG	PVMTIO	RVISG	<input type="checkbox"/>	/SOM/RF_PICK_FDMTIO
****	PVSISG	PVMTIO	SKID	<input type="checkbox"/>	/SOM/RF_PICK_EXCEPT1
****	PVSISG	PVMTIO	SKIP	<input type="checkbox"/>	/SOM/RF_PICK_FDMTIO
****	PVSISG	PVPLRD	BACKF	<input type="checkbox"/>	/SOM/RF_PICK_FPLRD
****	PVSISG	PVPLRD	EXPTVB	<input type="checkbox"/>	/SOM/RF_PICK_FPLRD
****	PVSISG	PVPLRD	ENTERA	<input type="checkbox"/>	/SOM/RF_PICK_RQ_CLOS
****	PVSISG	PVPLRD	ENTERP	<input checked="" type="checkbox"/>	/SOM/RF_PICK_FPLRD
****	PVSISG	PVPLRD	EXCEPT	<input type="checkbox"/>	/SOM/RF_PICK_EXCEPT1
****	PVSISG	PVPLRD	GTORBN	<input type="checkbox"/>	/SOM/RF_PICK_FPLRD
****	PVSISG	PVPLRD	INIT	<input type="checkbox"/>	/SOM/RF_PICK_FPLRD
****	PVSISG	PVPLRD	PGOP	<input type="checkbox"/>	/SOM/RF_PICK_RAVIS_1
****	DEVVED	DEVVED	DEVVED	<input type="checkbox"/>	/SOM/RF_PICK_RAVIS_1

HTML template



Voice dialog screen



SAP

Aisle 04 Stack 03 Level E

Prod. SR STEFFEN@QS6410

Steffen

1 AQty PC

DestHU 800001437

Back

Okay

Exception

List

Clear fields

Message

Skip Field Validation

Unit of Measure

Print

Difference

Pick Denial

Next Task

4. Create new logical transaction in RF Framework (incl. Step flow, validation, ...)
5. Start ITS service in browser which supports XHTML+Voice

Caution

Please keep in mind that SAP EWM does not offer any voice recognition software. On the devices must be some software provided by other companies which interpret the XHTML+Voice page coming from SAP and handle the voice output and voice input to the user.

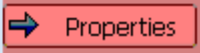
There are several software and hardware provider which can connect to EWM. Nevertheless there are different approaches which make use of different parts of the development. One company uses all parts including the XHTML+Voice templates. Another company uses the ABAP part and create own templates.

3 Details

3.1.1 Screen / Dynpro

The voice attributes are realized as properties either on dynpro level or field level.

On the screenshot below you can see how to trigger the 'Properties' screen on dynpro level.

Screen number		200	Active
<div>Attributes Element list Flow logic</div>			
Short Description		RF PbV Pick-HU Introduction Screen	
Original Language		EN English	Package /SCWM/CORE_RF_EN
Last Changed		21.11.2011	14:42:07
Last Generation			0:00:00
Screen Type		Settings	
<input type="radio"/> Normal		<input checked="" type="checkbox"/> Switch Off Runtime Compress	
<input checked="" type="radio"/> Subscreen		<input type="checkbox"/> Template - non-executable	
<input type="radio"/> Modal dialog box		<input type="checkbox"/> Hold Scroll Position	
<input type="radio"/> Selection screen		<input type="checkbox"/> Without Application Toolbar	
Other Attributes			
Next Screen		200	
Cursor Position			
Screen Group			
Lines/Columns	Occupied	7	40
	Mainten.	7	40
Context Menu FORM ON CTMENU			
			

On the screenshot below you can see how to trigger the 'Properties' screen on field level.

Screen Painter: At...

