



Feature at a Glance

Advanced packaging with handling units

Sourabh Kothari, SAP Ariba
Target GA: May, 2019

CONFIDENTIAL

Feature at a Glance

Introducing: Advanced packaging with handling units

Customer challenge

- Customers require a level of standardization for the packaging of materials and products they are ordering and receiving from their suppliers.
- Without support for Handling Units during the process of creating Advanced Shipping Notifications, materials can be packed arbitrarily, making it difficult for customers to streamline their receiving and put-away processes.

Meet that challenge with SAP Ariba

- Buyers can now load packaging instructions for materials
- Ariba Network will support auto numbering of Handling units and ASN documents
- Ariba Network will allow buyers to define bar code label template for printing before shipment
- Ariba Network now provides step by step wizard embedded within ASN process for auto packing

Experience key benefits

- Enables buyers and suppliers to increase compliance during the shipping process and efficiency with more accurate handling of arriving inventory.
- Buyers can now advise suppliers of their packaging needs.
- Each handling unit allows for key information to be accurately tracked and updated, while eliminating time-intensive and error-filled manual input and label reprinting.
- Out of the box integration for HU data within ASN to backend ERP.

Solution area

SAP Ariba Supply Chain Collaboration

Implementation information

- The feature is automatically on for all customers and can be activated using business rules for suppliers/supplier groups.
- In addition setup is needed for packaging instructions, number ranges and output labels

Prerequisites and Limitations

- Advanced Packaging with Handling Unit is not supported for process scenarios like Edit/Update ASN, Draft ASN, ASN on behalf of supplier (3PL scenario), ASN Excel Upload and Return ASN.
- Advanced Packaging with Handling Unit is not supported for below integration scenarios such as Pack Spec ERP Integration, API access, Handheld devices or scanners and Industry specific label printer (e.g. Zebra Printers).

Feature at a Glance

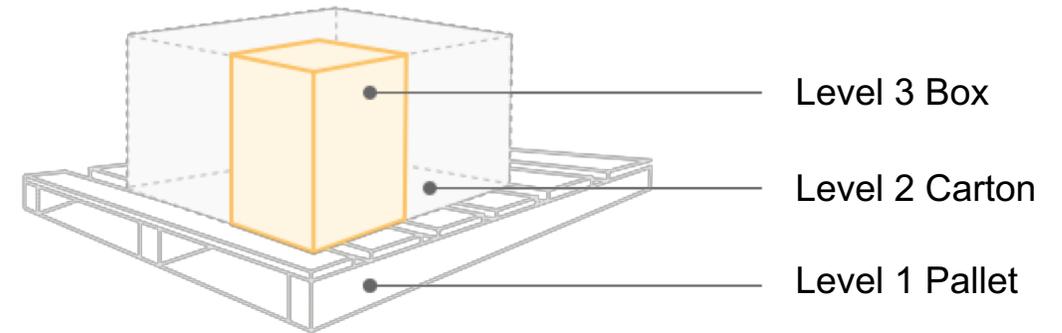
Introducing: **Advanced packaging with handling units**

Definition:

➤ What is a handling unit (HU)?

A handling unit might be a loaded truck, pallet, or box and:

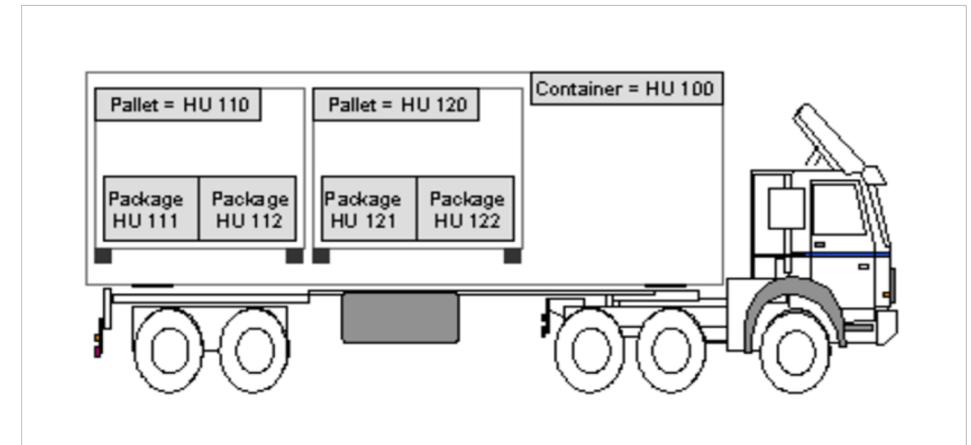
- Always consists of a packaging material and a packed quantity
- Might contain smaller handling units
- Is assigned a unique ID number, scannable that you can construct according to industry standards such as EAN 128 or SSCC
- All the information contained in the product items, for example, about batches, is retained in the handling units and is always available



➤ What are packaging instructions?

