

Carrier Pick-up Appointment Process Using Supply Chain Event Management



Applies to:

SAP ECC 6.0 SP04 and SCEM 7.0

For more information, visit the [Business Process Expert homepage](#).

Summary

Carrier Pick-up appointment process is prevalent in CPG & Retail industries. This article explains how Supply Chain Event Management solution can be used to co-ordinate with the transportation service providers to enable the scheduling of transport by ensuring the availability of the product for pick-up.

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Author Bio



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The Business Procedure

Scheduling the Carrier Pick-up is a very common process prevalent in CPG companies. Here the sales order is most of the time equal to or in the multiples of the full truck load. Manufacturing company or the shipper has to notify the Trucking company about the consignment in advance. This helps the transporter to confirm the appointment and make the necessary arrangements for the pick-up.

Sometimes the Trucking company owns the responsibility to communicate with the customer/receiver of the consignment and reserve a time slot at their warehouse to unload the goods. Based on this date/time the trucking company responds back to the shipper with the Pick-up date and time.

Another variant to this is that the pick up date at the shipper depends on the availability of the loading bay or dock and the trucking company has to respect this schedule.

Using Supply Chain Event Management Sales orders/Deliveries/Shipments from ERP can be tracked and various events can be reported.

Web user interface can be used to publish the required details on the portal where it can be accessed by internal as well as external parties.

Available to Promise

During the sales order entry the requested delivery date from the customer is not firm. Only when the carrier confirms the unloading appointment with the customer/receiver of goods, that date is considered as the firm requested delivery date.

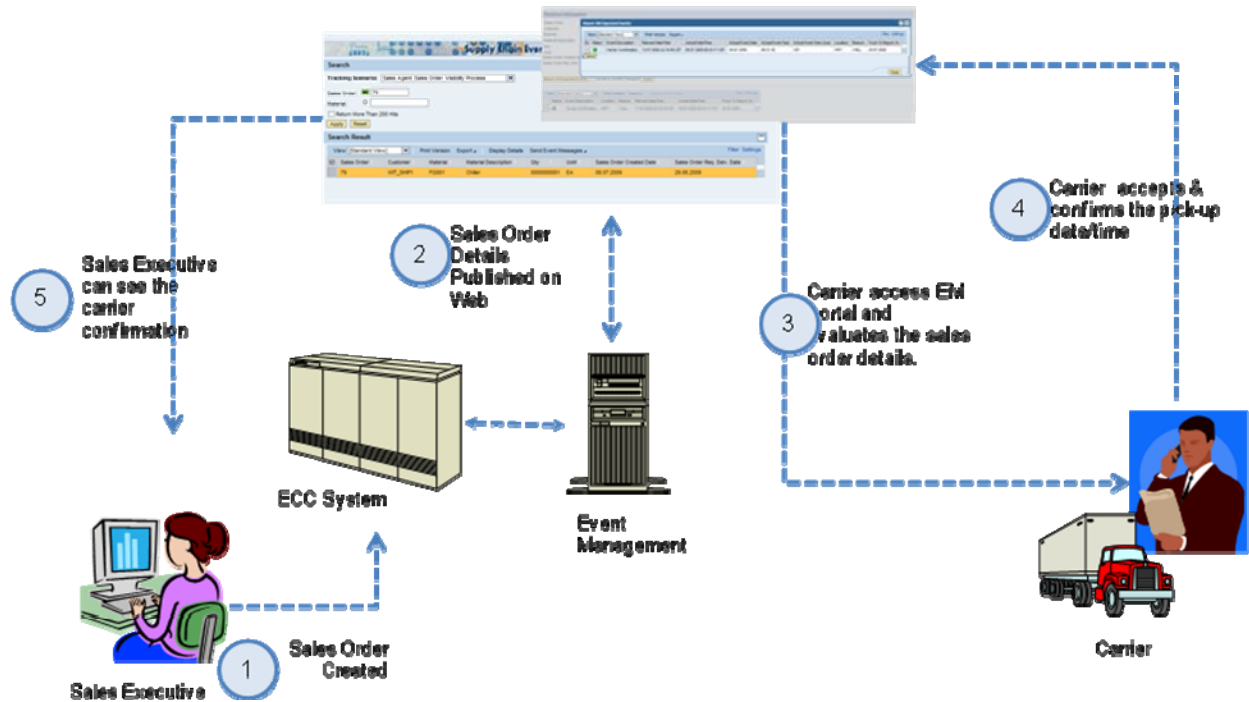
Shipper runs the ATP check based on the soft requested delivery date. ATP check also considers the Transit/transportation time from the route along with the production lead time and performs the backward scheduling to propose the picking and loading dates.

