

**Honeywell**

# Guided Work Solutions

VoiceDirect ERP Plug-In 3.5 for use with SAP®

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## Product Description

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# INTRODUCTION

Honeywell offers the Guided Work Solutions for SAP® customers, allowing them to seamlessly enable their Warehouse Management (WM) or Extended Warehouse Management (EWM) Mobile Data entry (RF) transactions with Honeywell Voice to unleash their highest business performance. Honeywell GWS VoiceDirect ERP Plug-In for use with SAP uses the SAP Internet Transaction Server technology to voice-enable existing transactions.

The GWS VoiceDirect ERP Plug-In for use with SAP (referred to as Plug-In throughout the remainder of this document) runs on a wearable device such as the Honeywell A700x or any Android device supported by DevKit. The Honeywell A700x device is a portable, belt-mounted speech recognition system designed for use in industrial and distribution center applications in which the operator needs to work hands-free and eyes-free.

The device communicates with the SAP host via the Plug-In through a wireless radio frequency (RF) network, receiving instructions and transmitting status. Devices run a supporting version of GWS App.

For the A700x, the loading of the tasks and operators onto the device is managed by Honeywell VoiceConsole. For Android devices, these are managed on the individual device. For both A700x and Android licensing is provided via VoiceConsole.

The Plug-In is specifically designed to fully leverage existing SAP technologies, providing a low-risk, configurable Honeywell Voice solution to help manage the entire distribution cycle more effectively. The Plug-In improves warehouse productivity and overall accuracy, while driving quantifiable bottom-line results with ROI measured in months.

# Getting Help

## Additional Documentation

Additional documentation may be found in your product package and on online partner portals. Find most Honeywell Voice technical documentation at [help.honeywellaidc.com](http://help.honeywellaidc.com).

## Honeywell Voice Reseller Services

If you purchased equipment or services through a Honeywell Voice reseller, please contact your reseller first for support or to purchase a support plan.

## Honeywell Voice Technical Support

Submit incidents or questions to [honeywell.custhelp.com](http://honeywell.custhelp.com) or contact Honeywell Technical Support Center:

- **Americas**  
Email: [VoiceTechnicalSupport@Honeywell.com](mailto:VoiceTechnicalSupport@Honeywell.com)  
Phone: +1(866) 862-7877
- **Europe, Middle East, Africa**  
Email: [VoiceTechnicalSupport@Honeywell.com](mailto:VoiceTechnicalSupport@Honeywell.com)  
Phone: +44 (0) 1344-65-6123
- **Rest of World**  
Email: [VoiceTechnicalSupport@Honeywell.com](mailto:VoiceTechnicalSupport@Honeywell.com)  
Phone: +1 (412) 376-9384

To report support incidents or ask technical questions for other Honeywell devices, visit [honeywell.com/PSStechnicalsupport](http://honeywell.com/PSStechnicalsupport).

## Honeywell Voice Customer Service

For order placement or customer service inquiries:

- **North America, Latin America**  
Email: [VoiceCustomerServiceAmericas@Honeywell.com](mailto:VoiceCustomerServiceAmericas@Honeywell.com)  
Phone: +1(866)862-6553
- **Europe, Middle East, Africa, Turkey**  
Email: [voicecustomerserviceEMEA@honeywell.com](mailto:voicecustomerserviceEMEA@honeywell.com)  
Phone: +44 (0) 1698-915777
- **Japan**  
Email: [csjapan.pss@honeywell.com](mailto:csjapan.pss@honeywell.com)

Phone: +81-3-6730-7344

- **Brazil**  
Email: [ACSHSMCentraldepedidos@honeywell.com](mailto:ACSHSMCentraldepedidos@honeywell.com)  
Phone: +55 (31) 2391-5600
- **Asia Pacific**  
Email: [VoiceCustomerServiceAPAC@honeywell.com](mailto:VoiceCustomerServiceAPAC@honeywell.com)  
Phone: +44 16989 15777