Packaging instructions dictate how your ship notice items will be packed and contain information about packaging materials including:

- Relationships among them (nested levels)
- Quantities that can be packed within them
- Their weights and dimensions



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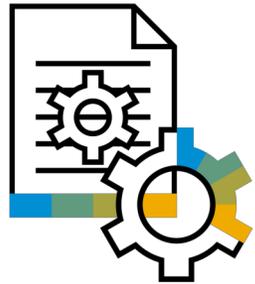
Feature Summary

➤ Important Note:

1. Advanced packaging is part of the ASN creation process on AN
2. It is not reflected as an independent document

➤ Feature:

1. Packaging Instruction Upload in simple Excel format
2. Auto numbering Configuration for ASN and Handling Units
3. New UI wizard to enable packaging in the ASN screen which can guide the suppliers through steps to:
 - ✓ create handling units,
 - ✓ define handling unit hierarchies,
 - ✓ and printing labels.
4. Auto Packing with initial packing by user guided procedure.
5. Label Configuration and Printing.
6. Integration of the ASN HU with ERP and EDI for Suppliers



Buyer Settings

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Enable Business Rule

➤ New Transaction rule

- A new rule is introduced under Administration → Configuration → Define default transaction rules to enable advanced packaging
- Rule – “Allow suppliers to use advanced packaging on ship notice”

Allow suppliers to use advanced packaging on ship notices. ⓘ



➤ Configure Auto numbering for Handling units

- Under Administration → Configuration → **Configure Document Numbering Preferences** page for maintaining number ranges for ASN and Handling Units
- The SSCC (GS1) format rule can be enabled or disabled according the numbering that you want to configure. This will drive the format of number range in number range settings, if it appears as Default or GS1 format.
- Related business rule: "Require suppliers to provide a Global Individual Asset ID for line items on ship notices that conforms to the Serial Shipping Container Code (SSCC) format."
- Suppliers can also define the number ranges for ASN and HU's on their end under Company settings → Customer relationship → Numbering preference options.

IMPORTANT: Supplier's setting overrides Buyer's settings.

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Number range settings

Advanced Ship Notice

Supplier	Configuration type	Prefix	Suffix	Rolling	Max. characters	From	To	Current number	Actions
Ariba Supplier - TEST	GS1	01000		No	17	1	999999		Edit Refresh Delete

↳

Handling Units

Supplier	Configuration type	Prefix	Suffix	Rolling	Max. characters	From	To	Current number	Actions
Ariba Supplier - TEST	GS1	08000		No	17	0	99999	10	Edit Refresh Delete

↳

Activate business rule to conform SSCC format compliance by suppliers

Require suppliers to provide a Global Individual Asset ID for line items on ship notices that conforms to the Serial Shipping Container Code (SSCC) format.



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Default number range format

Configure Numbering

Configuration type: ▾

Supplier: All Suppliers

Prefix:

Suffix:

Maximum Length:

Interval From:

Interval To:

Rolling: Yes No

- Could be assigned to all suppliers in general or each supplier separately
- Default configuration type will allow free configuration of Total Length (up to 99) and Counter
- Prefix and Suffix is limited to 3 digits

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GS1 number range format

Configure Numbering

Configuration type:

Supplier:

Extension digit:

GS1 Company Prefix:

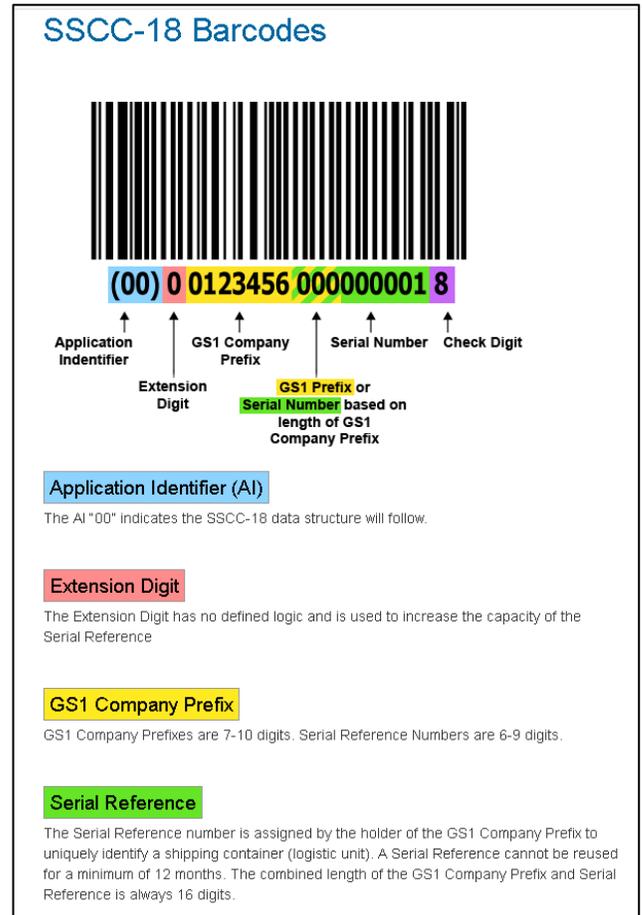
Maximum Length:

Interval From:

Interval To:

Rolling: Yes No

- Could be assigned to all suppliers in general or each supplier separately
- GS1 configuration type is limited for Prefix, Suffix, Total Length related to GS1 guidelines
- In future more configuration types are planned to be supported to cover specific industry standards like GTL



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Upload Packaging Specifications / Instructions

- Buyers can upload the packaging specifications under Upload/Download → Upload → Packing Instructions
- The packaging instructions are used to define the hierarchy of packing. E.g. like Box → Carton → Pallet.
- A single material can have one or multiple packing hierarchies.
- The combination of each hierarchy is identified by “Packing Specification ID” in the upload template.
- Packing instruction template document attached below.
- Mandatory fields marked in **red**

Packaging Specification ID	Material	Material Description	Capacity	Unit	Packaging Level	Packaging Material	Packaging Material Description
PI-001			10	EA	3	REI_Carton	Packaging Material
PI-002			1	EA	100	Pallet	Pallet Desc
PI-002			1	EA	4	Box	Box Desc
PI-003			1	EA	5	Pallet	Pallet Desc
PI-004			1	EA	6	PalletTT	Pallet Desc
PI-005	TT4518_2	BULLNOSE SHELVES 4 PK	1	EA	7	Pallet	Pallet Desc
PI-005	TT4518_2	BULLNOSE SHELVES 4 PK	1	EA	8	Box	Box Desc
PI-006	TT4518_3	BULLNOSE SHELVES 4 PK	1	EA	9	Pallet	Pallet Desc
PI-006	TT4518_3	BULLNOSE SHELVES 4 PK	1	EA	13	Box	Box Desc

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Upload Packaging Specifications / Instructions

- The template is used to define the quantities, dimensions and hierarchy of packing
- It can be controlled if for an specific packing level an handling units needs to be created
- It can be controlled if mixed handling units are allowed, means one handling units contains more then one purchased material

Capacity of
packing material



Used to build
packing hierarchy



Maximum Capacity	Minimum Capacity	Length	Unit Length	Height	Unit Height	Width	Unit Width	Volume	Unit Volume	Net Weight	Gross Weight	Unit Gross Weight	Total Volume	Unit Total Volume	Parent Packaging Material	Create Handling Unit	Allow Mixed
1000	1	5.35	in	5.35	cm	3.35	m	20.35	mm	40.35	35.35	kg	25	g		Yes	Yes
20	1	5.35	In	5.35	cm	3.35	m	20.35	mm	40.35	35.35	kg	25	g		Yes	Yes
50	15	5.35	In	5.35	cm	3.35	m	20.35	mm	40.35	35.35	kg	15	g	Pallet	Yes	Yes
20	1	5.35	In	5.35	cm	3.35	m	20.35	mm	40.35	35.35	kg	25	g		Yes	Yes
20	1	5.35	In	5.35	cm	3.35	m	20.35	mm	40.35	35.35	kg	25	g		Yes	Yes
50	15	5.35	In	5.35	cm	3.35	m	20.35	mm	40.35	35.35	kg	15	g		Yes	Yes
20	1	5.35	In	5.35	cm	3.35	m	20.35	mm	40.35	35.35	kg	25	g	Pallet	Yes	Yes
50	15	5.35	In	5.35	cm	3.35	m	20.35	mm	40.35	35.35	kg	15	g		Yes	Yes
20	1	5.35	In	5.35	cm	3.35	m	20.35	mm	40.35	35.35	kg	25	g	Pallet	Yes	Yes