System Requirements

SAP ECC 6.0 is the latest available ERP which also provides the interface plug-in to the Supply Chain Event Management (SCEM) system. Event management can be used as a stand alone server or as part of the Supply Chain Management suite.

In this case Event Management was part of the SAP Transportation Management installation.

Process Flow



Sales order is created in the shipper's ECC system with the requested delivery date from the customer. ATP check is performed which takes into account the Transit/transportation time from the route along with the production lead time and performs the backward scheduling to propose the picking and loading dates. Trucking company / Carrier can also be selected at this stage.

Key sales order details like Customer, Material, quantity, weight, volume, shipping point, destination address; pick-up date, requested delivery date etc. are transferred to the event management system creating an event handler.

Expected events like Carrier Pick up confirmation and Carrier security details are also created at this point in time.

Using the web interface of Event management the event handler data is published on the web. Carrier specific web profiles can be created so as to restrict the data visibility specific to the carriers. Carriers are also provided with the access to the event management system by creating the required user logins. Security is set in such a way so as to enable the access of event management system from the carrier's office.

Alert is set up so as to issue an email to the carrier's sales agent as soon as the event handler is created or changed. Email contains the web address which takes the agent to the event management web page.

Once the carrier receives the notification regarding the pick-up he can arrange the unloading appointment with the consignee / goods receiver and accordingly submit his confirmation with the pick-up date and time at the shipper.

Data registered by the carrier is updated into the event handler and is also available with the shipper's planner. Based on the revised data sales order ATP can be executed again to reschedule the order.

ECC & Event Management Setup Details

In ECC 6.0 up to enhancement pack 4, standard event management business content for sales order is not available. Standard content for objects "Shipment" and "Delivery" are available. Mentioned below are some of the key customizations which are necessary to support the scenario presented below.

Configuration also contains coding the function modules for the extraction functions which is not part of this document. Customization in the event management system is also required to map the source fields to the web UI fields.

Detail configuration document can be made available on reader's request.

Application Object Type

Customizing>Integration with other mySAP.com components>Event Management Interface>Define Application Interface>Define Used bus. Pro. Types, Appl. Obj. Types, and Evt Types

Change View "Define Used Business Process Types": Overview

Bus. Proc. Type	Update Mode	BPT Process Mode	Description
EPL_NOTIF	Update Task (1) Active		Notification in SAP R/3 Enterprise
ESC_DELIV	Update Task (1) Active		Delivery in SAP R/3 Enterprise
ESC_FI_CLEARING	Update Task (1) Active		FI Clearing in SAP R/3 Enterprise
ESC_MATDOC	Update Task (1) Active		Material Document in SAP R/3 Enterprise
ESC_MM_INVOICE	Update Task (1) Active		MM Invoice in SAP R/3 Enterprise
ESC_PURORD	Update Task (1) Active		Purchase Order in SAP R/3 Enterprise
ESC_PURORD_FASHION	Update Task (1) Active		Purchase Order (Seasonal Procurement) in SAP R/3 Enterprise 2.0
ESC_SHIPMT	Update Task (1) Active		Shipment Tracking
ESC_SORDER	Update Task (1) Active		Sales Order in SAP R/3 Enterprise
ESC_WRKORD	Update Task (1) Active		Workorder (Production, Service, Maintenance) in SAP R/3 Enterprise
Z_ESC_SORDER	Update Task (1) Active		Sales Order in SAP R/3 Enterprise

Details

Change View "Define Application Object Types": Details

Business Process Typ: ESC_SORDER
 Application Obj.Type: Z_SALESORDER_H Sales Order Header Data
 Text:

General Data | Control Tables | Object Identification | Event Mgmt. Relevance | Parameter Setup

Sequencing / Destination
 Sequential Number: 1
 Event Manager: STMCLNT001 ERP-EM Intehration

Business Object Reference
 Object Type: VBAK SalesDocument
 BusObj Extractor: ZBO_SALESORDER Selection of BO Key for Sales Order -

Behavior
 EM Relevance of Appl. Obj.
 Appl.Object Relevant for Queries
 Stop AO Determination
 EH Deactivation Ind.
 Appl. Log Deactiv.
 Alt. BusProcType:

Change View "Define Application Object Types": Details

Business Process Typ <input type="text" value="ESC_SORDER"/>	
Application Obj.Type <input type="text" value="Z_SALESORDER_H"/>	Sales Order Header Data
Text <input type="text"/>	
General Data Control Tables Object Identification Event Mgmt. Relevance	
Data Source for Created and Updated Objects	
Main Obj. Table <input type="text" value="SALES_ORDER_HEADER_NEW"/>	Master Table <input type="text"/>
Data Source for Deleted Objects	
Del.Obj. Table <input type="text" value="SALES_ORDER_HEADER_OLD"/>	
Reference Between Main and Master Table	
First Field Reference from Main to Master Table <input type="text"/>	
Second Field Reference from Main to Master Table <input type="text"/>	

Change View "Define Application Object Types": Details

Business Process Typ <input type="text" value="ESC_SORDER"/>	
Application Obj.Type <input type="text" value="Z_SALESORDER_H"/>	Sales Order Header Data
Text <input type="text"/>	
General Data Control Tables Object Identification Event Mgmt. Relevance Parameter S	
Method for determination of AOID	
AOID Method <input type="text" value="Determine from Field"/>	
Application Object ID Source	
First Field to Build Appl. Obj. ID <input type="text"/>	Control Table Type <input type="text" value="Main Object Table"/>
	AO ID Field <input type="text" value="VBELN"/>
Second Field to Build Appl. Obj. ID <input type="text"/>	Control Table Type <input type="text"/>
	AO ID Field <input type="text"/>
Determine AOID By Function <input type="text"/>	
AOID Extractor <input type="text"/>	

Change View "Define Application Object Types": Details

Business Process Typ <input type="text" value="ESC_SORDER"/>	
Application Obj.Type <input type="text" value="Z_SALESORDER_H"/>	Sales Order Header Data
Text <input type="text"/>	
General Data Control Tables Object Identification Event Mgmt. Relevance Parameter Setup	
EM Rel. Method <input type="text" value="No Relevance Determination (Always R)"/>	
EM Rel. Function <input type="text"/>	
EM Rel. Condition <input type="text"/>	

Change View "Define Application Object Types": Details

Business Process Typ: ESC_SORDER
 Application Obj.Type: Z_SALESORDER_H Sales Order Header Data
 Text:

General Data Control Tables Object Identification Event Mgmt. Relevance **Parameter Setup**

Tracking ID Setup

TrkID Method: Determine from Field
 Tr.ID Tab. Type: Main Object Table Tracking ID Fld: VBELN
 Track.ID Code Set: ZSO_NO
 Trk.ID Extractor:

Parameter Setup

Cntl Data Extract: ZCP_SALESORDER Selection of CPs for Sales Order - Transp. Visit
 Info Data Extract:
 Query ID Extract:
 Exp Event Extract: ZSO_EE_EXTRACTOR Selection of EEs for Sales Order - Sales Order

The codes are stored separately

Define SAP EM Extraction Functions

Customizing>Integration with other mySAP.com components>Event Management Interface>Define SAP EM Extraction Functions