El. type Input/Output Field

Name /SCWM/S_RF_ORDIM_CON

Text

Dropdown

With Icon ☐ Scrollable ☒

Line 1 Def.Length 50

Column 12 Vis.Length 1

Height 1

Groups 002

Switch ☐ Reaction D

FctCode FctType

Context Menu Form

ON_CTMENU_

Attributes

Dict Program Display

Format CHAR

☒ From dict. Modify X

Conv. Exit

Search Help

Ref. Field

Parameter ID

☐ SET Parameter

☐ GET Parameter

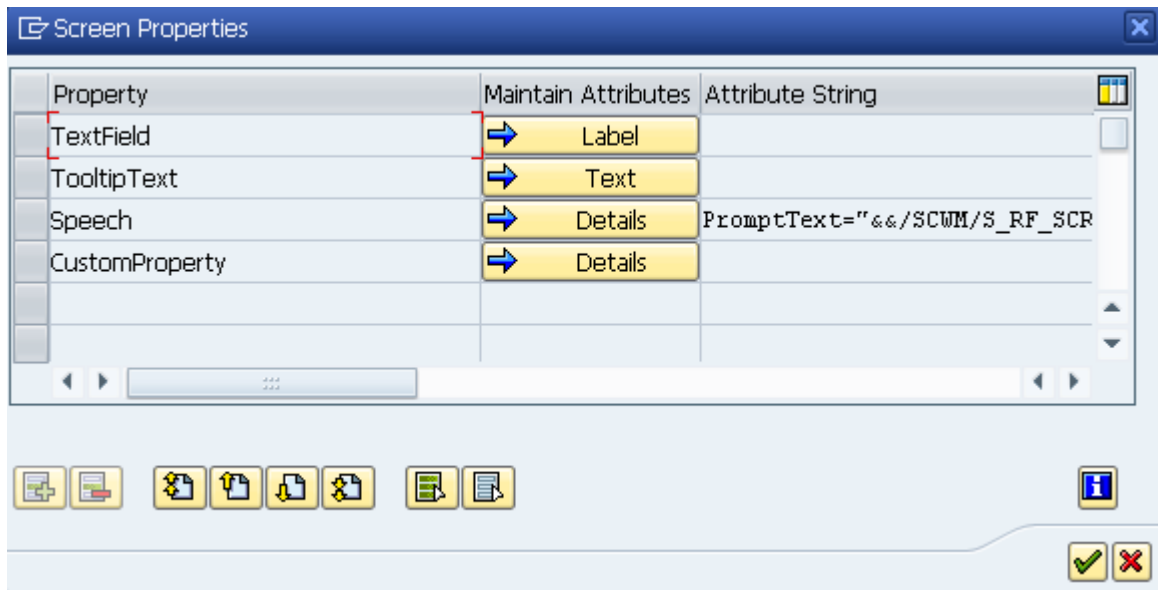
☐ Foreign Key Check

☐ Upper/Lower Case

Navigation icons: [X] [Left] [Right] [Help]

The property itself is named 'Speech'.

On the screenshot below you can see how the properties dialog looks like.



On 'Details' screen you have to switch on the property effect. Either use “Effective without additional attributes” or “Effective; additional attributes possible”. If you use “No Effect (Deletion of Property)” the property is ignored even if you maintain additional attributes.

If you want to use the additional attributes, you can maintain them on the 'Additional Attributes' part of the 'Details' screen.

The available attributes are the same on screen and field level.

Available attributes are:

Attribute	Description
Prompt Text	Text to prompt input for a field, such as “Enter the client” or text spoken to the user if the screen is “displayed”.
Filled Text	The text is spoken to the user if speech input was successfully detected. E.g. to repeat an entered quantity.
Help Text	Help text for speech input. The text is read if no speech input was detected or validation fails on client side.
Grammar	Grammar for identifying the speech input on client side.
GrammarLnk	Grammar for identifying the speech input that is loaded as an external file on client side.
TimeOut	Time in seconds until the help text is read, if no speech input is made.
NextField	Specifies the next field with speech input. Will override the default field sequence.

Note

The 'HelpText' is triggered if the X+V events 'nomatch', 'noinput' and 'help' are raised. This could be optimized in a custom projects. For some fields a different text for event 'nomatch' and for event 'help' could be useful.

For an attribute you must define the origin of the attribute value.

- 0 You enter the value directly
- 1 Value is taken from a variable
- 2 Value is taken from a text element

After the origin you have to maintain the corresponding column to the right.

3.1.2 Function Modules (used in RF Framework)

3.1.2.1 PBO (Process before Output)

In the function module which is processed before the screen is displayed, you fill the speech attributes by filling corresponding fields of structure /SCWM/S_RF_SCRELM_PBV.