## Honeywell Voice Hardware Repair

For returns or to check the status of a Return Material Authorization (RMA) for Voice hardware products:

- **Americas**  
Email: [VoiceRMA@Honeywell.com](mailto:VoiceRMA@Honeywell.com)  
Phone: +1 (866) 417-6988
- **Europe, Middle East, Africa**  
Email: [VoiceEMEARMA@honeywell.com](mailto:VoiceEMEARMA@honeywell.com)  
Phone: +1 (866) 417-6988
- **Rest of World**  
Email: [VoiceRMA@Honeywell.com](mailto:VoiceRMA@Honeywell.com)

For returns or to check the status of an RMA for other Honeywell hardware products, visit the SPS RMA portal: [sps-support.honeywell.com/s/pss/pss-rma](https://sps-support.honeywell.com/s/pss/pss-rma)



# ABOUT VOICEDIRECT ERP PLUG-IN

## WM Reference Design

The Plug-In Reference Design implements the following SAP WM transactions as a means to demonstrate voice-enabled SAP Warehouse Management (WM) screens:

- LM05: Pick by Transfer Order (TO)
- LM07: Picking – System Guided
- LM45: Pick and Pack

The Reference Design also provides a learning tool for developers who are implementing customer-specific Plug-In systems. the Plug-In can be used to voice enable any SAP or custom RF transaction.

### IMPORTANT

WM support is included. However due to SAP's announcement of end of support for WM by 2025, only limited testing has been performed.

## EWM Reference Design

This release supports EWM (extended Warehouse Management) PBV (Pick By Voice) in addition to the LM05 and LM45 picking solutions.

## Classic or MobileXV Style

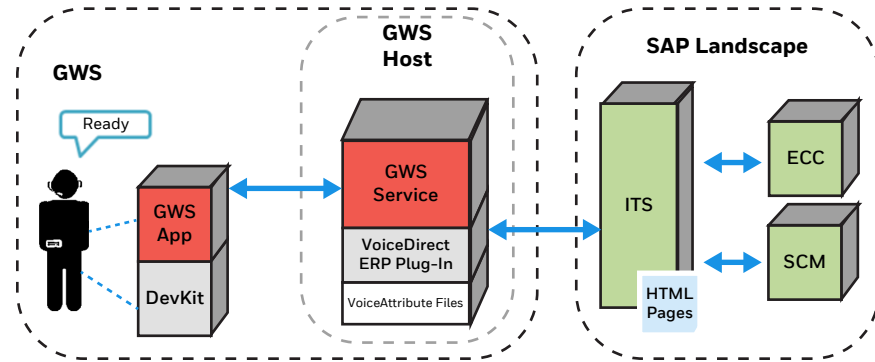
This release continues support for the classic (HTML) style templates and adds support for MobileXV (Voice XML) templates. Either style of template can be used with the WM or EWM Reference Design.

## How Does It Work?

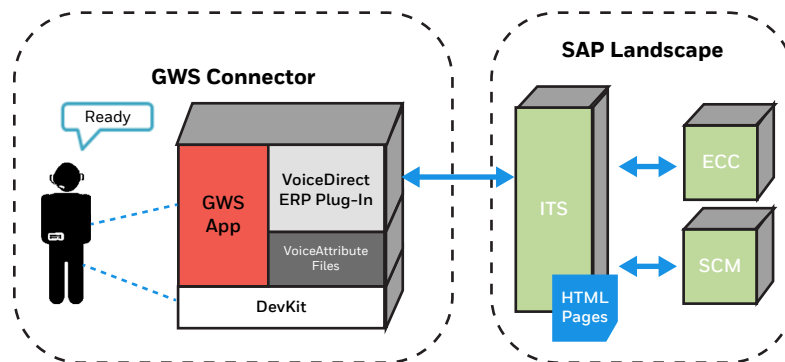
Orders for specific transactions for SAP WM and EWM environments are generated by the SAP system and transmitted through a wireless radio frequency (RF) network to devices running

GWS App. GWS VoiceDirect ERP Plug-In for use with SAP translates SAP orders into speech commands that direct an operator to a location.