Control Parameter Extractors & Control Parameter List

These parameters are extracted by above function module and used in AOT

Change View "Control Parameter Extractors": Overview

Extractor	Function Module	Description
510_WRF_CONTR_01	WRF_XCP_MM_ITEM_01	Control Parameters for Purchase Order (Seasonal Procurement)
CONTR_PARAM_DELIV	/SAPTRX/XCP_LE_DELIV_IN_SHIP01	Selection of Control parameters for Deliveries in Shipment
OBP10_DELIV	/SAPTRX/XCP_SD_DELIV_OBP10	Selection of CPs for Delivery - Outbound Delivery Visibility Process
OBP10_HU_IN_DLV	/SAPTRX/XCP_SD_HU_IN_DLV_OBP10	Selection of CPs for HUs in Delivery - Outbound Delivery Visibility Process
PCM10_ITEM	/SAPTRX/XCP_MM_ITEM_PCM10	Selection of CPs for Purchase Order Item - Procurement Visibility Process
PMF10_NOTIF	/SAPTRX/XCP_PP_NOTIF_PMF10	Selection of CPs for Notification - Production Malfunction Visibility Process
PMF10_ORDER	/SAPTRX/XCP_PP_ORDER_PMF10	Selection of CPs for Manuf. Order - Production Malfunction Visibility Process
TRA10_DELIV	/SAPTRX/XCP_LE_DELIV_TRA10	Selection of CPs for Deliveries in Road Shipment - Transp. Visibility Process
TRA10_ROADSEA	/SAPTRX/XCP_LE_ROADSEA_TRA10	Selection of CPs for Road/Sea Shipment - Transp. Visibility Process
ZCP_SALESORDER	Z_XCP_SD_ORDER	Selection of CPs for Sales Order - Transp. Visibility Process

Control Parameter List

Change View "Control Parameter List": Overview

Extractor: ZCP_SALESORDER Selection of CPs for Sales Order - Transp. Visibility Process

Parameter	Description	Pa	Data Type
ZMATERIAL	Material Number	18	Text Field (Character Str
ZMAT_TEXT	Material Description	50	Text Field (Character Str
ZQTY	Sales Order Line Qty.	10	Text Field (Character Str
ZSALES_ORG	Sales Organization	10	Text Field (Character Str
ZSALE_ORD	Sales Order Number	10	Text Field (Character Str
ZSALE_UNIT	Unit Of Measure	4	Text Field (Character Str
ZSOLD_TO_PARTY	Sold To Party	10	Text Field (Character Str
ZSO_CREAT_DATE	SO Created Date	8	Date Field (YYYYMMDD)
ZSO_REQ_DELV_DATE	Req. Delivery Date	8	Date Field (YYYYMMDD)

Expected Event Extractor & Expected Event List

These are expected events and their planned date/ time is determined using function module. These are mapped to Expected Events Profile in Event Manager

Change View "Expected Event Extractors": Overview

Extractor	Function Module	Description
510_WRF_EXP_EVENT_01	WRF_XEE_MM_ITEM_01	Expected Events for Purchase Order (Seasonal Procurement)
EXP_EVENTS_DELIV	/SAPTRX/XEE_LE_DELIV_IN_SHIP01	Selection of Expected Events for Deliveries in Shipment
OBP10_DELIV	/SAPTRX/XEE_SD_DELIV_OBP10	Selection of EEs for Delivery - Outbound Delivery Visibility Process
OBP10_HU_IN_DLV	/SAPTRX/XEE_SD_HU_IN_DLV_OBP10	Selection of EEs for HUs in Delivery - Outbound Delivery Visibility Process
PCM10_ITEM	/SAPTRX/XEE_MM_ITEM_PCM10	Selection of EEs for Procurement Item - Procurement Visibility Process
PMF10_NOTIF	/SAPTRX/XEE_PP_NOTIF_PMF10	Selection of EEs for Notification - Production Malfunction Visibility Process
PMF10_ORDER	/SAPTRX/XEE_PP_ORDER_PMF10	Selection of EEs for Manuf. Order - Production Malfunction Visibility Process
TRA10_DELIV	/SAPTRX/XEE_LE_DELIV_TRA10	Selection of EEs for Deliveries in Road Shipment - Transp. Visibility Process
TRA10_ROAD	/SAPTRX/XEE_LE_ROAD_TRA10	Selection of EEs for Road Shipment - Transp. Visibility Process
TRA10_SEA	/SAPTRX/XEE_LE_SEA_TRA10	Selection of EEs for Sea Shipment - Transp. Visibility Process
Z60_EE_EXTRACTOR	Z_SO_XEE_SALESORDER	Selection of EEs for Sales Order - Sales Order Visibility Process