- You prepare the GRAMMAR or GRAMMARLNK.
- You fill the PROMPT (on screen or field level).
- You fill the HELP.
- You add special logic there e.g. splitting the storage bin into aisle, stack and level.

There are some methods available to help you in this. They are all in class /SCWM/CL_RF_BLL_SRVC.

Method	Description
BUILD_HELP_TEXT	Prepare the help text for a field. You pass fieldname (VLENR) and table name (/SCWM/ORDIM_O) to the method and you get the help text 'Invalid Source Handling Unit Verification'
BUILD_GRAMMAR_FOR_HU	Prepare grammar for a HU. You pass warehouse number, HU number and storage bin to the method and you get the possible grammar values as a string. E.g. HU 80001234 returns '34 234 1234 01234 001234 0001234 80001234'. We need the storage bin to check if grammar conflicts with other HU on this bin. E.g. if there is another HU 82340034 on the bin, grammar '34' is not unique and can't be used. In this case the string would look like '234 1234 01234 001234 0001234 80001234'.
BUILD_PROMPT_FOR_FIELD	Add space between each figure e.g. 8001234 -> 8 0 0 1 2 3 4
GET_DATA_ENTRY	Reads field DATA_ENTRY from global structure SS_RF_STATIC. Value '1' means 'Voice Recognition Device'.

Method	Description
SET_DATA_ENTRY	Set field DATA_ENTRY in global structure SS_RF_STATIC.
BUILD_INDEX_PBV	Creates an entry in global table ST_RF_INDEX_PBV. This table is only used in the BAdI / SCWM/EX_VOICE_ATTRIB where you can change the voice attributes just before the screen is displayed.
GET_INDEX_PBV	Return content of global table ST_RF_INDEX_PBV.
SET_INDEX_PBV	Override complete content of global table ST_RF_INDEX_PBV.

In the PBO function modules two different kind of information are prepared for later use.

- Structure /SCWM/S_RF_SCRELM_PBV contains all voice properties for all screens fields which will be voice enabled. This must be a structure otherwise it could not be used for the definition of the field or dynpro property (see chapter [Screen / Dynpro](#)). This limits the use of voice enabled fields per screen. You can use up to 10 fields which have a 'Prompt', 'Grammar' and 'Help' property but only 5 fields can have a 'GrammarLnk' or 'Filled' property.
- Table /SCWM/TT_RF_INDEX_PBV contains for each voice enabled field an entry which links to the used fields in structure /SCWM/S_RF_SCRELM_PBV for this single field. This table is used in BAdI /SCWM/EX_VOICE_ATTRIB to know what has to be changed



Example

The below example shows you that screen field 'PICKHU' has its 'Prompt Text' in field 'FLD_PROMPT_8' of structure /SCWM/S_RF_SCRELM_PBV and uses ABAP message /SCWM/RF_EN 555 with value 800000053 in message variable 1 as text which is spoken to the user.

Example of screen elements (structure /SCWM/S_RF_SCRELM_PBV) (PBO of step PVMTTO)

Field	Value
SCR_PROMPT	
FLD_PROMPT_1	Storage type T020 go to aisle 01
FLD_PROMPT_2	Go to stack 01
FLD_PROMPT_3	Go to level D
FLD_PROMPT_4	
FLD_PROMPT_5	Search batch
FLD_PROMPT_6	Take 2 each
FLD_PROMPT_7	Enter remaining quantity
FLD_PROMPT_8	Into HU 800000053. Enter 2 digits
FLD_PROMPT_9	Into position
FLD_PROMPT_10	
MSG	
LIST_VALUES	