The illustration below depicts a high-level architectural view of the Plug-In deployed on a separate GWS Host.



The illustration below depicts a high-level architectural view of the Plug-In deployed embedded in the GWS App.



Operators can confirm locations by speaking a numeric identifier (called a check digit or bin verification) into their speech-recognition headsets in SAP systems where check digits are supported. They can also report differences (or shorts) between the quantity they are picking and the quantity they have been prompted to pick. In environments where barcode scanners are used, operators can enter values either by speaking or by scanning.

As the operator progresses through an order, the Plug-In reports the status of picks to SAP as the items are delivered.

Operators may also be directed to deliver picked items to a delivery location where further operations can be performed on them, such as loading them onto a truck.

The following three sections describe, in greater detail, the technology involved in the three major components involved in the interface between the Honeywell Voice and the SAP landscapes.

## SAP ITS

SAP standard mobile transactions are converted to HTML pages based on HTML templates. Each screen interacts with its corresponding HTML page, providing the user with a visual interaction of the inputs, outputs, commands, and triggers necessary to complete the specific functions facilitated by the screen. The ITS (Internet Transaction Server) serves the HTML page to external processes (Internet, intranet, remote devices, etc.). Each page maps to a specific screen within SAP. The Plug-In solution provides a set of customized HTML templates to support voice enabling the standard mobile transaction screens. These templates can be further modified to meet the customer's specific needs.

## VoiceAttributes

The Plug-In has an integration adapter that connects the GWS App to SAP ITS. It listens to requests/responses coming from the GWS App, translates and communicates them to SAP ITS, translates the requests and responses from ITS, and communicates them back to GWS App.

The Plug-In can be deployed as follows:

- Using GWS Service in a separate host.
- Embedded with GWS App on the device.

The Plug-In communicates with SAP ITS over an HTTP or HTTPS stream.

The Plug-In uses VoiceAttributes files (a set of XML files) to map the HTML pages (i.e., screens) from SAP ITS to Honeywell Voice instructions. VoiceAttributes can be set on a per-screen basis to control the voice interactions between the operator and the device. Configuration of this operator dialog can be controlled by changing the attribute values in these files.

## GWS App

The GWS App voice application has been designed to act as a “generic” application, accepting plug-ins (embedded or in a separate host). All speech recognition and text-to-speech (TTS) interaction is managed by the voice process software running on the mobile device. Additionally, the Plug-In can be implemented using Honeywell Voice best practices which enhance speech recognition and provide users (operators) with more natural verbal interaction when performing their daily tasks.

The business/process logic is driven by SAP, via the HTML templates. This solution allows all customizations to be performed with SAP, thus making voice available to virtually all transactions within SAP WM and EWM.

## Benefits of the GWS VoiceDirect ERP Plug-In

With the Plug-In system, your organization can realize the following benefits of a voice-directed SAP system:

- **Eliminate paper lists:** Operators no longer must scan lists and scratch off items with a pen or pencil; they can concentrate on the task at hand. Operators listen and speak as they move through transactions and use their hands and eyes to identify, select, put, and pack items.
- **Improve accuracy:** The operator provides location check digits to ensure that he or she is picking the correct product at the correct location.
- **Hands-free, eyes-free operation:** This ability provides ergonomic and safety benefits. The Honeywell headsets are designed so operators can readily hear announcements, alarms, and other workplace sounds while listening to the Plug-In.
- **Implement without middleware:** The framework of this solution enables it to work as a plug into the SAP system, allowing customers to implement the VoiceDirect ERP Plug-In using their preferred SAP Certified Partner/Integrator or internal SAP Certified personnel.