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Different scenarios in packing instructions

➤ Auto packing

- In case there is only one packing hierarchy for a given material, system automates the packing with the identified entries in the loaded packing instructions
- Possible to move back by “define instruction” and adjust auto packing structures

Packaging Specification ID	Material	Material Description	Capacity	Unit	Packaging Level	Packaging Material
PI-009	II-14421	Coca Cola light 1L	1	EA	1	Carton



Handling unit type	Outer packaging material	Inner handling unit	Quantity	Gross weight	Net weight	Unit
▼ II-14421 Coca Cola light 1L						
└ Carton	II-14421 - Carton	Contains II-14421 Coca Cola light 1L	40	31.45	30.33	kg

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➤ Multiple Instructions

- In case a material has more than one packaging specification ID's, system will prompt the supplier to choose one of the options during pack items step on the ASN.

Packaging Specification ID	Material	Material Description	Capacity	Unit	Packaging Level	Packaging Material
PI-005.1	TT4518_2	BULLNOSE SHELVES 4 PK		1 EA		2 Pallet
PI-005.1	TT4518_2	BULLNOSE SHELVES 4 PK		1 EA		1 Box
PI-005.2	TT4518_2	BULLNOSE SHELVES 4 PK		1 EA		2 Pallet
PI-005.2	TT4518_2	BULLNOSE SHELVES 4 PK		1 EA		1 Box



Handling unit type	Outer packaging material	Inner handling unit	Quantity	Gross weight	Net weight	Unit
>	TT4518_2 BULLNOSE SHELVES 4 PK					
>	TT4518_3 BULLNOSE SHELVES 4 PK					

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➤ Instruction by defaults (Manual)

- In case packaging specifications are not maintained for certain materials, Suppliers can pick the packaging material from the list of packing specification ID's which are not assigned against any material. These are called instructions by default.

Packaging Specification ID	Material	Material Description	Capacity	Unit	Packaging Level	Packaging Material
PI-001				10 EA	1	Pallet x
PI-002				1 EA	1	Container x
PI-002				1 EA	2	Container y
PI-003				1 EA	1	Carton A
PI-004				1 EA	1	Pallet 3
PI-004				1 EA	1	Carton 3
PI-004				1 EA	1	Box 3



The screenshot shows the SAP packaging configuration interface. At the top, there are columns for 'Handling unit type', 'Outer packaging material', 'Inner handling unit', 'Quantity', 'Gross weight', 'Net weight', and 'Unit'. Below this, a specific handling unit 'TT4518_XX BULLNOSE SHELVES XX PK' is selected, with a red warning icon and text 'Packaging instructions needed'. A dropdown menu is open, showing a list of packaging specification IDs: 'PI-004 Pallet 3 / Carton 3 / Box 3', 'PI-002 Container x / Container y', 'PI-001 Pallet x', and 'PI-003 Carton A'. The interface also includes a 'Contains' button, a blue bar, and an 'Add Level' button.

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➤ Upload Bar code label XSLT

- The xslt file used on the Print Label step should be loaded through the admin app.
- Only one file for all suppliers, no supplier group assignment like ASN labels
- Only one active version, latest upload will be considered
- **Note:** Format is slightly different then ASN xslt, but there is no validation at the file upload

CUSTOM PDF LAYOUT CONFIGURATION

The following settings define custom layouts that can be used to print Ariba Network documents as PDF files. For example you can define layouts for PDF barcode labels for ship notices. The administrator for the Ariba Network buyer account must assign each layout to a supplier group to make it available for printing for those suppliers. Each layout is defined as an XSL-FO Stylesheet that can contain references to the document's cXML other related documents and information from the Buyer and Supplier profiles.

