

# **PACKING SHIPMENTS**

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## **BUSINESS CENTRAL EXTENSION**

This software is an extension to Microsoft Business Central and is called "Packing Shipments". It provides packing bench functionality for both inventory locations and full warehouse shipments, as well as automated sales/transfer shipment/invoice posting.

When there are labels or documents generated from the packing process then these can be automatically printed directly on the packing bench machine.

## **INSTALL**

This extension has dependencies on other extensions.

The sequence of installation, where none of the following extensions has been installed, is:

Extension Name	Publisher
Customer Licensing	iDyam Solutions
Remote Printing	Navengers
Packing Shipments	Navengers

## ADDITIONAL DEVELOPMENT

This extension does not directly include "Carrier" integration, but it does include events to enable it:

Please contact <u>iDyam Solutions</u> for further details.

Additional development could be required, by the solution center, to handle any required events:

• For example, to process the user input on the packing bench ...

```
[EventSubscriber(ObjectType::Codeunit, Codeunit::"ngr Packing Helper", 'OnPackBenchInput', ", true, true)] local procedure OnPackBenchInput(ConsignDoc: Record "ngr Consignment Doc"; Allowed: List of [Enum "ngr Bench Action"]; var Handled: Boolean; var Input: Text) begin

// "Allowed" = list of valid actions, e.g.: if (Allowed.Contains("ngr Bench Action"::"/SaleDoc")) then ...

// "Handled" = set to true if you are changing the "Input".

// "Input" = the original input from the user, which your code could now change, e.g.: if you can find

// a document associated with the input then change this to be the found document number.
end;
```



"Metapack" have an extension for their carrier integration, which uses this packing extension:

• Please contact <u>Metapack</u> for details.

## CONFIGURATION

After installation and before any configuration has been done, a notification will be shown on the role center in the business central web client:

- "Packing Shipments has been installed. Would you like to activate it?" with options ...
  - "Activate now" will show the below setup page.
  - "Remind me tomorrow"
  - "Don't show this again"

If there is an extension that depends on this extension (like "Metapack Essential") then that should be activated first, otherwise it is not necessary to activate any other extension before this extension.

## **MODULE ACTIVATION**

Until this module is activated the setup page looks as follows:

## Packing Shipments Setup

Fewer options



# Activate

Welcome to the Packing Shipments setup ...

Actions

Additional software is needed to support automatic printing on packing stations, see above link, however this can be installed at any time for as many machines as needed.

When you click on "Activate" you will need:

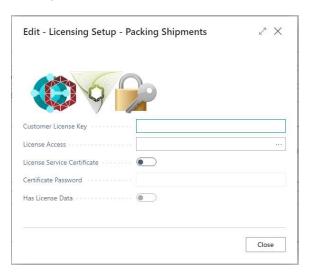
1. Customer license key that is active for this extension.

(This can be changed later using the above menu ribbon)



When you have received the "Customer license key (including the Access address or the License file)" then click on the "Activate" button to begin:

• The "Licensing Setup" page will be shown...



- o Enter the "Customer License Key" as provided.
- o Enter the "License Access" as provided, so either:
  - Specify the license service address (an on-premises installation must allow this web service traffic through the firewall).
  - Do the lookup and upload the license file.
- Close this page.



#### PACKING SHIPMENTS SETUP

Notifications will be shown on the role center if any mandatory configuration is missing.

To manually access this page, you must search for "Packing Shipments Setup" (administration).

## **RIBBON**

#### **Buttons:**

- "Locations" ...
  - o Shows the "Location List" page, against which the "Packing Stations" are defined.
- "Container Types" ...
  - Shows the "Container Type List" page.
- "Packing Users" ...
  - o Shows the "Packing User List" page.
- "Job Queue" ...
  - o To setup the job queue "Packing Shipments Auto Posting" task:
    - This should run frequently, e.g. every 30 minutes.

### Actions:

- "Software Website" ...
  - o Go to the website for the software which is to be installed onto the remote machines.
- "License Key"...
  - o If the "Customer License Key" and/or the "License Access/File" need to be changed.
- "Deactivate" ...
  - o To deactivate the "Packing Shipments" module, and to also deactivate any module that is dependent on this extension.