## Supported Environments

### SAP Environment

The Plug-In is intended for use in the following SAP environments.

- SAP S/4HANA
- SAP SCM EWM 5.0 and newer
- SAP ECC 6.0 and newer
- SAP ECC 5.0 and newer
- SAP R/3 4.7
- SAP R/3 4.6c

Honeywell manages earlier versions of SAP through custom configurations. Contact your Honeywell Voice sales representative.

### GWS Service Environment

If the desired architecture includes using a separate host the GWS Service must be deployed to a supported Operating System:

- Microsoft Windows Server 2016 or above.

### Device and Voice Software

GWS App supports the A700x and Android devices as noted in the Honeywell DevKit documentation.

# Language Support

The Plug-In Reference Design supports the following languages:

- English (United States): en\_US
- German: de
- French (France): fr
- French (Canada): fr\_CA
- Spanish (Spain): es\_ES
- Spanish (Mexico): es\_MX
- Portuguese (Portugal): pt\_PT
- Portuguese (Brazil): pt\_BR
- Dutch: nl
- Japanese: ja

## Common Actions

The Plug-In voice enables standard transactional screens within the SAP environment, allowing the operator to navigate through them using voice similar to the way in which he or she would using a paper list or a handheld device.

Regardless of the SAP transaction, there are some common screens that operators can encounter:

- Sign On
- Menus
- Errors
- Warnings
- Sign Off

## Sign On

The SignOn command is sent by the Plug-In to log an operator onto the SAP system. The OperatorId must be a valid user in the SAP system and for A700x a valid Operator defined in VoiceConsole.

## Menus

After signing on, the operator is presented with the voice dialog for the function and work type associated with the queue in which he or she is working.

For example, if an operator is assigned to a queue with a picking function and work type that uses the LMO5 transaction then the operator is presented with the voice dialog for that transaction, Pick by Transfer Order.

For additional flexibility, the Plug-In supports two levels of menus. If a queue allows multiple functions or work types, the operator must respond to menu prompts to specify the voice dialog for his or her assignment.

## Errors

Error and warning messages are spoken to the operator, followed by instructions for the next step the operator should take, where applicable.

When an error occurs, the operator is prompted with further instructions to follow in order to resolve the issue. For example, the operator may be prompted to speak "sign off" to sign off of the system or "ready" to continue. The operator may be prompted to see a supervisor instead.

The error messages spoken to the operator are customizable and can be changed by modifying a properties file.

## Warnings

SAP may send warning messages during the processing of any of the transactions. The device speaks the warning message to the operator and waits for the operator to speak "yes" before proceeding to the next screen in the SAP flow. The operator can also speak "no" at a warning screen. In this case, the operator moves to the previous screen or remains on the same screen and hears the previous prompt. SAP controls the flow through the screens.

## Sign Off

The SignOff command is sent by the Plug-In to sign off an operator from the SAP system.

## Standard Vocabulary and Prompt Attributes

The following sections describe commands and attributes that can be set for screens and prompts in the Plug-In. Talkman Help/Control Help and Options behave as commands that the operator can speak to obtain more information from the system; the others listed below can be set up for prompts where the device is awaiting input from the operator, and their settings determine the interaction of the operator with the device.

## Talkman Help / Control Help

Operators can speak "Talkman help" ("control help" in Android devices) at any time to receive a list of available words that they can speak. This list includes the input that the device is awaiting from the operator, and any vocabulary words that the operator can speak for more information.

For example, the operator can speak "talkman help" at an order's pick prompt, and the device speaks the entire list of vocabulary words available from the pick-prompt ("speak the check digit or say material description, material number, batch, stock category..." etc.).

## Description

Operators can speak "description" to obtain more information when they have been prompted by the device for input at an SAP menu. After each description spoken by the device, the operator speaks "no" to continue to the next option.