Document Type

Name

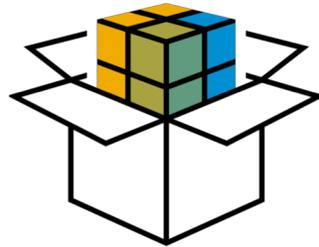
XSL-FO Stylesheet

Applies To

Layout List				
	Name	Creation date	Document Type	Sections
<input type="radio"/>	SK_HU1	2018-07-16 21:14:16	Handling Unit	Line Item, Header

3RD PARTY SYSTEM INTEGRATION

Supplier Interface for Advanced Packaging



Feature at a Glance

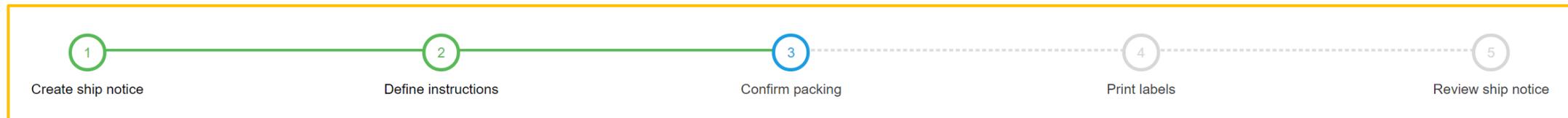
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➤ **Packaging Process Steps within Ship Notice**

- Pack items button appears in the Create Ship Notice page.

The screenshot shows the 'Create Ship Notice' page. At the top right, there are four buttons: 'Pack Items', 'Save', 'Exit', and 'Next'. Below the buttons, there is a note: '* Indicates required field'. The page is divided into two main sections: 'SHIP FROM' and 'DELIVER TO'. The 'SHIP FROM' section shows 'Ariba Supplier - TEST' with an 'Update Address' link, and the address 'Bangalore, IN-KA, India'. The 'DELIVER TO' section shows 'Atlanta' with an 'Update Address' link, and the address 'ATLANTA, GA, United States'.

- This button opens a packaging wizard that highlighted related steps (2 through 4) through the packaging screen:
 - ✓ Define packaging instructions
 - ✓ Confirm packing plan
 - ✓ Print shipping labels

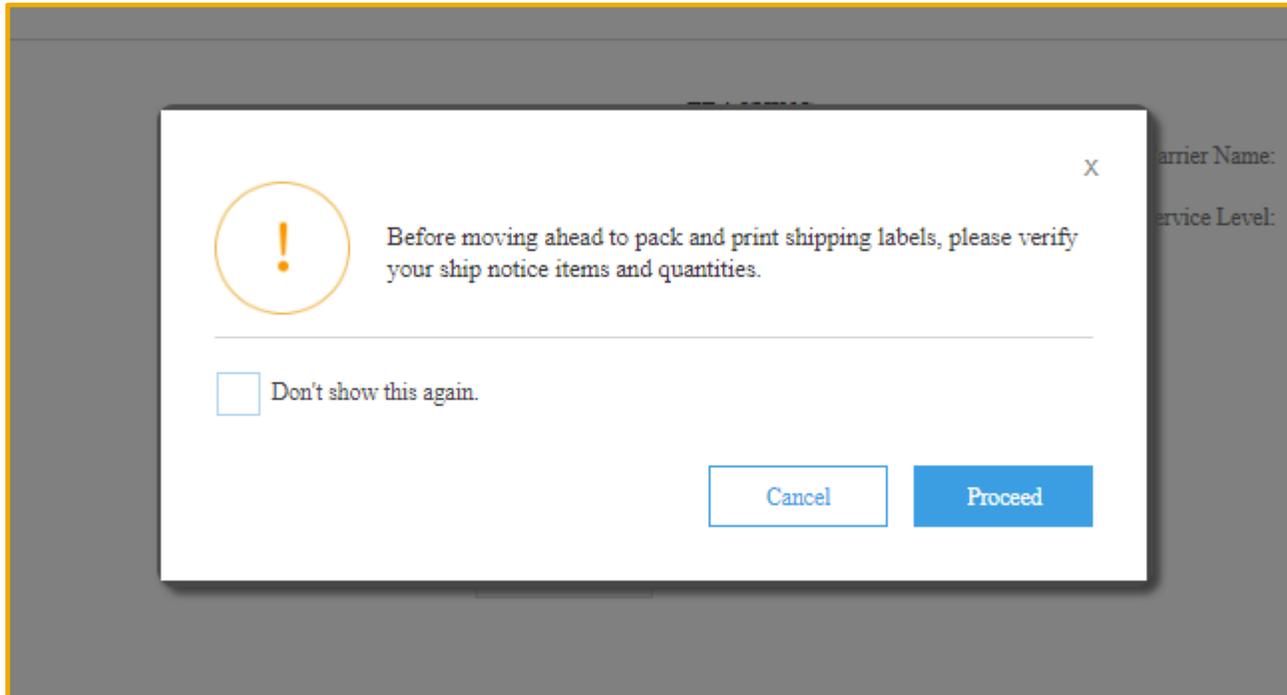


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- **Pre-requisites steps**

- ✓ Ship Notice structure and details needs to be defined first
- ✓ It is not possible to remove items or quantity of the ASN line during packaging step
- ✓ Packing wizard could be started by click on "Pack Items" button.
- ✓ System will remind about dependency on Ship Notice structure with a pop-up
- ✓ To go to packing wizard the Buyer must have packing instructions uploaded.
- ✓ To go to packing wizard the Buyer or Supplier must have numbering configured (Handling Unit or GS1).