Field	Value
GRAMMAR_1	01
GRAMMAR_2	01
GRAMMAR_3	D
GRAMMAR_4	
GRAMMAR_5	
GRAMMAR_6	2
GRAMMAR_7	EWM_NUMERIC.JSGF
GRAMMAR_8	53 053 0053 00053 000053 0000053 00000053 800000053
GRAMMAR_9	
GRAMMAR_10	
GRAMMAR_LNK_1	
GRAMMAR_LNK_2	
GRAMMAR_LNK_3	
GRAMMAR_LNK_4	
GRAMMAR_LNK_5	
HELP_1	Invalid Aisle verification
HELP_2	Invalid Stack verification
HELP_3	Invalid Level verification
HELP_4	
HELP_5	Invalid Batch verification
HELP_6	
HELP_7	Enter remaining quantity
HELP_8	Invalid Destination Handling Unit verification
HELP_9	Invalid Logical Position of Handling Unit verification
HELP_10	
FILLED_1	
FILLED_2	Quantity
FILLED_3	Quantity
FILLED_4	
FILLED_5	

Example of index table (structure /SCWM/S_RF_INDEX_PBV) (PBO of step PVMTTO)

INDEX_FIELD	PROPERTY_TYPE	STRUCT_FIELD	MSGTY	MSGID	MSGNO	MSGV1
AISLE	1	FLD_PROMPT_1	I	/SCWM/RF_EN	559	01
AISLE	4	GRAMMAR_1			000	
AISLE	2	HELP_1	E	/SCWM/UI_RF	020	Aisle
STACK	1	FLD_PROMPT_2	I	/SCWM/RF_EN	551	01
STACK	4	GRAMMAR_2			000	
STACK	2	HELP_2	E	/SCWM/UI_RF	020	Stack
LVL_V	1	FLD_PROMPT_3	I	/SCWM/RF_EN	552	D
LVL_V	4	GRAMMAR_3			000	
LVL_V	2	HELP_3	E	/SCWM/UI_RF	020	Level
CHARG	1	FLD_PROMPT_5	I	/SCWM/RF_EN	558	
CHARG	4	GRAMMAR_5			000	
CHARG	2	HELP_5	E	/SCWM/UI_RF	020	Batch
QTY	1	FLD_PROMPT_6	I	/SCWM/RF_EN	554	2
QTY	4	GRAMMAR_6			000	
QTY	2	HELP_6	I	/SCWM/RF_EN	582	
QTY	3	FILLED_2	I	/SCWM/RF_EN	703	
KQUAN	1	FLD_PROMPT_7	I	/SCWM/RF_EN	569	
KQUAN	2	HELP_7	I	/SCWM/RF_EN	569	
KQUAN	3	FILLED_3	I	/SCWM/RF_EN	703	
KQUAN	5	GRAMMAR_7			000	
PICKHU	1	FLD_PROMPT_8	I	/SCWM/RF_EN	555	800000053
PICKHU	2	HELP_8	E	/SCWM/UI_RF	020	Destination Handling Unit
PICKHU	4	GRAMMAR_8			000	
LOGPOS	1	FLD_PROMPT_9	I	/SCWM/RF_EN	570	
LOGPOS	4	GRAMMAR_9			000	
LOGPOS	2	HELP_9	E	/SCWM/UI_RF	020	Logical Position of Handling Unit

The property type can have the following values:

- 1 = Prompt Text
- 2 = Help Text
- 3 = Filled Text
- 4 = Grammar
- 5 = GrammarLnk

In include /SCWM/LRF_PICKINGPBV you can find lots of examples.

3.1.2.2 Validation

We have to distinguish between frontend validation (directly on the device without round trip) and backend validation.

Frontend validation is done by the software on the device which compares the spoken value of the user with the 'Grammar' or 'GrammarLnk' property value. Software speaks the text of 'Help' property to the user in case of an invalid validation or the text of 'Filled' property in case of a valid validation.

Backend validation is either done by the RF Framework with a 1 to 1 validation or by a function module maintained in the validation profile customizing. The function module must also be able to handle the new HU verification where user only speaks last 2 digits. In function module /SCWM/RF_PICK_PICKHU_CHECK you can find an example for this

Note

Backend validation is only necessary if the validation is too complex to handle it by frontend validation with the use of 'Grammar' or 'GrammarLnk' property.

Backend validation is always necessary in a multi modal transaction. Only voice input use the 'Grammar' and 'GrammarLnk' property for validation. All other input sources must be validated in the function modules linked to the RF Framework.

Note (new)

The validation fields can be switched off based on application data with a verification profile defined in customizing IMG -> Extended Warehouse Management -> Mobile Data Entry -> Verification Control.