**Sample dialog when an operator speaks "description" at an SAP menu:**

Operator: "description"

Device: "1 Picking"

Operator: "no"

Device: "2 Put away"

Operator: "no"

Device: "3 Inventory"

Operator: "yes"

Description is only available on menus.

### NOTE

The operator can also speak the two-digit number for the menu entry or (only when using the Pick Up & Go recognizer) speak the description.

## Say Again

Operators can speak "say again" to make the device repeat the previously spoken instructions.

**Sample dialog:**

Device: "transfer order?"

Operator: "say again"

Device: "transfer order?"

## Ready

Operators can speak "ready" after certain prompts from the device in order to move to the next prompt. Operators can also speak "ready" at the end of a series of numbers they are speaking, if the prompt for that screen is set up to allow this. For example, if a prompt allows the operator to

Speak up to six digits, but the operator needs to only speak three, the operator can say "ready" after speaking three digits to move on.

## Confirm Spoken Value

At certain prompts, if the VoiceAttribute file is set up to confirm a spoken value, the device speaks back to the operator what the operator said and asks if the response is correct. The operator can confirm this by speaking "yes" or can be prompted to re-speak it by speaking "no." Confirming these values at the device helps to prevent incorrect data from being posted to SAP.

## Validation

Validation is used to compare the value spoken by the operator with the value the device is expecting at a prompt. If the operator speaks the correct value, then the device continues to the next prompt of screen. If the operator speaks an incorrect value, he or she is prompted to try again.

### Sample dialog:

Operator: "978?"

Device: "wrong 978, try again?"

## Length (MinLength & MaxLength)

Operators can be required to speak a specific number of values at a prompt, or to speak a number of values within a range of values.

For example, at a transfer order (TO) number prompt the operator may be required to speak three digits of the TO number. After the operator has spoken the expected number of digits, the device moves on to the next prompt. If the operator is required to speak a range of digits between three and six, he or she can speak a number of digits (greater than the MinLength and less than the MaxLength) and then pause for the device to move on to the next prompt.

## Picking Transactions

The Plug-In Reference Design voice enables the following transactions for picking products in the SAP WM warehouse environment:

- Pick by Transfer Order (LM05)
- Pick and Pack (LM45)
- Picking – System Guided (LM07)

**NOTE**

While LM07 is not discussed directly in Plug-In documentation, this transaction shares the LM05 screens except for SAPLLMOB 100, which is omitted in this transaction.