#### **MAIN FIELDS**

#### Editable:

- "Item Packing Attribute" ...
  - o The item attribute which specifies the grouping rule for packing:
    - Only items within the same group may be packed into the same container.
- "Warehouse Picked" ...
  - Should packing of warehouse shipments only be allowed against the registered picked quantity (on), or against the outstanding quantity (off – not recommended).
- "Prompt Close Order" ...
  - When to ask the packing bench user to confirm closing the order, either: "Always",
     "Remaining" (only when there is an outstanding quantity to be packed) or "Never".
- "Length Unit" ...
  - The unit that is used for lengths/widths/heights.
- "Weight Unit" ...
  - o The unit that is used for weights.
- "Volume Unit"...
  - The unit that is used for volumns.
- "Package Number Series" ...
  - o The number series which will automatically populate package document numbers.
- "Collection Number Series" ...
  - The number series which will automatically populate collection batch numbers.
- "Auto Post Job Maximum Minutes" ...
  - The maxmimum number of minutes that the automatic shipment posting job should run for, where Zero means within the number of minutes between runs.
- "Retry Post Errors after Hours" ...
  - Automatically retry posting of errored documents after the specified number of hours, where Zero means do not automatically retry (the user will have to manually reset an order posting status from the dashboard).
- "Auto Delete After Days" ...
  - Automatically delete the finished consignment data (during the "Auto Posting" scheduledjob) older than the specified number of days, where zero means never.

### Information:

- "Packing Stations" ...
  - o The number of valid packing stations associated with locations.
- "Container Types" ...
  - o The number of valid container types that are not blocked.
- "Users with Default Station" ...
  - o The number of users configured with a defaulkt packing station.



- "Last Auto Delete Check" ...
  - o When the automatic deletion of finished consignments was last done.

## **PACK BENCH BUTTONS**

Change the defaults for how the buttons on the "Pack Bench" page are displayed:

- "Barcode 39 Font Name" ...
  - The default is "Libre Barcode 39" from Google (online, so no local font required).
- "Barcode Font Size (points)" ...
  - o The default is 28, and the minimum is 9.
- "Table Colour (around buttons)" ...
  - The default is "LightBlue".
- "Border Colour (active buttons)" ...
  - The default is "Blue".
- For details about valid HTML colours go to ...
  - o <a href="https://htmlcolorcodes.com/color-names/">https://htmlcolorcodes.com/color-names/</a>

## **PACKING STATIONS**

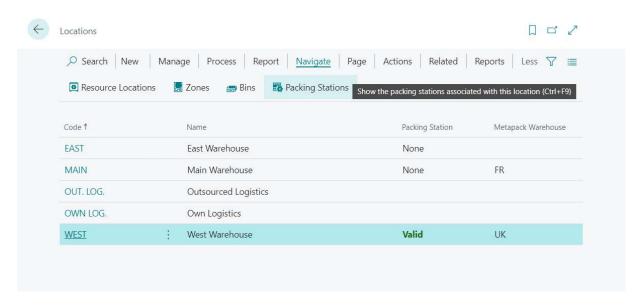
Packing stations are a bench for packing the containers, which have a PC with local printers for the labels and other documents that need to go on/into the packages.

Therefore the system structure is that a "Location" (always start from here) has "Packing Stations", each being a specific "Remote Machine" (remote from the central system) with specific "Printers" used for producing labels and documents.

The actual labels/documents that are output after the packing process, if any, will depend on any carrier integration or internal requirement (<u>development</u>).



## LOCATIONS



## Column:

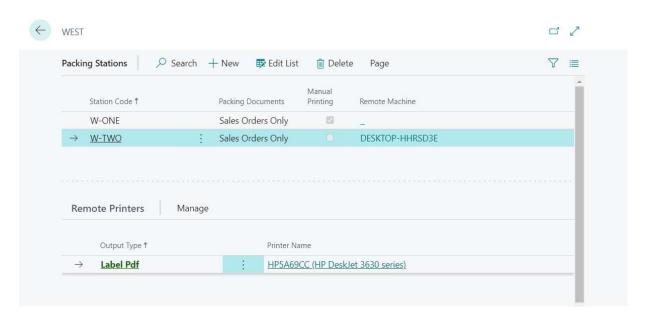
- "Packing Station" status ...
  - o <blank> = an in-transit location, so cannot have a packing station.
  - "None" = there are no packing stations defined for this location.
  - "Valid" = there is at least one valid packing station for this location.
  - o "Invalid" = there is a packing station for this location that has invalid setup.

## Ribbon:

- "Navigate" -> "Packing Stations (Ctrl+F9)" ...
  - Shows the "Packing Stations List" page (see below).