'Data Entry' is part of the determination key fields. This means that customer can create different verification profiles for the same process using RF or Voice transaction.

Note (new)

The storage bin master has an own verification value for storage bin/aisle-stack-level validation only used in Voice transaction.

3.1.3 BAdI (Business Add-In)

BAdI /SCWM/EX_VOICE_ATTRIB (Enhancement spot /SCWM/ES_RF_FLOW) can be used to change the voice attributes before a screen is “displayed”.

BAdI contains a default implementation where e.g. the value of the handling unit number is changed to influence how the number is spoken to the user. Without the BAdI implementation HU number 8001234 is spoken as “Eight Million One Thousand Two Hundred Thirty-Four”, with the BAdI implementation it is spoken as “Eight Zero Zero One Two Three Four”.

Implementation can be found in class /SCWM/CL_EI_VOICE_ATTRIB in method /SCWM/IF_EX_VOICE_ATTRIB~MODIFY_VOICE_PROPERTIES.

3.1.4 RF Framework

3.1.4.1 Structures

/SCWM/S_RF_SCRELM_PBV RF Presentation Screen Elements for Pick by Voice

/SCWM/S_RF_INDEX_PBV Index Table of Screen Properties

How the structures are using is explained in [PBO \(Process before Output\)](#).

Structure /SCWM/S_RF_SCRELM_PBV contains a customer include which can be used to add more fields if needed.



Example

You have more than 10 voice enabled fields on your screen or you have own voice attributes. In this case you can enhance the structure /SCWM/S_RF_SCRELM_PBV and fill the new fields in the BAdI mentioned in chapter [BAdI \(Business Add-In\)](#).

3.1.4.2 Table Types

/SCWM/TT_RF_INDEX_PBV Index Table of Screen Properties

3.1.4.3 Data Entry

To be able to distinguish within RF Framework and transaction coding if we process a voice enabled transaction we introduce new value '1' for the data entry.

The following coding is influenced by the data entry:

- Description of a field is taken instead of medium field label for an error message

- Trigger the BAdI call before the screen is displayed
- Remove the automatic menu item numbering (e.g. 1. Pick by Voice -> Pick by Voice)
- Remove the automatic list box item numbering
- Control field input on RF logon screen (e.g. if warehouse number is defaulted by /SCWM/USER, user have not to enter / speak it again)
- Control the system guided work to trigger transaction 'PVSYSG' instead of 'PISYSG'

Data entry is an attribute of the presentation device (Use transaction /SCWM/PRDVC to maintain).

Initial value means 'General data entry type' (scanner and keyboard based), '1' means 'Voice recognition'.



Caution

Make sure that the 'Shortcut' attribute of the presentation device is initial. The 'Shortcut' functionality is not supported for the voice enabled transaction.

3.1.4.4 Display Profile

The display profile implies the template screens used in the RF Framework. As we need new template screens which are voice enabled and contain the needed numbers of push buttons, we needed to introduce a new display profile '*1'.

Display profile is customizing of the RF Framework (Use transaction /SCWM/RFSCR to maintain).

Data entry is an attribute of the presentation device (Use transaction /SCWM/PRDVC to maintain).

The new display profile '*1' is defined with the following data.

Description	Field	Value
Screen Height	HEIGHT	16
Screen Width	WIDTH	40
Pushbutton Text Length	PUSHB LEN	40
Number of Pushbuttons Available on the Screen	PUSHB QTY	16
Menu Item and Logical Transaction Text Length	MENU LEN	40
Message Display	MSG VIEW	0 (=Pop-up message screen)
Template Screen Program	TMPL PROGR	/SCWM/SAPLRF_TMPL
Template Screen Number	TMPL NUM	11
Template (with Bottom Message) Screen Program	TMPL MSG PROGR	/SCWM/SAPLRF_TMPL
Template (with Message Line) Screen Number	TMPL MSG NUM	0002

Description	Field	Value
Template Screen Title Program	TMPL TITL PROGR	
Template Screen Title Number	TMPL TITL NUM	
Text	TEXT	Pick-by-Voice

3.1.4.5 Personalization Profile

The personalization profile controls a lot of things in RF Framework.