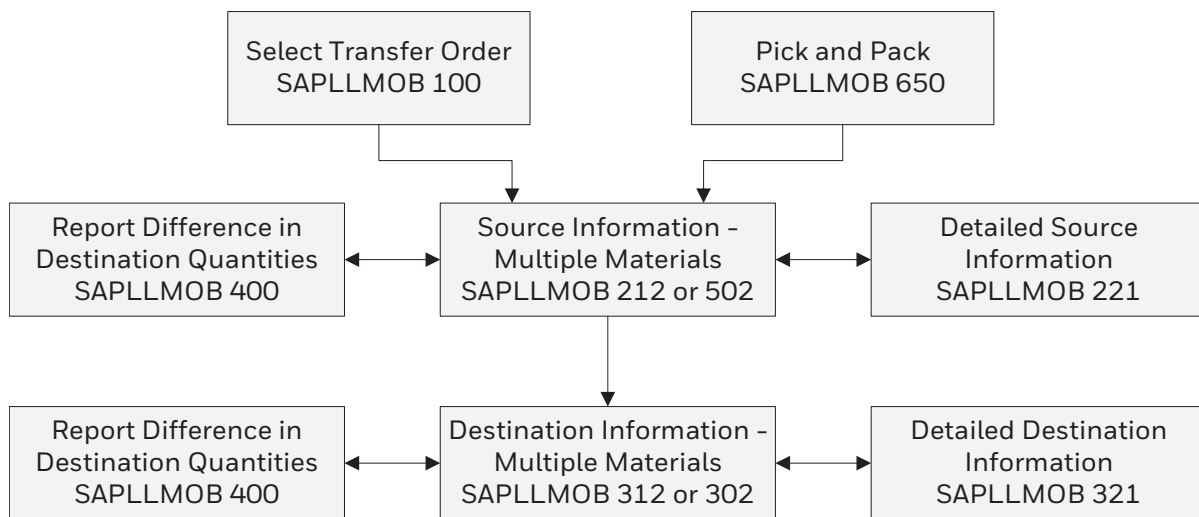
## Migration Considerations

- In VoiceAttribute files, only one screen definition is supported per file. If a VoiceAttribute file contains more than one screen it is necessary to split the file into separate VoiceAttribute files, each one having only one screen definition.
- 'Description' functionality behavior is changed. When using this functionality, use:
  - 'Yes ' to choose the current option spoken.
  - 'No' to move to the next option.
  - The code is allowed to be spoken to choose an option directly based on its number.
  - When using Pick Up & Go speaking the description is also allowed.



# REFERENCE DESIGN PICKING SCREENS

## WM Reference Design Picking Screens



**Select Transfer Order:** The device prompts the operator to speak the transfer order from which they are picking. After speaking a valid number, the operator moves on to the Source Information – Multiple Materials prompt.

- LM05 screen: SAPLLMOB 100

**Pick and Pack:** At the Pick and Pack screen, the operator speaks the handling unit from which they are picking. After speaking a valid number, the device speaks the packing materials to the operator. The operator then speaks "ready" to pick the material.

- LM45 screen: SAPLLMOB 650

**Source Information – Multiple Materials:** The operator can perform many different actions from the Source Information – Multiple Materials prompt. The primary action is to pick an item or items from the transfer order; other actions aid the operator in performing this task.

- LM05 screens: SAPLLMOB 212 or SAPLLMOB 502
- LM45 screens: SAPLLMOB 212 or SAPLLMOB 502

**Detailed Source Information:** The operator can access Detailed Source Information to request information about the source material that is not available at the Source Information – Multiple Materials prompt.

- LM05 screen: SAPLLMOB 221
- LM45 screen: SAPLLMOB 221

**Destination Information – Multiple Materials:** At the Destination Information – Multiple Materials prompt, the operator delivers a pick to the destination location and puts it there.

- LM05 screens: SAPLLMOB 312 or SAPLLMOB 302
- LM45 screen: SAPLLMOB 302

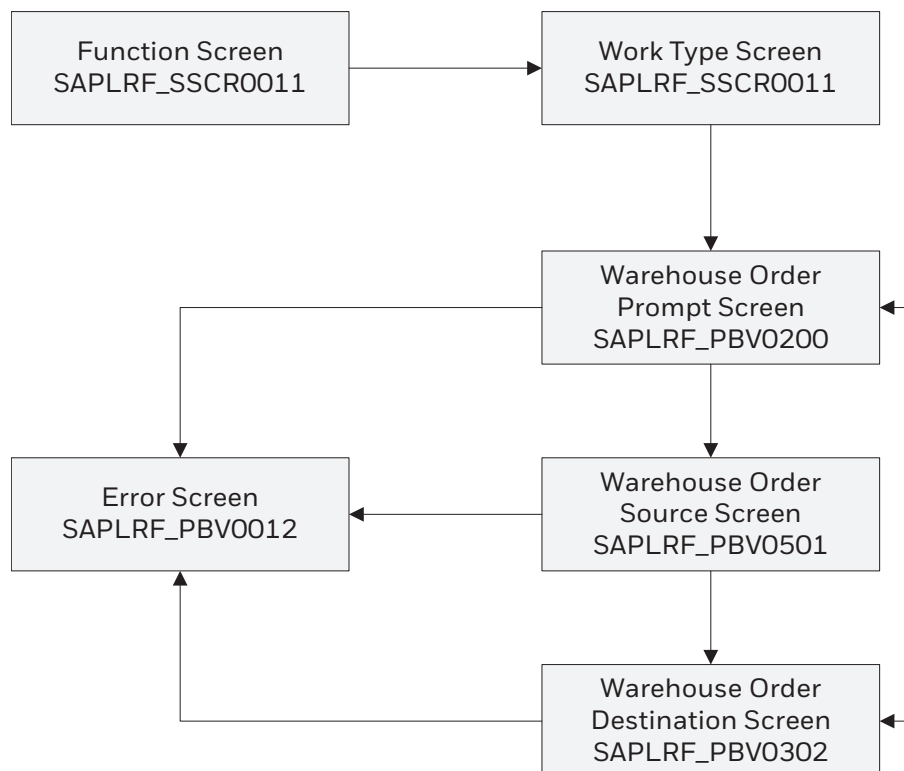
**Detailed Destination Information:** The operator can access Detailed Destination Information to request information about the destination that is not available at the Destination Information – Multiple Materials prompt.