#### **PACKING STATIONS**



## Station list:

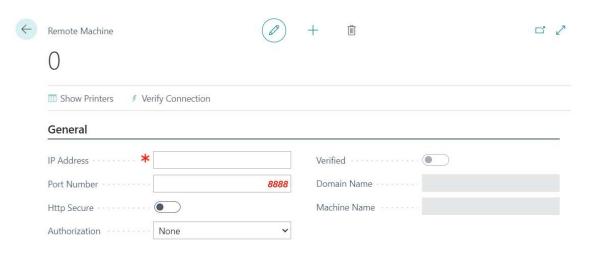
- "Station Code" ...
  - o The unique code (within the current company) for each station.
- "Packing Documents" ...
  - The types of documents where packing is required before shipment either "Sales Orders", "Transfer Orders" or both.
- "Manual Printing" ...
  - o To be ticked only if no automatic printing is wanted (so no remote machine defined).
- "Remote Machine" ...
  - o Lookup to the defined "Remote Machine" (see below).

## Printers per Station (when a remote machine is specified):

- "Output Type" ...
  - Select the type of output either "Labels (pdf)" or "Documents (full sheet)".
- "Printer Name" ...
  - Lookup the printer name, from the remote machine, that will be used to automatically print the selected output type.



#### **REMOTE MACHINES**



There must be a computer physically on a packing station, with local printer(s) attached.

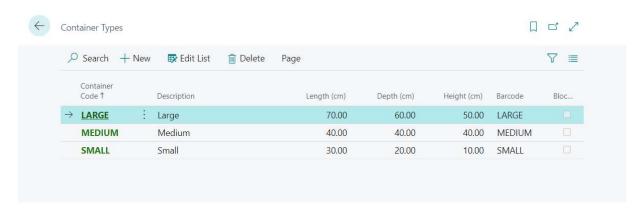
To enable automatic printing from the packing system it is necessary to:

- 1. Install, configure and run the "Navengers Local Access" software, with the "Local Printing" plugin, onto each packing station machine ...
  - a. On the "Remote Machine List" page, from the ribbon select "Actions" -> "Software Website" (opens in a new tab):
    - i. Download and install the software.
    - ii. It must be run as an administrator to do the setup ...
      - 1. Including any port forwarding and local/network firewall rules.
    - iii. Once setup then it does not need to be running as an administrator.
- 2. Define each packing station computer as a "Remote Machine", and "Verify" the connection ...
  - a. "IP Address" ...
    - i. Either the public (when business central is on cloud) or local address.
  - b. "Port Number" ...
    - i. As configured in the "Navengers Local Access" software.
  - c. Authentication...
    - i. As configured on the packing station computer, specify the HTTP type and any authorization.
  - d. Verify...
    - i. In the ribbon click on "Verify Connection" to check that business central can talk to the above software that is running on the specified machine:
      - 1. Once verified then the "Machine Name" will be shown.



## **CONTAINER TYPES**

To manually access this page, you must search for "Container Types" (administration).



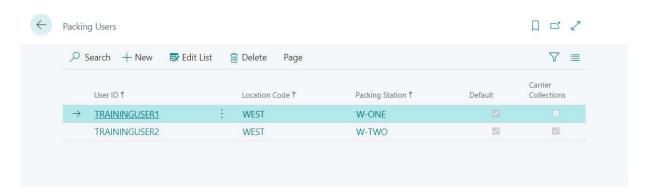
Define each of the containers used for packing shipments:

- "Container Code" ...
  - o The code used to identify this type of container/package.
- "Description" ...
  - o The name of this container/package.
- "Length", "Depth (width)" and "Height" ...
  - o The size is required.
- "Barcode" ...
  - o This can be different from the "Container Code".
- "Blocked" ...
  - o When ticked this container cannot be used in future packing of shipments.



## **PACKING USERS**

To manually access this page, you must search for "Packing Users" (lists).



Define each user and their allowed usage within the packing processes:

- "UserID" ...
  - o The user being defined.
- "Location Code" ...
  - The location that the user is allowed to use.
- "Packing Station" ...
  - o Either leave blank to allow all stations, or specify a specific station to allow.
- "Default" ...
  - o Each user should have a default packing station that they usually use.
- "Partial Packing Allowed" ...
  - Allow the user to close an order when there are outstanding items to be packed so there will be a partial shipment.
- "Carrier Collections" ...
  - o Tick to allow this user to do "Carrier Collection" in this "Location".



