SAP Extended Warehouse Management

How to Adjust User Interfaces in SAP Extended Warehouse Management According to Your Needs

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**Introduction and Motivation**

This document describes some modification-free options how you can adapt and enhance SAP Extended Warehouse Management (SAP EWM) User Interfaces (UIs) to your needs. By doing this you can improve the user efficiency and map your business processes in the SAP EWM system.

The following figure shows how SAP EWM could look with the help of configuration and some project specific enhancements:

![This can be your SAP EWM](image)

This document covers the following topics:

- **User-specific and user role-specific UI layouts**
  - **Role-specific menus** allow you to set the focus on the main tasks of the users and to improve user experience and efficiency.
  - Using **SAP NetWeaver Business Client (NWBC)** desktop version gives a better integration, and look and feel. User experience and performance gets better as menus are role specific and several systems can be integrated without the necessity to log on manually in each of the systems.
  - **User-centered monitoring** by definition of system or user SAP List Viewer (ALV) variants enables a more focused reporting. This includes the definition of ALV list variants for a list-based reporting result and SAP Crystal Reports Variants for a graphical view on the displayed data. Moreover, configuration of the EWM warehouse monitor by the use of variant nodes (for layout and selection) or role-based EWM monitors can increase the user efficiency.
  - **User-specific screens** by the definition of transaction variants in combination with GuiXT.

- **Functional enhancements and features**
  - **Analytics**
    - Easy Graphics Framework and cockpits
    - xCelsius for a graphical KPI reporting
    - SAP Crystal Reports Variants in ALV
o **User-centered monitoring**: Use of your own warehouse management monitor or implementation of monitor nodes to support additional project-dependent reporting integrated in existing EWM transactions.

o **Others**
  - **Graphical warehouse layout** for a graphical overview of the warehouse layout. Additional functions can be implemented via BAdI, for example, using the graphical warehouse layout to get an overview of the existing stock of a product.
  - **Create or adjust RF transactions**. This includes layout changes to modify the layout according to your RF devices’ capabilities, and transactional changes by implementing your own RF transactions.

The document is not intended to provide a complete overview of all the enhancement options available in the SAP EWM system. However, it provides some entrance points to various options that exist in SAP EWM. The document consists of adjustment options generally available, for example, as standard functionality of the ALV (see **General Topics**), and SAP Extended Warehouse Management specific topics (see **EWM-Specific Topics**).

The document focuses on features available in SAP EWM 7.0 with Enhancement Package 2. Although some of the features are already available in lower releases, the release validity is not mentioned in more detail within this document.
General Topics

Using Roles

Use Case

Using roles allows you to design menus according to specific tasks for specific user groups, and to hide functions not relevant for the user group. The resulting fewer clicks, better overview, and concentration on the users' tasks increases user efficiency and user experience by providing increased usability for the users.

If you are running SAP EWM on top of the SAP ERP system, you can even include SAP ERP transactions into the user role menus. However, remote system roles also allow you to integrate SAP ERP transactions into your SAP EWM menu, even if you are not running SAP EWM on top of the SAP ERP system.

Examples

User Role Dependent Menu

The shipping office clerk and the goods receipt clerk should have a limited view of the SAP EWM menu, with only the relevant transactions necessary to fulfill their tasks available. The following figures illustrate how such restricted views could look.

User menu for user assigned to the goods receipt clerk role:
User menu for user assigned to the shipping office clerk role:

![User Menu for Sarah Jones](image)

Remote System Roles
The shipping office clerk should have access to SAP ERP outbound delivery and sales orders that start in the SAP EWM system.

The following figure illustrates the user role menu in SAP EWM for the shipping office clerk role, including remotely called transactions:

![External Documents](image)

How-To
For more information about how to define user roles, see Creating Roles.
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For more information about how to create cross-system roles, see SAP NetWeaver Business Client under Role Maintenance in PFCG -> Remote Systems.

Note
For additional information on the authorization concept see Customizing for SAP NetWeaver under Application Server -> System Administration -> Users and Authorizations.
Restrictions on authorizations for organizational units might be useful for your business processes. See Customizing for SAP NetWeaver under Application Server -> System Administration -> Users and Authorizations -> Line-oriented Authorizations.

