How To Set Up and Use the SAP ME Work Instructions Feature

Applicable Release: ME 6.0

Version 1.3
June 12, 2013
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## Document History

<table>
<thead>
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<th>Document Version</th>
<th>Description</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>Initial version</td>
<td>Chet Moutrie</td>
</tr>
<tr>
<td>1.1</td>
<td>Added information on setting up a site in IIS, information for POD and NC Client configuration and Change Alert</td>
<td>Chet Moutrie</td>
</tr>
<tr>
<td>1.2</td>
<td>Replaced actual SAP server name with a phony server name.</td>
<td>Chet Moutrie</td>
</tr>
<tr>
<td>1.3</td>
<td>Updated to include file:// access to work instruction files</td>
<td>Chet Moutrie</td>
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1 Introduction

1.1 Purpose
The SAP ME How-To-Guide for the Work Instructions (WI) feature is intended to provide sufficient information to enable the feature to be easily configured and readily utilized to meet business needs, making use of available best practices.

1.2 Scope
This information covers all aspects of the WI feature and how to set it up.

1.3 Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTTP</td>
<td>Hypertext Transfer Protocol - a networking protocol for distributed, collaborative, hypermedia information systems</td>
</tr>
<tr>
<td>IIS</td>
<td>Internet Information Services – a Microsoft Web server product</td>
</tr>
<tr>
<td>ME</td>
<td>Manufacturing Execution</td>
</tr>
<tr>
<td>POD</td>
<td>Production Operator Dashboard</td>
</tr>
<tr>
<td>URL</td>
<td>Universal Resource Locator - a specific character string that constitutes a reference to an Internet or network resource</td>
</tr>
<tr>
<td>WI</td>
<td>Work Instruction</td>
</tr>
<tr>
<td>Work Instruction</td>
<td>Information, in any format and media, which can be displayed to assist someone in correctly performing a work task</td>
</tr>
</tbody>
</table>

2 Work Instructions Overview
This overview provides a high level description of the SAP ME Work Instructions (WI) feature.

2.1 Description and Applicability
The Work Instructions feature enables the display of work instruction information, in any format and any digital media, on the client device. The work instruction can be associated with various SAP ME objects and can be accessed directly from an SAP ME Production Operator Dashboard (POD). The WI feature is applicable to any situation where an individual is performing a task and may need instructions, guidance, demonstrations, examples, etc. to ensure that the task is performed correctly.

2.2 Business Purposes / Functions
The primary purpose of the WI feature is to deliver instructional information to a worker, when and where they need it, with minimal effort required by the worker to obtain the information.
To accomplish this, the WI feature provides capabilities to:

- Create textual work instructions
- Identify existing work instructions in any format and any digital media
- Associate work instructions to SAP ME objects
- Access work instructions from any POD
- Display work instructions on a client device
- Track work instructions viewed

2.3 High-Level Process Flows
This figure illustrates the primary flow of user actions when setting up and utilizing the WI feature.

2.4 High Level Data Model
The following figure shows the relationship between some of the WI functions and ME database tables.

2.5 Best Practices
3 Work Instructions Functions

3.1 Prepare Work Instruction

3.1.1 Description and Applicability
The following sections describe the creation of text work instructions, the identification of existing work instructions and the association of work instructions to SAP ME objects. For additional information, see the Work Instruction Maintenance section of this document.

3.1.2 Purpose / Effects

3.1.2.1 Create Simple Text Work Instruction
Simple text work instructions (up to 1024 characters) can be created directly in SAP ME. Since this is simple text only, no formatting (text color, font, style, etc.) is allowed. In order to use rich text format, a separate text document needs to be created and then identified as a work instruction as described in the following section.

3.1.2.2 Identify Existing Work Instruction
An existing work instruction can be any electronic document whose contents are capable of being displayed on a client device. So, for example, the following could be valid work instruction documents:

- Microsoft Word document
- QuickTime movie
- Microsoft PowerPoint presentation
- VE Viewer 3D model with steps

The document must be accessible via an HTTP:// URL or a file:// URL. For an HTTP:// URL this can be accomplished by storing the document in a file folder managed by Microsoft IIS or in a directory managed by some other Web server product. For a file:// URL, the file can be located anywhere as long as it is accessible by the client device being used to run SAP ME.