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- **Define Instructions**

- ✓ This will be show as first page when we have Auto, Multiple instructions and or Default instructions.
- ✓ You cannot go to next step if there are any material without packing instructions related.
- ✓ For Multiple instructions the user have to choose a packing specification id from a drop down.
- ✓ For Default instructions the user have to choose the material container as first and them he can make his own hierarchy based on the packing materials.
- ✓ For all scenarios, some of the packaging specification details could be adjusted again.

Handling unit type	Outer packaging material	Inner handling unit	Quantity	Gross weight	Net weight	Unit
II-14421 Coca Cola light 1L						
Carton	II-14421 - Carton	Contains II-14421 Coca Cola light 1L	40	EA	31.45	30.33 kg

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- **Confirm packing**

- ✓ This will be show as first page when we have auto-packing instructions.
- ✓ The user can go to "Define Instructions" step to change the packing hierarchy or any info there.
- ✓ On this page the user can rearrange the packaging using the "Move to" functionality. He can move a material to another handling unit with free space.
- ✓ When the user are ready he can go to next step doing click on Next button.

Handling unit type	ASN item no.	Part no. and description	Packed quantity	Batch ID	Production date	Expiry date
Handling Unit 1						
Pallet 1 (2/50)						
Box 1 (20/20)	1.1	TT4518_2 BULLNOSE SHELVES 4 PK	20 PK			Move to...
Box 2 (20/20)	1.1	TT4518_2 BULLNOSE SHELVES 4 PK	20 PK			Move to...
Handling Unit 2						
Pallet 2 (2/50)						
Box 3 (20/20)	2.1	TT4518_3 BULLNOSE SHELVES 4 PK	20 PK			Move to...
Box 4 (20/20)	2.1	TT4518_3 BULLNOSE SHELVES 4 PK	20 PK			Move to...

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- **Print Labels**

- ✓ In this step you can print each label for handling unit, a PDF file is generated based on Barcode template.
- ✓ Generated handling unit numbers are shown based on auto numbering profile, if configured in pack spec excel template
- ✓ The "All Print Label" link is **not** available at this moment.
- ✓ To exit of wizard and go to ASN Review we can click on NEXT button.

Handling unit type	ASN item no.	Handling unit no.	Part no. and description	Packed quantity	Batch ID	Production date	Expiry date	Package document No.
Handling Unit 1								
Pallet 1 (2/50)		HUX0000000223RS1						
Box 1 (20/20)	1.1	HUX0000000224RS1	TT4518_2 BULLNOSE SHELVES 4 PK	20 PK				<input type="text"/>
Box 2 (20/20)	1.1	HUX0000000225RS1	TT4518_2 BULLNOSE SHELVES 4 PK	20 PK				<input type="text"/>
Handling Unit 2								
Pallet 2 (2/50)								
Box 3 (20/20)	2.1		TT4518_3 BULLNOSE SHELVES 4 PK	20 PK				<input type="text"/>
Box 4 (20/20)	2.1		TT4518_3 BULLNOSE SHELVES 4 PK	20 PK				<input type="text"/>

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- **Review ship notice**

- ✓ This page is the known ASN review screen and used to finally submit the whole document.



- **Print Pack Items**

- ✓ "Print Pack Items" button on ASN screen is available only when we come back from packing wizard
- ✓ The button redirects to Print Label page again and could be used in case we need to print the labels another time for some reasons.
- ✓ The "Previous" button point us to the ASN create page

Important Note: Packing info will be lost because currently the Draft functionality is not available with Packing wizard.