We introduced new value '*1' to trigger not the RF standard menu ('MAIN') but the specific menu ('PBV') with the new voice enabled transaction.

Personalization profile is customizing of the RF Framework (Use path 'Extended Warehouse Management' -> 'Mobile Data Entry' -> Radio Frequency (RF) Framework -> Define Steps in Logical Transactions to maintain).

You must assign the personalization profile to the EWM user table (Use transaction /SCWM/USER to maintain). There you create an entry with key value 'Data Entry' equal '1'.

3.1.4.6 Transaction

New transaction '/SCWM/RFUI_PBV' as starting point for the RF Framework is created. The new transaction set the right data entry '1' in the beginning to support voice.

Note

Do not use transaction existing transaction '/SCWM/RFUI'. With this transaction voice enabled specific coding is not processed. If you want to use voice enabled transaction and scanner enabled (RF) transactions in parallel, use the new transaction.

If you want to use voice enabled picking and scanner enabled picking, use the new transaction AND change the data entry at the beginning of the scanner enabled picking to space and back to '1' if you leave the transaction. Use method SET_DATA_ENTRY from class /SCWM/CL_RF_BLL_SRVC.

If the voice enabled picking is not started please re-try with the following settings:

- Assign presentation profile to Warehouse (IMG: Extended Warehouse Management -> Mobile Data Entry -> Assign Presentation Profile to Warehouse). Set 'Pres. Prof.' to default '****'.
- Create presentation device (SAP Menu: Extended Warehouse Management -> Master Data -> Maintain Presentation Devices). Set "Disp. Prof." to '*1', "Data Entry" to '1' and "Default" to 'X'.
- Create user (SAP Menu: Extended Warehouse Management -> Master Data -> Resource Management -> Maintain Users). Set "Data Entry" to '1' and "Prsn. Prof." to '*1'.

3.1.4.7 Supported functionality

Beside of the voice enabled picking the following parts of the RF Framework are also voice enabled:

- Logon
- Menu
- List box
- Logoff

3.1.4.8 Exception Handling

We use the same business context as the standard RF Picking transaction (TIM and TPI) but have own execution steps for RF Pick-by-voice transactions.

- P1 PbV HU WT Action on Source Data
- P2 PbV HU WT Action on Target Data
- P3 PbV Product WT Action on Source Data
- P4 Pbv Product WT Action on Target Data

Also the available exceptions are different between RF Picking and RF Pick-by-Voice.

Note

For a detailed list of available exceptions, please check directly in customizing. (Path: IMG -> Extended Warehouse Management -> Cross-Process Settings -> Exception Handling -> Maintain Business Context for Exception Codes; Maintain Exception Code Context; Use Business Context TIM or TPI and the above mentioned execution steps)

3.1.4.9 Others

3.1.4.9.1 Function keys

Normally the functions on the pushbuttons are shown together with their related function key. E.g. F1 PRINT. We can do this of course also in voice enabled transaction but this would mean that the user has to speak also the F1 to trigger the PRINT function. Therefore we decided to remove the function key value. This can be done in RF Framework customizing. In the function code profile leave the function key field empty.

3.1.4.9.2 Repeat of messages/prompts

If a user didn't understand the message there should be a possibility to repeat the message or the prompt (in general the last instruction from the system).

In standard there is no command foreseen. But each Pick by Voice provider offers such functionality (E.g. command 'Repeat').

3.1.4.9.3 Changed screens

This is an overview of the new screens:

Function / Where-used	Function Group	Screen number
Template	/SCWM/RF_TMPL	0011
Message	/SCWM/RF_SSCR	0012
List	/SCWM/RF_SSCR	0013
Logon	/SCWM/RSRC_DYNPRO	0011
Logoff	/SCWM/RSRC_DYNPRO	0012
Menu	/SCWM/RF_SSCR	0011
Semi-System Guided	/SCWM/RF_GENERAL_EN	0501
Pick-by-Voice	/SCWM/RF_PBV	0200, 0301, 0302, 0420, 0430, 0501, 0502, 0503, 0504

3.1.4.9.4 Memory parameter

Parameter 'PBV_DENTRY' is created and used at the beginning of the report /SCWM/RF_UI_START. The parameter is set according to the start transaction and later on used for the data entry of the logon screen.