3.1.2.3 Associate Work Instruction to SAP ME Objects
In order for a work instruction to be accessible from an SAP ME POD, the work instruction must be associated to one or more SAP ME objects. Objects to which the work instruction can be associated include:

- Customer Order
- Material
- Material Group
- Operation
- Resource
- Resource Type
- Routing
- SFC
- Shop Order
- Step ID
• Work Center

Additionally, work instructions can be associated to NC Clients in NC Client Maintenance.

If the work instruction is associated to multiple objects, then all of those objects must be in effect in the POD for the work instruction to be viewed.

3.1.3 Best Practices

The work instruction files should not be located on the client device, since making a file accessible via the file:// URL could cause security issues for the client device.

3.2 Display Work Instruction

3.2.1 Description and Applicability

For the user of an SAP ME POD to view a URL based work instruction, the client device must be able to display the contents of the work instruction document or browser page. Typically the client device will have access to an application that can display the contents of the work instruction document. The client device determines which application to use based upon the file extension specified in the URL for the work instruction document.

A simple text type work instruction can be displayed directly in the Work Instruction Viewer plug-in, or in a separate window, by SAP ME. No other application is needed.

3.2.2 Purpose / Effects

3.2.2.1 Access Work Instructions from a POD

Work instructions can be accessed from a POD via either a primary POD button or from a WI button from within a POD plug-in. A primary POD button must be associated with the Work Instruction List plug-in and/or the Work Instruction Viewer plug-in.

Work instructions can be accessed via the WI button in an NC Client’s NC Data Entry plug-in. This button is associated with the Work Instruction List plug-in.

The Work Instruction List plug-in (WI_LIST_DISPLAY) displays a list of all of the work instructions that are associated with the SAP ME objects currently in effect in the POD. It also contains a View button that invokes the Work Instruction Viewer plug-in for the selected work instruction(s).

3.2.2.2 Display Work Instructions

Work instructions are displayed by the Work Instruction Viewer plug-in (WI500). Work instructions can be displayed in the Work Instruction Viewer plug-in or in a separate window. One or two work instructions can be displayed in the Work Instruction Viewer plug-in, depending upon whether the WI500 activity rule VIEWER_TWO_PANEL is set to NO or YES. If the work instruction is marked as Always Show in New Window, it will always be displayed in a separate window.
Work instructions can be displayed automatically and manually. Work instructions are displayed automatically only if the WI500 activity rule AUTO_DISPLAY_REQUIRED is set to YES, the work instruction is marked as Required and there is no work instruction currently selected in the displayed Work Instruction List plug-in.

If multiple work instructions are to be displayed automatically or multiple work instructions have been selected for manual display, the work instructions will be displayed simultaneously. If there are more work instructions intended for display in the Work instruction Viewer plug-in than can be simultaneously displayed there, the remaining work instructions will only be displayed when accessed manually via the Next and Prev buttons.

### 3.3 Track Viewing of Work Instructions

#### 3.3.1 Description and Applicability

If a work instruction is marked for Log Viewing, a Work Instruction Log record will be written each time the work instruction is viewed. If such a work instruction is viewed multiple times within the same POD session, each time it is viewed a record will be written to the log.

### 3.4 Alert User of Work Instruction Change

#### 3.4.1 Description and Applicability

If a work instruction is marked for Change Alert, a risk event Change Alert icon will be displayed at the locations specified in the table below, if the work instruction is present and the additional condition is met.

<table>
<thead>
<tr>
<th>Location and Object</th>
<th>Additional Condition for Change Alert Icon to be Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shop Workbench SFC Node</td>
<td></td>
</tr>
<tr>
<td>Shop Workbench Operation Node</td>
<td></td>
</tr>
<tr>
<td>Operation POD Worklist List</td>
<td>Worklist list is configured with the Risk Event column</td>
</tr>
<tr>
<td>Work Center POD Worklist List</td>
<td>Worklist list is configured with the Risk Event column</td>
</tr>
<tr>
<td>Work Center POD Operations List</td>
<td>Operations list is configured with the Risk Event column</td>
</tr>
</tbody>
</table>

### 4 Integration

Not Applicable
5 Work Instructions Setup

5.1 External Configuration

5.1.1 Installation

5.1.1.1 Third Party Viewers
The appropriate viewer application or Browser plug-in must be installed on the client device in order for the user to be able to view a work instruction that is not a simple text work instruction or a browser page. See vendor supplied installation instructions for the viewer application or Browser plug-in.