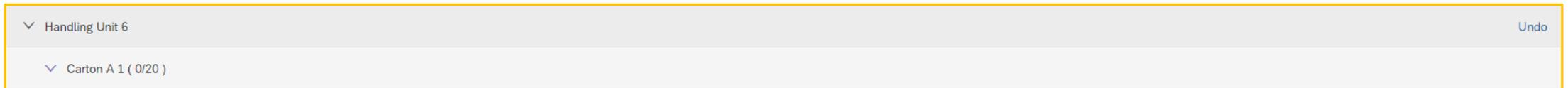
- ✓ If you click on "Submit" button the ASN will be submitted to the Buyer side.

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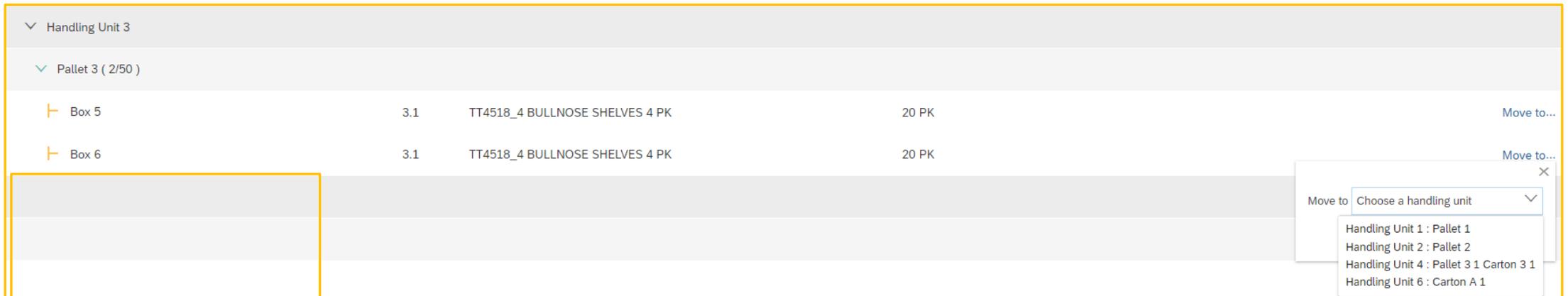
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➤ **Enhanced Usability Features**

- Add HU
 - ✓ Ability to add Additional HU after initial Packing to provide more flexibility for the supplier to Optimize the packing



- Move to
 - ✓ Move a material to another handling unit with free space



Feature at a Glance

Introducing: **Advanced packaging with handling units**

- Mixed HU
 - ✓ Support to mix different materials within one packing material
 - ✓ Mixing to be applied via Move To function.
 - ✓ A new column (Allow Mixed) has been added to the excel template to indicate “mixing” is allowed.
 - ✓ Mixing is supported only at the Lowest level HU.
 - ✓ It is not limiting “move to” into another handling unit in general
 - ✓ Packing Material must have same naming to allow mixing,
 - ✓ For example, you can only move from “Carton” to “Carton”, but not from “Carton” to “Box”

Handling Unit 1						
+	Pallet Def 1 (20/2000)	2.1	aa000000001347bb	BuyerPartID002 Smartphone SONY XPEF	20 CT	<input type="text"/>
Handling Unit 2						
+	Pallet Def 2 (35/2000)		aa000000001348bb			<input type="text"/>
		3.1		BuyerPartID003 SONY BLUE RAY	25 CT	
		1.1		BuyerPartID001A LG monitores	10 CT	

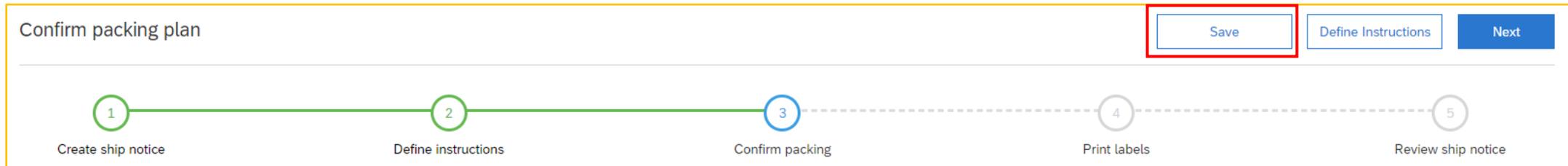
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- Enter Pack Number
 - ✓ Allow Suppliers to enter reference Package number against the HU

Handling unit type	ASN item no.	Handling unit no.	Part no. and description	Packed quantity	Batch ID	Production date	Expiry date	Package document No.
Handling Unit 1								
Pallet 1 (2/50)		HUX0000000233RS1						
Box 1 (20/20)	1.1	HUX0000000234RS1	TT4518_2 BULLNOSE SHELVES 4 PK	20 PK				
Box 2 (20/20)	1.1	HUX0000000235RS1	TT4518_2 BULLNOSE SHELVES 4 PK	20 PK				