Using the SAP NetWeaver Business Client

Use Case
The SAP NetWeaver Business Client (NWBC) is the new SAP UI client, presenting end users with a seamless integration of classic SAP GUI-based transactions and newer Web Dynpro-based applications. The desktop variant offers a high-fidelity UI to improve user experience. Thus the NWBC provides typical modern desktop-based user experience. For more information, see SAP NetWeaver Business Client.
The use of NWBC is based on user role definitions. You might be especially interested in using NWBC once you are using remote system roles. For more information, see Using Roles.

Example
If you are using a service map folder in a PCFG role, NWBC can look as follows:

![Example NWBC screenshot](image-url)
When you select a transaction, NWBC displays the following UI layout:

How-To
NWBC can be used with SAP EWM 7.0 and subsequent versions. Only the desktop installation of NWBC is currently supported for SAP EWM. For more information, see Desktop Installation.

We recommend that you use the newest version of the NWBC.

Note
You can also run NWBC in browser or HTML mode, but this is not supported for SAP EWM, because many SAP EWM Web Dynpro-based transactions do not support SAPGUI for HTML.

For more information, see SAP Notes 314568, 900000, and 1029940.

For more information on how to install and use NWBC to enable your system connections for use of remote system roles, see Using NetWeaver Business Client under Role Maintenance in PFCG -> Remote Systems.

To access detailed documentation in NBWC from your desktop, choose Help -> SAP NWBC Help
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Note
Running SAP EWM in NWBC will not reduce the performance of the application. The native SAP GUI Desktop is running in the NWBC shell, so there is no performance loss and the dialog responsiveness within a SAP GUI transaction remains unchanged.

Using Transaction Variants

Use Case
Transaction variants can be used to restrict, change, and adjust SAP GUI transactions depending on user groups. This includes hiding information, disabling data entry, and more.

Example
See SAP Note 1451123.
The following figures show an example of a user assigned to a user group with a transaction variant assignment for the transaction /SAPAPO/MAT1 that disables the button to create product master data and does not allow the user to change product master data in SAP EWM, as this needs to be handled in the central SAP ERP system:
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How-to

See Transaction Variants and Screen Variants.

Note
In principle, transaction and screen variants can be created for all dialog and reporting transactions. There are, however, restrictions that apply to certain transactions, depending on their internal structure. So, for example, you can only adopt UI elements that are defined explicitly in Web Dynpro. Therefore buttons in a toolbar area created using CL_GUI_TOOLBAR cannot be set up via transaction variants. For example, for transaction /SCWM/PRDI, you can deactivate complete tabstrips or fields on form views, but it is not possible to set the GR cancellation button to inactive, because the GR cancellation button is part of a toolbar area.

To check which fields can be set up, we recommend you to create transaction variants with transaction SHD0. The system will display a dialog box for every screen displayed that contains the available configuration options.

Using GuiXT

Use Case
You can use GuiXT to improve the usability of SAP standard transactions according to your needs. You can, for example, embed your logo in existing transactions or highlight screen elements you want to focus on in existing transactions.

See Tools for Personalizing the Application under GuiXT.
**Example**

In the standard packing UI (transaction /SCWM/PACK), you might want to enlarge the buttons on the scanner tabs for repacking, especially the functions you use frequently, and rearrange them in a given order.

The standard packing tabstrip for changing a handling unit (HU) looks as follows:

![Standard Packing Tabstrip](image)

With a GuiXT file, either locally or within a transaction variant, the same screen can be changed to the following display:

![Modified Packing Tabstrip](image)

The GuiXT file for the example looks as follows:

```plaintext
// Check that file only executed on the corresponding tab  
if Q[Page=Change HU]

  // Change position of buttons  
  pos P[PB_UNPACK]    (7,16)  
  pos P[PB_DELETE]    (7,33)  
  pos P[PB_SCALE]     (3,16)  
  pos P[PB_PRINT]     (3,33)  
  pos P[PB_CREATE_OD] (3,50)  
  pos P[PB_FIN]       (3,67)  

  // Change size of buttons  
  ButtonSize P[PB_FIN]       (4,15)  
  ButtonSize P[PB_SCALE]     (4,15)  
  ButtonSize P[PB_PRINT]     (4,15)  
  ButtonSize P[PB_CREATE_OD] (4,15)

endif
```
How-to

See Adjusting Transactions Using GuiXT.

Note
GuiXT can also be used in Transaction Variants and Screen Variants. See GuiXT in Transaction Variants and Screen Variants.

To use GuiXT in Transaction Variants, the GuiXT file needs to be defined for the screen variant of the main screen. Take care of the restrictions described in the documentation as well.