#### STANDARD SYSTEM

The setups required within standard business central pages to facilitate the packing of shipments.

## PRINTERS AND LAYOUT

When packing is complete the "Consignment Content" report (9113050) is automatically printed:

- "Printer Selection" can be specified for the correct printer per user.
- "Report Layout" can be customised, and then specified.
- Your solution center can extend the report object (<u>development</u>).

### **ITEMS**

"Item Units of Measure" must be configured against all items:

- "Length", "Width" and "Height" should be specified.
- "Weight" is required, however ...
  - o If the "Item" has the "Net Weight" specified, for base UOM, then the "Item Unit of Measure" records will be automatically updated with their relevant weight.

"Item Attribute" depending on the configuration:

• Per item specify the "Item Packing Attribute" from the "Packing Shipments Setup".

"Item Identifiers":

• Peritem, variant and unit of measure specify the "Barcodes".

## **PACKAGING PROCESS**

After an order is released and picked (manually for an inventory location or using the system to specify the warehouse bins) then the items must be packed into containers.

"Sales Orders" and/or "Transfer Orders" may be packed, depending on the configuration of the "Packing Station" – and optionally having a carrier integration extension, e.g. "Metapack".



#### **PACK BENCH**

To run this page from the role center, click onto the "Consignment Activities" title and select "Packing Bench" from the drop-down menu.

To manually access this page, you must search for "Pack Bench" (tasks).

Select (What to Scan or Input): (Total Weight)



\* It is best to have this page in wide mode - click on  $\nearrow$  (in the top right).

Ensure that the right "Location" (e.g. "WEST") and "Packing Station" (displayed in bold cyan, e.g. "W-ONE") are selected:

• Lookup from the "Packing Station" (click on the "...") to manually select location/station.

"Outstanding Base Qty" shows the total number of items remaining to be packed for the current order.

"Package < Number > of < Total > " shows the current and total number of packages for the current order.

## "Status" where:

- "Vacant" means there is no package for the current order.
- "Handling" means that the current order is suspended.
- "During Packing" means that there is a package open for packing.
- "Boxing Complete" means that there is nothing outstanding to be packed.
- "Invalid Data" means that an error was returned from the carrier integration.
- "Outputs to Print" means that there are labels/documents that require printing.
- "Nothing to Print / Printing Complete" means that the order is ready for collection.



When the cursor is in the "Input" box, either:

- Scan a barcode of a Button or an Input (e.g. "Item").
- Directly click onto a Button or directly type into the Input box (e.g. "Order Number").
- Lookup from the "Input" box (click on the "...") to manually select the required Value.

## SELECT ORDER NUMBER

Either to start packing an order or to find an order that should be packed on the current station, then:

- Either click the "Previous / Next Order" buttons, or scan/select the "Order Number / Warehouse Shipment Number" ...
  - o If the order was previously being packed on a different station then:
    - If the packing is closed you will be asked if this order should be moved onto your packing station.
    - If there is a currently open package and the other packing station computer is not working, so you need to take over the packing, then:
      - Temporarily change your current station to the other station ...
        - o Your user must be allowed to use that packing station.
      - The currently open order number will be shown.
      - Suspend the packing by clicking the "Close Package" button.
      - Now change the current station back to your actual station.
      - Select the order number.

## SELECT PACKAGE OR NEW CONTAINER

To resume the packing of a suspended order / an existing package:

- Either click the "Previous / Next Package" buttons, or scan/select the "Package Number".
- Click the "Edit Package" button.

Either after selecting the order number (so starting to pack an order) or when a container is full and there are still items to be packed for an order, then:

• Scan, input or lookup the "Container Type" to start a new package.



#### **SELECT ITEM**

To change the packing mode, click either the "Remove Mode" or "Add Mode" button.

To add or remove an "Item" into/out-of (depending on the pack bench mode) a package, either:

- Scan the Barcode of the Item/Variant...
  - This will count as the quantity of the associated unit of measure:
    - You are allowed to scan a barcode for an item unit of measure which has a quantity up to, and including, the unpacked item order quantity.
- Manually type the item into the "Input" box (the item number can be entered if there is no variant needed) or lookup the item line ...
  - o If not a barcode then this will only count as a base quantity of one.

What is currently within a package is shown in the "Items" list part (the latest item is at the top).

Once the first item has been added into the first package then a "Consignment Document" will have been created, and it will appear in the "Consignment Activites" and "Consignment Dashboard" dependent on the order "Status".