5.1.1.2 Visual Enterprise Viewer (formerly Deep View)
In order to view a work instruction that is a 3D model in the .rh format, the Visual Enterprise (VE) Viewer must be installed on the client device. This viewer is a free download. You can download it from SAP Service MarketPlace.

5.1.2 Special Server Setup
Work instructions which are not simple text, must be stored on a web server (such as a Microsoft server running IIS, for an http:// URL) or in a location accessible from the client device, for a file:// URL). The work instruction files must be stored in a folder managed as a web server site for an http:// URL.

5.1.3 External Program Setup
The following sections describe how to set up an IIS site and how to set up MIMEs.

5.1.3.1 Setting up a Site in IIS
Work instructions accessed via an http:// URL must be accessible from a web server site. On a Windows server, one way to accomplish this is to create a site in IIS and associate it to the folder where the work instruction files are stored. For example, to set up a site in IIS 6.1 on a Windows 2008 Server, the following steps need to be performed:

- Select Administrative Tools in the Control Panel
- Double click on Internet Information Services (IIS) Manager
- Left mouse click on the plus sign next to the computer name in the Connections (left) panel
- Right mouse click on the Sites entry in the tree
Select Add Web Site in the context menu

- Enter a name for the site in the Site name field (e.g. WIData)
- Enter or browse for the path to the folder containing the work instruction files (e.g. D:\WIFiles)
- Select OK
This will create the site, which can then be used in the http:// URL for the Work Instructions.

5.1.3.2 Setting up MIMEs in IIS
Some file extensions for work instruction files must be set up as MIMEs on the web server. For example, to set up a Microsoft IIS 6.1 site with a MIME for .rh files, the following steps need to be performed:

1. In IIS Manager, select the Web site or Web site directory for which you want to add a MIME type
2. In the Features View, double click on MIME Types
3. In the MIME Types area, right click and select Add in the context menu
4. In the File Name Extension field, type the file name extension .rh
5. In the MIME type field, type a description that exactly matches the file type defined on the computer (e.g. application/RightHemisphere.rh)
6. Click OK.

5.1.4 Client Device
On the client device, the file extension for a work instruction must be associated with the application that will display the work instruction contents. The steps to achieve this vary based upon which Microsoft operating system is being used.

5.2 Maintenance Activities

5.2.1 Activity Rules

5.2.1.1 VIEWER_TWO_PANEL
This activity rule applies to the Work Instruction Viewer activity (WI500).

5.2.1.1.1 Purpose / Effects
When set to YES, this activity rule causes the Work Instruction Viewer plug-in to use two separate panels, so it can display two work instructions simultaneously.

5.2.1.1.2 Settings / Example

VIEWER_TWO_PANEL = NO

This is a simple text work instruction.
5.2.1.2 AUTO_DISPLAY_REQUIRED
This activity rule applies to the Work Instruction Viewer activity (WI500).

5.2.1.2.1 Purpose / Effects
This activity rule controls whether or not Required work instructions are automatically displayed when the Work Instruction Viewer is invoked.

5.2.1.2.2 Settings / Example
When set to YES, this activity rule causes the Work Instruction Viewer plug-in to automatically display all work instructions marked as Required if there is no work instruction currently selected in the Work Instruction List plug-in.

When set to NO, the Work Instruction Viewer does not automatically display the Required work instructions. However, it will automatically display the first work instruction (based upon sequence number) when there is no work instruction currently selected in the Work Instruction List plug-in.

5.2.2 Product Configuration

5.2.2.1 Work Instruction Maintenance
Use this activity to:

- Create simple text work instructions
- Identify URL based work instructions
- Attach work instructions to SAP ME objects
- Specify options for a work instruction

An HTTP:// URL can be of the form HTTP://<server name>/<filename.ext>, for example HTTP://SERVER1/File_A.html.