GuiXT cannot be combined with HTML templates for beautifying RF transactions as described in RF User Interface.

Using ALV Layout Variants – List Variants and SAP Crystal Reports Variants

Use Case

- The SAP List Viewer (ALV) allows you to personalize and define the following:
  - Layout Options and Layout Variants
  - Sorting
  - Filtering
  - Performing Aggregations

See also Working with Lists and Basic ALV Functions.

This function, including layout saving, aggregation, and sorting, is especially useful for the Warehouse Management Monitor (transaction /SCWM/MON). See also Warehouse Management Monitor.
Note
Depending on the transactions using ALV, some of the functions listed above are not supported. The functions may be disabled explicitly by the application as they cannot be used meaningfully within the transaction.
ALV Layout Variants can also be defined and created in development systems and transported to quality and productive systems. For more information, see Working with Lists under SAP List Viewer for SAP GUI -> Personalizing the List -> Managing Layouts.

Examples
ALV Layout Variants might be useful for personalizing the EWM Warehouse Management Monitor.

List Variants
You may find ALV Layout Variants as List Variants useful, especially for the warehouse management monitor. For example, if you are not using batches, you only have one plant in your warehouse, and you are not working with consignment stock, you might want to disable the batch numbers, entitled, and owner columns in the list views as they will not contain any useful information. This reduces the number of columns in the list view and gives a better overview of the more relevant fields for your business case.

The layout could look as follows:
SAP Crystal Reports as ALV Variants

In SAP EWM 7.0 with Enhancement Package 2, you can also save ALV Layout Variants as SAP Crystal Reports Variants. You can use EWM Warehouse Management Monitor CR_EX to get some examples, as shown in the following figure:

How-to

List Variants
See Working with Lists and Basic ALV Functions.

SAP Crystal Reports as ALV Variants
See How to Display an ALV Table as Crystal Reports or SAP Note 1353044 and related notes. This is available from SAP EWM 7.0 with Enhancement Package 2 on. For sample variants, see EWM Warehouse Management Monitor CR_EX.

Using xCelsius Dashboards
This chapter outlines some more ideas of what else you could develop for analysis purposes. Currently this is not part of the EWM Standard development, but it can be created without modification to get additional benefit in your business process.

The main idea is to create an xCelsius Dashboard based on Web Services for backend communication and data provisioning.

Use Case
In order to get aggregated graphics on business data, you can create your own xCelsius Dashboard based on EWM data using RFC-enabled function modules with generated Web Services.
Example
The following figure illustrates how a KPI cockpit could look when using Web Services for data provisioning and XCelsius for layout:

Note
You might also use tailored measurement services you have already defined. For more information, see Using Tailored Measurement Services in Easy Graphics Framework. The display of tailored measurement services is already included in the display of the standard Easy Graphics Framework Cockpit EGF Implementation WHS_COCKPIT, but it might also be a good data basis for your xCelsius Dashboard. For more information about Easy Graphics Framework Cockpit, see EGF Cockpit.
How-to
The following figure gives an overview of the architecture necessary to create your Dashboard with the suggested solution.

The main steps to create such a dashboard are as follows:
1. Create an RFC-enabled function module for data provisioning in the SAP EWM system.
2. Generate and configure the Web Service for the RFC-enabled function module.
3. Create your Dashboard and maintain the data connector to your backend system via the Web Service.

For more information, see the following documents:
- Providing a Web Service
- Developing a Web Service Based on Existing Functions (Inside-Out)
- Dashboard Design
- Connecting Xcelsius Dashboards to External Data Sources using Web Services (Dynamic Web Query)

See also classroom training BOX310 SAP BusinessObjects Dashboards 4.0: Core on SAP Service Marketplace.
The following figures are a short guide on how to set up the link between the xCelsius Dashboard and the Web Services:

After setting up the connection, you have to bind the Web Service parameters to the Excel Sheet.
EWM-Specific Topics

Warehouse Management Monitor

Use Case
The warehouse management monitor (transaction /SCWM/MON) gives you an overview of all relevant EWM business objects and is the main reporting tool in SAP EWM. For better support of role-specific tasks, you can create your own monitors with restricted views. You can enhance the monitor with additional methods and your own nodes, thus integrating your own objects into the EWM warehouse management monitor. You can already create your own monitor nodes in lower releases, but from SAP EWM 7.0 with Enhancement Package 2 on, transaction /SCWM/MON_MAINT provides a more intuitive and easier option to define your own monitor. See Customizing for Extended Warehouse Management under Monitoring -> Warehouse Management Monitor -> Customize Monitor Tree.