- LM05: SAPLLMOB 321
- LM45: SAPLLMOB 321

**Report Difference in Destination Quantities:** At the Report Difference in Destination Quantities prompt, the operator can report to the system that the quantity they are picking is less than or more than the quantity they were prompted to pick.

- LM05 screen: SAPLLMOB 400
- LM45 screen: SAPLLMOB 400

## EWM Reference Design Picking Screens



## Picking Transactions Screen Flow

1. **Function Screen** : User chooses system guided
2. **WorkType Screen** : Choose the system guided selection
3. **Warehouse Order Prompt Screen** : User gets the next warehouse order from the outbound queue.
4. **Source Screen** : Aisle stack spoken to operator
5. **Source Screen** : Pick and then speak the quantity
6. If the correct quantity is not spoken by operator, then an error response is provided by the system. User speaks "ready" to return to the main flow.
7. **Destination Screen**: User speaks BIN verification.
8. **System Guided** : User gets the next warehouse order from the queue.

## EWM Reference Voice Commands

Command Number	Display Value	Description
1	New Function	Moves to the "function" prompt.
2	Material Number	Speaks or displays the material number.
3	Material Description	Speaks or displays the material description.
4	Batch	Speaks or displays the batch number.
5	Stock Category	Speaks or displays the stock category.
6	Special Stock	Speaks or displays the special stock indicator.
7	Next Slot	Moves to the next item.
8	Previous Slot	Moves to the previous item.
9	New Work Type	Switches to a new work type.

Command Number	Display Value	Description
10	Warehouse	Speaks or displays warehouse number.
11	Plant	Speaks or displays the plant.
12	Storage Location	Speaks or displays the storage location.
13	TO Number	Speaks or displays the Transfer Order number.
14	TO Item	Speaks or displays the Transfer Order item.
15	Detail	Simulates clicking the F5 Det button.
16	Difference	Simulates clicking the F6 Diff button.
17	Deliver	Simulates clicking the F4 Nxt button.
18	Back	Moves to previous screen.
19	New Handling Unit	Provides a different handling unit number.
20	Print	Simulates clicking the F6 Prt button to print a handling unit label or other type of label.
21	Storage Type	Speaks or displays storage type.
22	Page Description	Speaks or displays page description.
23	Eaches	Trailing word indicating eaches.
24	Cases	Trailing word indicating cases.
25	Boxes	Trailing word indicating boxes.
26	Pounds	Trailing word indicating pounds.
27	Kilos	Trailing word indicating kilos.

Command Number	Display Value	Description
28	Quantity	Speaks or displays the quantity.
29	Unit of Measure	Speaks or displays the unit of measure.
30	Aisle	Speaks or displays the aisle location.
31	Stack	Speaks or displays the stack level/position.
32	Start Picking	Start the picking process.

In case you need to customize the existing commands, refer to the *Guided Work Solutions VoiceDirect ERP Plug-In Customization Guide*.

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