Expected Event List

Change View "Expected Event List": Overview

Extractor	Description
Z60_EE_EXTRACTOR	Selection of EEs for Sales Order - Sales Order Visibility Process

Expected Event	Description
ZCARR_CONF	Carrier Confirmation Expected
ZCARR_SEC	Carrier Security Details

Business Key Extractor

Change View "Business Object Key Extractors": Overview

Extractor	Function Module	Description
510_WRF_BUSOBJEXT_01	WRF_XBO_MM_ITEM_01	Selection of BO Key for Purchase Order (Seasonal Procurement)
BUS_OBJ_KEY_SHIPMENT	/SAPTRX/XBO_LE_SHIPMENT01	Selection of Business Object Key
OBP10_DELIV	/SAPTRX/XBO_SD_DELIV_OBP10	Selection of BO Key for Delivery - Outbound Delivery Visib. Proc.
PCM10_ITEM	/SAPTRX/XBO_MM_ITEM_PCM10	Selection of BO Key for Purchase Order - Procurement Visibility Process
PMF10_ORDER	/SAPTRX/XBO_PP_ORDER_PMF10	Selection of BO Key for Manuf. Order - Production Malfunction Visib. Proc.
Z60_SALESORDER	Z_SAPTRX_XBO_SALESORDER	Selection of BO Key for Sales Order - Sales Order Visib. Proc.

Process Screens

Mentioned below are the screen shots of the complete scenario starting with the Sales Order entry and ending with the event confirmations in the event management

Sales Order Entry

Change Standard Order 106: Overview

Change Standard Order 106: Overview

Standard Order 106 Net value 6,000.00 USD

Sold-to party WALLMART Walmart Retail / 4th North St / Chicago IL 29099

Ship-to party WALLMART Walmart Retail / 4th North St / Chicago IL 29099

PO Number 44000054 PO date 21.07.2009

Sales Item overview Item detail Ordering party Procurement Shipping Reason for rejection

Req. deliv. date 21.08.2009 Deliver Plant

Complete div. Total Weight 180 KG

Delivery block Volume 0.000

Billing block Pricing date 22.07.2009

Payment card Exp. date

Card Verif Code

Payment terms 0001 Pay immediately w/o Incoterms DDP Customer Location

Order reason

Item	Material	Order Quantity	Un	S	Description	Customer Material Numb	ITCa	DGIP	HL Item	D First Date	Plnt
	10BACARDI_RUM		60 CV		Bacardi Rum		TAN			D 21.08.2009	WIT1
										D 21.08.2009	
										D 21.08.2009	
										D 21.08.2009	
										D 21.08.2009	
										D 21.08.2009	

Change Standard Order 106: Overview

Change Standard Order 106: Overview

Standard Order 106 Net value 6,000.00 USD

Sold-to party WALLMART Walmart Retail / 4th North St / Chicago IL 29099

Ship-to party WALLMART Walmart Retail / 4th North St / Chicago IL 29099

PO Number 44000054 PO date 21.07.2009

Sales Item overview Item detail Ordering party Procurement Shipping Reason for rejection

Complete div. Total Weight 180 KG

Delivery block Volume 0.000

Overall status Open Delivery status Not delivered

Item	Material	D	DlvDateFor	N	Delivery Date	Mat Av. Dt.	Loading Da	Plnt	Shi	Route	P	D	Description
	10BACARDI_RUM		21.08.2009		21.08.2009	17.08.2009	17.08.2009	WIT1	0001	Z00001			

Event Handler

Before the sales order is actually saved the extraction function modules (Business Object Key extractor, Control Parameter extractors, Info Parameter extractors, expected event extractors etc) are executed. Once the sales order is saved automatically the event handler is created in the Event Management system.