- Save HU
 - ✓ Support for HU Save during Draft.
 - ✓ Available in confirm packing and print labels step



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- ASN Split based on Batches – each batch will be considered as separate handling unit

Line	Ship Qty	Supplier Batch ID	Production Date	Expiry Date	
1	<input type="text" value="20"/>	<input type="text" value="Batch 1"/>	<input type="text" value="8 Mar 2019"/>	<input type="text" value=""/>	Add Details
2	<input type="text" value="10"/>	<input type="text" value="Batch 2"/>	<input type="text" value="8 Mar 2019"/>	<input type="text" value=""/>	Add Details
3	<input type="text" value="10"/>	<input type="text" value="Batch 3"/>	<input type="text" value="11 Mar 2019"/>	<input type="text" value=""/>	Add Details

Handling unit type	ASN item no.	Part no. and description	Packed quantity	Batch ID	Production date	Expiry date	
▼ Handling Unit 1							
▼ Pallet 1 (1/50)							
└ Box 1 (20/20)	1.1	TT4518_2 BULLNOSE SHELVES 2 PK	20 PK	Batch 1	8 Mar 2019		Move to...
▼ Handling Unit 2							
▼ Pallet 2 (1/50)							
└ Box 2 (10/20)	1.2	TT4518_2 BULLNOSE SHELVES 2 PK	10 PK	Batch 2	8 Mar 2019		Move to...
▼ Handling Unit 3							
▼ Pallet 3 (1/50)							
└ Box 3 (10/20)	1.3	TT4518_2 BULLNOSE SHELVES 2 PK	10 PK	Batch 3	11 Mar 2019		Move to...

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- Personalization in confirm pack screen for table columns

Handling unit type	ASN item no.	Handling unit no.	Part no. and description	Packed quantity	Batch ID	Production date	Expiry date	Package document No.
Handling Unit 1								
Pallet 1 (1/50)		RS00000000226PRD						
Box 1 (20/20)	1.1	RS00000000227PRD	TT4518_2 BULLNOSE SHELVES 2 PK	20 PK	Batch 1	8 Mar 2019		
Handling Unit 2								

Print all labels

Show / Hide columns

- ✓ ASN item no.
- ✓ Handling unit no.
- ✓ Part no. and description
- ✓ Packed quantity
- ✓ Batch ID
- ✓ Production date
- ✓ Expiry date
- ✓ Package document No.

- Undo added handling unit in review screen

Handling Unit 3								
Pallet 3 (1/50)								
Box 3 (10/20)	1.3		TT4518_2 BULLNOSE SHELVES 2 PK	10 PK	Batch 3	11 Mar 2019		Move to...
Handling Unit 4								Undo
Pallet x 1 (0/1000)								

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- Packet items tab in created ASN screen – Supplier outbox

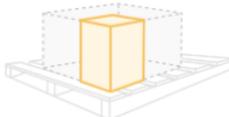
Ship Notice: 76543 Done Previous

Export cXML

Detail **Packed Items** History

Packing hierarchy [What's this?](#)

Carton **3**



[Print all labels](#)

Handling unit type	ASN item no.	Handling unit no.	Part no. and description	Packed quantity	Batch ID	Production date	Expiry date	Package document No.
▼ Handling Unit 1								
└ Carton 1 (40/40)	1.1	HUX0000000325RS1	II-14421 Coca Cola light 1L	40 EA				
└ Carton 2 (40/40)	1.1	HUX0000000326RS1	II-14421 Coca Cola light 1L	40 EA				
└ Carton 3 (20/40)	1.1	HUX0000000327RS1	II-14421 Coca Cola light 1L	20 EA				

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➤ **Limitations**

- Advanced Packaging with Handling Unit is not supported for below process scenarios as of May 2019
 - ✓ Edit/Update ASN
 - ✓ Draft ASN
 - ✓ ASN on behalf of supplier (3PL scenario)
 - ✓ ASN Excel Upload
 - ✓ Return ASN
- Advanced Packaging with Handling Unit is not supported for below integration scenarios as of May 2019
 - ✓ Pack Spec ERP Integration
 - ✓ API access
 - ✓ Handheld devices or scanners
 - ✓ Industry specific label printer (e.g. Zebra Printers)