3.1.4.10 Maintain Voice Properties (new)

Voice properties like 'Prompt Text', 'Help Text' and 'Filled Text' can be changed directly in customizing without the need of coding changes.

Customizing of the Voice Properties (Use path 'Extended Warehouse Management' -> 'Mobile Data Entry' -> Maintain Voice Properties).

Example

The below example show you how to replace the standard messages (PromptText and Help_Text) for the field AISLE_VERIF on standard screen 501 in function group /SCWM/RF_PBV.

Standard messages are:

Prompt Text: 'Go to aisle 01' (/SCWM/RF_EN 550)

Help Text: 'Invalid aisle verification' (/SCWM/UI_RF 020)

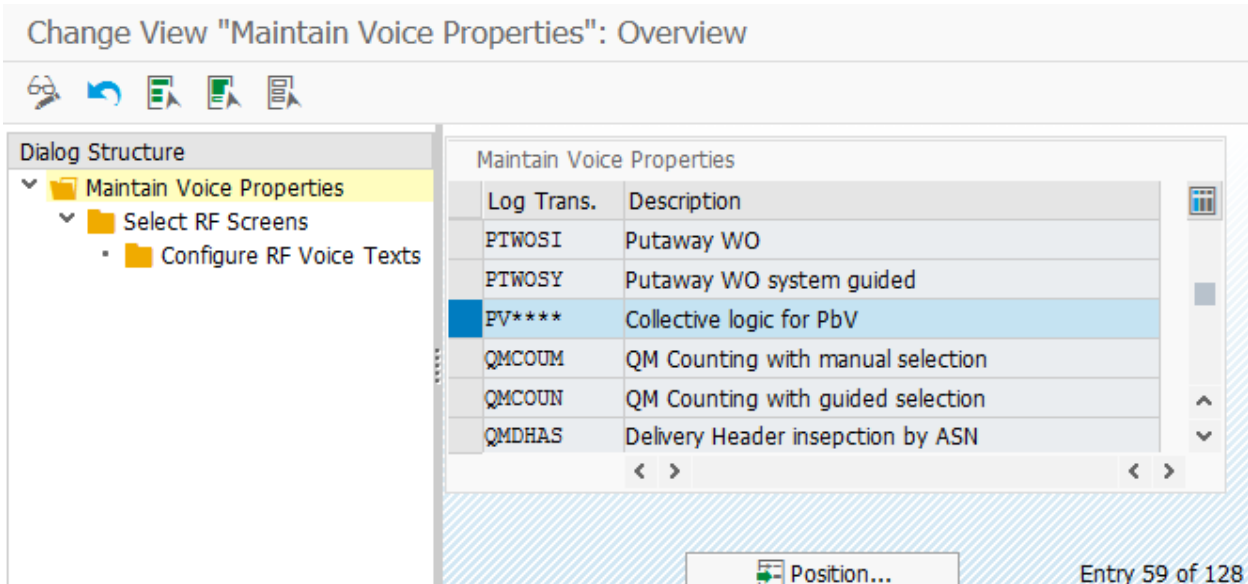
1. Create new messages in customer namespace.

Keep in mind that the messages must also be translated if they should be used in different countries.

2. Assign the new messages in customizing.

a. Select your Voice transaction

Change View "Maintain Voice Properties": Overview



Log Trans.	Description
PTWOSI	Putaway WO
PTWOSY	Putaway WO system guided
PV****	Collective logic for PbV
QMCOUN	QM Counting with manual selection
QMDHAS	Delivery Header inspection by ASN

Position... Entry 59 of 128

b. Select the screen which contains the field

Change View "Select RF Screens": Overview

Dialog Structure

- Maintain Voice Properties
 - Select RF Screens
 - Configure RF Voice Texts

App...	Pres...	Prsn...	Disp...	Log Tr...	Step	State	S...	Screen Program	Scr...
01	****	**	*1	PV****	PVCHBD	*****	01	/SCWM/SAPLRF_PBV	430
01	****	**	*1	PV****	PVCHBN	*****	01	/SCWM/SAPLRF_PBV	430
01	****	**	*1	PV****	PVHUIN	*****	01	/SCWM/SAPLRF_PBV	200
01	****	**	*1	PV****	PVHUTO	*****	01	/SCWM/SAPLRF_PBV	502
01	****	**	*1	PV****	PVMITO	*****	01	/SCWM/SAPLRF_PBV	501
01	****	**	*1	PV****	PVPLHU	*****	01	/SCWM/SAPLRF_PBV	301

Position... Entry 4 of 12

c. Configure the new text

The screen prompt is defaulted by the system. You can change the entries to create your first entry.