#### **CLOSE PACKAGE OR ORDER**

When you want to suspend packing of an order then click the "Close Package" button:

This must be done before the packing of an order can be moved onto a different packing station

You cannot change the "Container Type" once a package contains items, so:

• Click the "Delete Package" button and start from a new package.

Close Order

button:

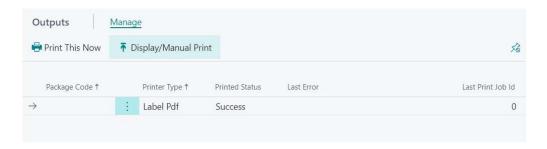
When all the picked items for an order have been packed then click the

Any integration with a "Carrier" system will occur at this point ...

- If there is any error returned (displayed in red), then the user must:
  - "Modify" the order to fix the data issue.
  - Go back to the "Pack Bench" and select "Close Order" to try again.
- When successful:
  - The order will be assigned the actual "Shipping Agent" and "Agent Service".
  - Each package will be assigned a "Tracking Number".



- Also the "Consignment Content" report (see above setup) will be printed ...
  - o If the packing station is configured with a remote printer for "Documents" then it will be automatically printed, otherwise it must be manually handled.



- If any PDF files have been imported then these are listed in the "Outputs" ...
  - If the packing station is configured for remote printing, then these will be automatically printed.
  - To view a PDF file (in a new tab, where it can be manually printed):
    - Click on "Manage" -> "Display/Manual Print".
- After having printed everything for the order, if any, then it is ready for collection.

## **COLLECTION PROCESS**

Only the "Packing Users" that have "Carrier Collections" ticked for a "Location" will be allowed to do the collection process.

Once a consignment has cleared the packing bench then it will be moved to the waiting area ready for carrier pickup.



#### **CARRIER COLLECTION**

To run this page from the role center, click onto the "Consignment Activities" title and select "Carrier Collection" from the drop-down menu.

To manually access this page, you must search for "Carrier Collection" (tasks).

List of "Shipping Agent" and "Location" combinations:

• Shows all combinations where there are consignments that rae ready for collection.

"Consignments" list for the current Agent/Location:

- Click on a consignment tile to show the list of documents ...
  - o Click on the "Linked Document" field to show the "Consignment Card" (see below).
  - o Click on the "Manage" menu:
    - "Toggle Include" ...
      - Toggle if the current consignments is included in the collection.
    - "Show Packages" ...
      - Show the "Consignment Package List" page (see below).

## Ribbon -> "Collected" button:

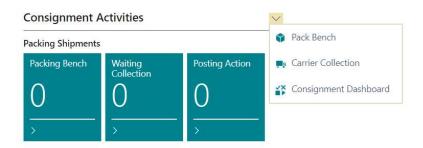
- Once the consignments to be collected have been checked, and any excluded if required, then click the "Collected" button to ...
  - o Set the specified consignments with a "Collection Batch" number.
  - o Initiate any carrier integration for manifest creation.
  - o If successful, then these included consignments are ready to be posted.



## **ROLE CENTER**

The following "Role Centers" have the "Consignment Activites" part:

- "Sales Order Processor"
- "Inventory Manager"
- "Shipping and Receiving Warehouse Management System"
- "Warehouse Worker Warehouse Management System"



## Drop-down menu:

- "Pack Bench" ...
  - Opens the "Pack Bench" page (see above).
- "Carrier Collection" ...
  - o Opens the "Carrier Collection" page (see above).
- "Consignment Dashboard" ...
  - Opens the "Consignment Dashboard" page (see below).

"Packing Shipments" tiles (click to show the "Consignment Card" page):

- "Packing Bench" ...
  - o Number of consignments being processed at any "Packing Station".
- "Waiting Collection" ...
  - o Number of consignments which are ready for "Collection".
- "Posting Action"...
  - o Number of consignments in the "Posting Queue".



#### DASHBOARD

To run this page from the role center, click onto the "Consignment Activities" title and select "Consignment Dashboard" from the drop-down menu.

To manually access this page, you must search for "Consignment Dashboard" (tasks).

## Ribbon:

- "All Locations" ...
  - o Clear the location filter.
- "Increment/Decrement Refresh" ...
  - o Change the "Auto Refresh Minutes" by one.
- "Hide List" ...
  - Hide the "Consignments List" part.
- "Increment/Decrement Finish" ...
  - Change the "Finished within Hours" by one.
- "Set Up Cues" ...
  - o Show the "Cue Setup" page for consignments (see below).