A file:// URL can be of the form file://<server name>/<file path>/<file name.ext>, for example file://server123/folder_a/folder_b/WI file.ppsx.

For more information, see Work Instruction Maintenance in SAP ME Help.
5.2.3 System Configuration

5.2.3.1 Activity Maintenance

5.2.3.1.1 Purpose / Effects
This activity is used to set the activity rules for WI500, as described in the Activity Rules section.

5.2.3.2 POD Maintenance

5.2.3.2.1 Purpose / Effects
If necessary, POD Maintenance can be used to add a primary POD button, or a button group entry, for initiating the Work Instruction List plug-in. For more information, see Creating New POD Pushbuttons in SAP ME Help.

5.2.4 Other Maintenance Activities

5.2.4.1 NC Client Maintenance

5.2.4.1.1 Purpose / Effects
An NC client can be configured to enable the display of specific work instructions. In NC Client Maintenance, the Display Work Instruction Button checkbox must be selected on the Main tab and the Work Instruction(s) must be specified in the table on the Work Instructions tab. For more information, see NC Client Maintenance in SAP ME Help.

6 Usage Scenario Examples

6.1 3D Assembly Model Work Instruction

6.1.1 Purpose / Goal
This scenario provides an example of setting up and utilizing a work instruction for a dis-assembly operation.

6.1.2 Scenario Specific Settings
For this scenario, the file below needs to be stored in a site on a web server and the .rh file extension needs to be set up as a MIME on that web server (see the External Program Setup section above). The Right Hemisphere viewer, Visual Enterprise Viewer.exe (formerly Deep View.exe), needs to be installed on the client device and the .rh file extension needs to be associated to it.

Realight_Transmission_with_Steps.rh
6.1.3 Scenario Steps

This scenario involves the following steps:

- Identify and configure a URL based work instruction
- Create an operation
- Associate the work instruction to the operation
- Create a router, material, shop order and SFC
- Utilize an SAP ME POD to access and view the work instruction

6.1.3.1 Identify and configure an http:// URL based work instruction

In Work Instruction Maintenance, perform the following:

1. Enter “TRANSMISSION_DIS-ASSEMBLY” in the Work Instruction field
2. Enter “A” in the Version field
3. Select the Required checkbox, if not already checked
4. Select the Current Version checkbox, if not already checked
5. Select the Log Viewing checkbox, if not already checked
6. Select the Instructions tab
7. Select URL for the Type
8. Enter “http://<server name>/Reallight_Transmission_with_Steps.rh” (e.g. http://actualservername/Reallight_Transmission_with_Steps.rh)

6.1.3.2 Create an operation

9. Create a normal operation called DIS-ASSEMBLY for the DEFAULT resource

6.1.3.3 Associate the work instruction to an SAP ME operation

10. Select the Attached tab
11. Select Insert New
12. Enter “10” in the Sequence field
13. Select the Browse icon for the Operation field
14. Select the DIS-ASSEMBLY operation
15. Select Save

6.1.3.4 Create a router, material, shop order and SFC

16. Create a router having the DIS-ASSEMBLY operation as the first operation
17. Create a manufactured material TRANSMISSION
18. Create a shop order for the TRANSMISSION material
19. Release the shop order for a quantity of 1

6.1.3.5 Utilize an SAP ME POD to access and view the work instruction

20. Open the POD – Operation standard Production Operator Dashboard
21. Select the DIS-ASSEMBLY operation
22. Select the DEFAULT resource
23. Select the SFC created in step 19 above
24. Select the Work Instruction button
25. Select the Steps icon in the Visual Enterprise Viewer window
26. Select the right arrow in Step 1.

27. This will perform the first step in the dis-assembly process in the work instruction.
28. Select additional steps and the right arrow to continue the dis-assembly process or the left arrow to re-assemble.

7  Links to Additional Information
   SAP ME Work Instructions Help

8  Other Reference Material
   Visual Enterprise Viewer

9  Overview of Changes
   Not applicable