A new initial entry is created after you confirm your actual entry with ENTER.

For new entries, you can also select a line and press the 'Copy As'-button or F6.

As 'Prompt Element' use the F4 help and select an entry.

Change View "Configure RF Voice Texts": Overview of Selected Set

Dialog Structure

- Maintain Voice Properties
 - Select RF Screens
 - Configure RF Voice Texts

Screen Program	Scr...	Prompt Element	Prop. Type	Message class	Msg...	Message Text
/SCWM/SAPLRF_PBV	501	AISLE	1 Voice Prompt Te...	ZTEST_940_PBV	010	Aisle &1
/SCWM/SAPLRF_PBV	501	AISLE	2 Voice Help Text	ZTEST_940_PBV	011	Aisle &1 is not correct

Position... Entry 1 of 2

1 Note

1. The changes are only done for fields which are stored during runtime in table ST_RF_INDEX_PBV. If you don't know which field you should use for the 'Prompt Element' you have to check the table entries in debugging!
2. There could be issues with message variables. E.g. The message for the help text in our example (/SCWM/UI_RF 020) has the field description of field AISLE as variable1. The new message (ZTEST_940_PBV 011) wants to use the value of the aisle field. This will not fit because the message variables are not changed!
3. If you change the help text but you test in SAPGui you will still see the old message. In our example, it would be message /SCWM/UI_RF 020 'Invalid aisle verification'.

d. Test your changes

3.1.5 ITS (Internet Transaction Server)

3.1.5.1 ITS service

New ITS service 'RFUI_PBV' is created. This ITS service calls transaction /SCWM/RFUI_PBV.

Note

Use transaction 'SICF' to maintain ITS service. Follow path 'default_host' -> 'sap' -> 'bc' -> 'gui' -> 'sap' -> 'its' -> 'scwm'

3.1.5.2 MIME objects

The files used for property 'GrammerLnk' are 'EWM_ALPHANUMERIC.JSGF' and 'EWM_NUMERIC.JSGF'. They are stored as language dependent MIME objects. At the moment only German and English MIME objects exist. They contain the description of the validation in Java Speech Grammar Format (JSGF)

EWM_NUMERIC.JSGF

```
#JSGF V1.0;  
grammar com.sap.speech.ewm.num  
<digits> = 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9;  
public <ewm_numeric> = <digits>+;
```

EWM_ALPHANUMERIC.JSGF

```
#JSGF V1.0;  
grammar com.sap.speech.ewm.alpha  
<digits> = 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9;  
<letters> = A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z;  
public <ewm_alphanumeric> = ( <digits> | <letters> )+;
```

As you see the grammar contains single letters. Therefore it is needed to speak the letters and digits one by one. For the letters often NATO alphabet is used.



Example

The value for warehouse AB01 must be spoken 'ALFA BRAVO zero one'.

3.1.5.3 Difference between field input and command

If user speaks something into the microphone it could be a field input or a command. In ITS there are some predefined commands available. The most important one is 'COMMAND' this changes from field input into the command mode. In command mode the frontend is taken against the given commands and not against the field value. All pushbuttons are interpreted as a command where the text on the button is the command literal.

ITS default commands:

Command	Result
COMMAND	Change from field input to command mode
SEND	Trigger a round-trip
LOG OFF	Trigger a log off from the system (Send /nex to the system)

EWM default commands

Command	Result
OKAY	Trigger a round-trip
BACK	Trigger the previous step of the transaction (Go back one step)
CLEAR FIELDS	Clear the already entered values and continue from the first field
LIST	Trigger the list box screen for the current input field (e.g. warehouse number list on the logon screen)
EXCEPTION	Trigger the list box screen for the existing exceptions

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