Event handler list can be accessed using transaction code

/SAPTRX/EH_LIST - Event Handler List

Event Handler list

Additional Data

Identification

Application System	EH4CLNT400	to	
Application Obj.Type	Z_SALESORDER_H	to	
Application Object		to	
Tracking ID Code Set		to	
Tracking ID		to	

Event Handler List

Tracking ID	Application Obj. Type	Appl. Object	Tr. ID CS	Bus. Proc. Type	Event Handler Type	Active	Chg
0000000106	Z_SALESORDER_H	0000000106	ZSO_NO	ESC_SORDER	ZEH_SALESORDER_H	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Event Handler Overview

Consolidated Events				
	Expected Event Date an...	Expected Eve...	Reported Event Da...	Reported Even...
Z_SALESORDER_H 106				
<input checked="" type="checkbox"/>	Carrier Confirmation	27.07.2009 00:39:54 CET	21.07.2009 10:45:49 CET	21.07.2009 10:45:49 CET
<input checked="" type="checkbox"/>	Carrier Security Data	16.08.2009 00:39:54 CET	15.08.2009 10:47:05 CET	15.08.2009 10:47:05 CET

Header Data						
Parameter	Description	Parameter Value	Index	Par.Length	Data Type	
ZCARRIER	Transport Carrier	WIT_CAR003		10	C	
ZDPLANT	Delivering Plant	WIT1		4	C	
ZMATERIAL	Material Number	BACARDI_RUM		11	C	
ZMAT_TEXT	Material Description	Bacardi Rum		11	C	
ZQTY	Sales Order Line Qty.	000000060		10	C	
ZSALES_ORG	Sales Organization	WIT1		4	C	
ZSALE_ORD	Sales Order Number	0000000106		10	C	
ZSALE_UNIT	Unit Of Measure	CS		2	C	
ZSOLD_TO_PARTY	Sold To Party	WALLMART		8	C	
ZSO_CREAT_DATE	SO Created Date	20090722		8	D	
ZSO_REQ_DELV_C	Req. Delivery Date	20090821		8	D	

Event Management Web Interface

Once the event handler is created, using the alert function an email notification can be triggered and carrier can be informed. Notification contains the https link to the event management system. Screen below will open once the carrier logs in with his credentials.

The screenshot shows the SAP Supply Chain Event Management web interface. The search results table is as follows:

Sales Order	Delivering Plant	Customer	Material	Material Description	Qty	UoM	Sales Order Req. Delv. Date	Sales Order Created Date
104	WIT1	WALLMART	BACARDI_RUM	Bacardi Rum	60	CS	21.08.2009	21.07.2009
105	WIT1	WALLMART	BACARDI_RUM	Bacardi Rum	60	CS	21.08.2009	21.07.2009
106	WIT1	WALLMART	BACARDI_RUM	Bacardi Rum	60	CS	21.08.2009	22.07.2009

The 'Send Event Messages' dialog box is open, showing the following details:

- Carrier to Confirm Transport**
- Actual Event Date: 21.07.2009
- Actual Event Time: 14:48:51
- Actual Event Time Zone: Central Europe
- Carrier Accept/Rejection Remarks: Confirm the pickup

The screenshot shows a SAP interface with a 'Send Event Messages' dialog box open. The dialog box is titled 'Send Event Messages' and contains the following fields:

- Carrier to Confirm Security Data**
- Actual Event Date:** * 21.07.2009
- Actual Event Time:** * 14:49:49
- Actual Event Time Zone:** * Central Europe
- Security Details:Driver/Trk/Trlr:** * Bob, Trk-1234, Trlr-1234

There are 'Send' and 'Close' buttons at the bottom of the dialog box. In the background, a table is visible with the following data:

Status	Event Description	Planned Date/Time	Actual Date/Time
Green checkmark	Carrier Confirmation	27.07.2009 00:39:54 CET	21.07.2009 14:49:49 CET
Green checkmark	Carrier Security Data	16.08.2009 00:39:54 CET	15.08.2009 14:49:49 CET

Once the Carrier's agent confirms the events same are updated into the event handler. This data is now also available to the shipper's planner for his planning. It is also possible to reschedule the order based on the event updates.

Related Content

<https://www.sdn.sap.com/irj/scn/weblogs?blog=/pub/wlg/4498>

<http://www.erpgenie.com/sap/mysap/scm/scem.htm>

http://help.sap.com/saphelp_em70/helpdata/en/6e/b4393c95b04325e1000000a11405a/frameset.htm

For more information, visit the [Business Process Expert homepage](#).

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