In addition to the configuration of your own monitors, you can also create additional variant nodes with selection and layout variants in order to support your daily work, via the right click menu on the monitor nodes.

Example
The following figure illustrates how the EWM monitor could look for the shipping office clerk:
How-To

See Warehouse Management Monitor and Adding Application Content to the Warehouse Management Monitor

See also Customizing for Extended Warehouse Management under Monitoring -> Warehouse Management Monitor -> Customize Monitor Tree and the related Release Note for EWM7.02.

If you want to create your own monitor in lower EWM versions than EWM7.02, we strongly recommend that you implement SAP Note 1371191. The note provides the option to set parameter /SCWM/MON_TECH to ‘X’ in your user profile, in order to determine the node IDs you want to change in customizing.

For example, the following steps define monitor ZCUS as a copy of monitor SAP without the node “Labor Management”:

1. Copy standard monitor SAP to your own monitor ZCUS:
   b. Enter monitor “ZCUS” and change description to your own description, for example, My Monitor.
   c. In the Specify Objects to be Copied dialog box, choose Copy All. Choose Skip (Shift+F8) until the information Number of Dependent Entries Copied is displayed.
   d. Choose Enter and then Save.

2. Find the monitor node ID you want to disable:
   a. Start transaction /SCWM/MON for monitor SAP.
   b. Navigate to your user profile data and set user parameter /SCWM/MON_TECH to ‘X’. A new session opens.
c. Start transaction /SCWM/MON for monitor SAP in the current session. The monitor nodes with the technical names are displayed and you can navigate in both sessions to the nodes you intend to disable.

3. Disable monitor node for Labor Management:
   c. Select Hide Node for all entries with Higher Node “ROOT” (as the Labor Management node is one of the first level nodes) and Lower Node “C000000019” and save your changes.
4. Remove the user parameter /SCWM/MON_TECH from your user profile data and restart monitor transaction /SCWM/MON for your monitor ZCUS.

**EGF Cockpit**

**Use Case**
The EGF Cockpit in SAP EWM provides a graphical view of warehouse data. The EGF cockpit is a generic tool for which you can define your own EGF implementations.
Example

The figure below displays a customer-specific EGF implementation:

How-To


Creation of Own Cockpit


Using Tailored Measurement Services in Easy Graphics Framework

See Evaluation of Measurement Services and SAP Note 1178089.

Graphical Warehouse Layout

Use Case

The graphical warehouse layout displays the interior and exterior of the warehouse as a two-dimensional graphic. You can use the graphical warehouse layout to check the Customizing of the warehouse. For example, if you are a warehouse supervisor or expert, you can check master data that you have defined in Customizing for Extended Warehouse Management (EWM). You can also get information about the stock situation, for example about empty storage bins and resources.
**Example**

Once you have defined your warehouse and bins with appropriate XYZ coordinates and you have set up the customizing for the graphical warehouse layout (see Customizing for Extended Warehouse Management under Monitoring -> Graphical Warehouse Layout), the graphical warehouse layout could look as follows:

![Graphical Warehouse Layout](image)

**How-to**

See Warehouse Management Monitor under Using the Graphical Warehouse Layout.

Note that several BAdIs are available to add additional features to the graphical warehouse layout. For more information, see Screen BAdIs.

**RF User Interface**

**Use Case**

You can create your own RF transactions using the RF framework to better support your business processes. Moreover, once you are using ITS mobile you can also create MIME templates for better visualization in the RF transactions according to your needs and your RF devices.
Example
The following figures illustrate how RF UI could look with an adjusted MIME template, either with several colors or different font sizes.
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How-to

Create your own RF Transaction
See the RF Cookbook.

Layout Adjustments
A detailed how-to guide is provided in the how-to guide Configure ITS Mobile on SAP Service Marketplace.

The document describes how to adjust the appearance of the HTML screens on the RF devices by adapting the cascading style sheets (CSS file).

By changing the CSS file, you can modify the following:

- Colours
- Font sizes
- Padding
- Borders
- Text align

Screen BAdIs

Use Case
It might be necessary to enhance standard screens by your own fields and functions.
In SAP EWM 7.0 with Enhancement Package 2, you have several Screen BAdIs available for this purpose. For a list of available screen BAdIs, see List of Available Screen BAdIs.
# How-to

## List of Available Screen-BAdIs

The following table provides a list of available enhancement spots, including BAdIs offering screen enhancements, in SAP EWM 7.0 with Enhancement Package 2.