## Settings:

- "Location Filter" ...
  - o Set to show the dashboard numbers only for a single location.
- "Auto Refresh Minutes" ...
  - Set the number of minutes after which the dashboard will be automatically updated, where zero means only manual update (F<sub>5</sub>).
- "Finish within Hours" ...
  - Set to only show the number of documents that "Finished Posting" within the last specified hours, where zero means "Today".

## Tiles:

- "Packing Bench" breakdown ...
  - o "During Packing" is the number of "Consignments" on a packing bench.
  - o "Invalid Data" is the number of "Consignments" with carrier integration errors.
  - o "Need Printing" is the number of "Outputs" that need manual printing.
  - o "Failed Printing" is the number of "Outputs" that have failed the last printing attempt.



- "Waiting Collection" ...
  - o The number of "Consignments" that are waiting for carrier pickup.
- "Posting Action" breakdown ...
  - o "Ready to Post" is the number of "Consignments" in the posting queue.
  - o "Error/Stop Posting" is the number of "Consignments" that have either failed posted or are on hold.
- "Finished Posting" ...
  - o The number of "Consignments" which have been posted within the specified hours.
- "Shipment Job" ...
  - o Shows the status of the scheduled job queue task:
    - Click this tile to show the "Job Queue Entry" page (see below).

#### **CONSIGNMENTS**

Click on a consignment tile to show the list of documents ...

- Click on the "Linked Document" field to show the "Consignment Card" (see below).
- Click on the "Manage" menu:
  - "Show Packages" ...
    - Show the "Consignment Package List" page (see below).
  - "Show Original Document" ...
    - Show the source document card page.
  - "Show Posted Warehouse / Shipment" ...
    - Show the posted document card page.
  - "Show Error" ...
    - Show the last error message from the failed shipment posting.
  - "Set Ready/Stopped" ...
    - Set this as either ready for/stopped from scheduled posting.
  - o "Manually Post" (must be "Stopped" first) ...
    - Run the shipment/invoice posting now (not scheduled).
  - "Print (manual / direct)" ...
    - Print the "Consignment Content" report, either manually (with report dialog) or directly on the packing station document printer.



#### **OUTPUTS**

Click on an outputs tile to show the list of files ...

- Click on the "Manage" menu:
  - o "Print This Now" ...
    - Try to automatically print the current file (s).
  - "Display/Manual Print" ...
    - Shows the PDF file in a new tab, where it can be manually printed.

## **CUE SETUP**

On the "Cue Setup" page is an additional column:

- "Displayed" ...
  - o Each cue is shown on either the "Dashboard", the "Role Center" or "Both".

## **VIEW CONSIGNMENT**

From the following standard pages (list or card) click on the "Packing Consignment" menu item to show the "Consignment Card" page:

- "Sales/Transfer Order"
- "Posted Sales/Transfer Shipment"
- "Warehouse Shipment"
- "Posted Warehouse Shipment"

## **CONSIGNMENT CARD**

Ribbon buttons:

• Same as the Consignments part "Manage" menu on the "Consignment Dashboard" above.

"General" details:

• Includes the "Linked Document", "Packing Station", "Weight", "Agent" and "Status".

"Packages" list:

• Click on the "Package Code" field to show the "Consignment Package Card" page.



## "Outputs" list:

• Same as the Outputs part on the "Consignment Dashboard" above.

## CONSIGNMENT PACKAGE LIST/CARD

Ribbon -> "Goto Tracking Site" button:

• Open a new tab onto the shipping agent tracking page.

"Package" details:

• Includes the "Tracking Number" and "Container Type/Size".

"Content" list:

• Items with Quantity and Weight.

## JOB QUEUE TASK

The status of the "Shipment Job" is shown on the "Consignment Dashboard":

• Handling of any errors must be done from the "Error/Stop Posting" tile on the dashboard.

Job actions:

- Posts the "Collected" orders ...
  - o Moves consignments with a status of "Collected" to be "Ready to Post":
    - A consignment must not have an unregistered warhouse pick.
  - $\circ \quad \text{Sets the source order/ware house document with the ``Quantity to Ship''.}$
  - o Uses the standard codeunits to "Post" the shipment/invoice.
- Deletes any finished consignments older than the number of "Auto Delete After Days" specified on the "Packing Shipments Setup".