<table>
<thead>
<tr>
<th>Enhancement Spot</th>
<th>IMG Node</th>
<th>BAdls used in Transactions</th>
</tr>
</thead>
</table>
| `/SCWM/ES_DLV _UI_SCREEN` | Business Add-Ins (BAdIs) for Extended Warehouse Management -> Cross-Process Settings ->Delivery Processing -> BAdl: Screen Enhancements for Customer Enhancement Structures | • `/SCWM/EGR`  
Maintain Expected Goods Receipt  
• `/SCWM/FD`  
Maintain Outbound Delivery  
• `/SCWM/GRN`  
Maintain GR Notification  
• `/SCWM/IDN`  
Maintain Inb. Delivery Notification  
• `/SCWM/IM_DR`  
Maintain Posting Change Request  
• `/SCWM/IM_PC`  
Maintain Posting Change  
• `/SCWM/IM_ST`  
Maintain Internal Stock Transfer  
• `/SCWM/ODR`  
Maintain Outbound Delivery Request  
• `/SCWM/PRDI`  
Maintain Inbound Delivery  
• `/SCWM/PRDO`  
Maintain Outbound Delivery Order |
| `/SCWM/ES_GWL` | Business Add-Ins (BAdIs) for Extended Warehouse Management -> Monitoring -> Graphical Warehouse Layout (GWL) | • `/SCWM/GWL`  
Graphical Warehouse |
Goods Receipt Workload |
GR Preparation: External Procurement  
• `/SCWM/GRPI`  
GR Preparation: Production  
• `/SCWM/GR`  
Physical Goods Receipt |
| `/SCWM/ES_WR KC_UI` | Business Add-Ins (BAdIs) for Extended Warehouse Management -> Master Data -> Work Center -> Adjust User Interface for Work Center | • `/SCWM/PACK`  
Work Center Initial Screen  
• `/SCWM/DCONS`  
Deconsolidation  
• `/SCWM/QINSP`  
Quality Inspection and Count |
| `/SCWM/ES_PS_ UI` | Business Add-Ins (BAdIs) for Extended Warehouse Management -> Master Data -> | • `/SCWM/PACKSPEC`  
Maintain a pack specification |
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<table>
<thead>
<tr>
<th>Packaging Specification -&gt; Packaging Specification User Interface</th>
<th>/SCWM/ES_PS_WRKSTP_UI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Add-Ins (BAdIs) for Extended Warehouse Management -&gt; Master Data -&gt; Packaging Specification -&gt; Work Steps User Interface</td>
<td>/SCWM/PSWORKSTEP Maintaining Work Steps</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>/SCWM/ES_VAS_UI</th>
<th>Business Add-Ins (BAdIs) for Extended Warehouse Management -&gt; Cross-Process Settings -&gt; Value-Added Services (VAS) -&gt; BAdI: Screen-Exit for a VAS Header</th>
</tr>
</thead>
<tbody>
<tr>
<td>/SCWM/VAS Administration VAS Orders</td>
<td></td>
</tr>
<tr>
<td>/SCWM/VASEXEC Confirmation for VAS Order</td>
<td></td>
</tr>
<tr>
<td>/SCWM/VAS_I VAS in the Inbound Process</td>
<td></td>
</tr>
<tr>
<td>/SCWM/VAS_INT VAS Internal</td>
<td></td>
</tr>
<tr>
<td>/SCWM/VAS_KTR VAS Kit Creation</td>
<td></td>
</tr>
<tr>
<td>/SCWM/VAS_KTS VAS Kit to Stock</td>
<td></td>
</tr>
<tr>
<td>/SCWM/VAS_O VAS in the Outbound Process</td>
<td></td>
</tr>
</tbody>
</table>

For details and documentation, see the Customizing documentation, and the BAdI documentation of the single BAdIs in the enhancement spots.

**EEW Append**

Several DDIC structures and UI structures offer includes for enhancements of the UI list view. The available includes (including the backend enhancement options) can be found by searching for structures with patterns /SCWM/*EEW* and /SCDL/*EEW*. If you require additional fields in the ALV list display only, enhancing the append-includes with the required fields might be sufficient to add them to the list view.

For extensions in warehouse requests see also **Delivery Processing Administration -> Data Enhancements for Warehouse Requests**.

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