# N-lwi version 2.1

# Index

# 1 Introduction

## 1.1 Overview

NORRIQ lwi for Dynamicweb provides integration between Microsoft Dynamics NAV and Dynamicweb eCommerce.
Integration is mainly focused on two areas

- Maintaining webshop metadata from within NAV and thereby reusing existing information
- Making business logic from NAV available to the webshop.

Metadata is updated via XML export/import while business logic like customer specific prices are calculated via real-time queries to NAV from eCommerce.

## 1.2 Architecture

The term "module" in the picture below does not relate to a specific installation but to a logical group of functionality.
Depending on the infrastructure, more modules could be installed on the same server. For installations with medium security, you could install the NAV(Communication Control for NAV) and the Communication module(N-lwi manager) on the same server while in installations with high security requirements, the Communication module would probably be installed on a server within a DMZ.
The Communication and NAV modules need to exchange data via the file system, either on a local disk if both are installed on the same server or via a file share.
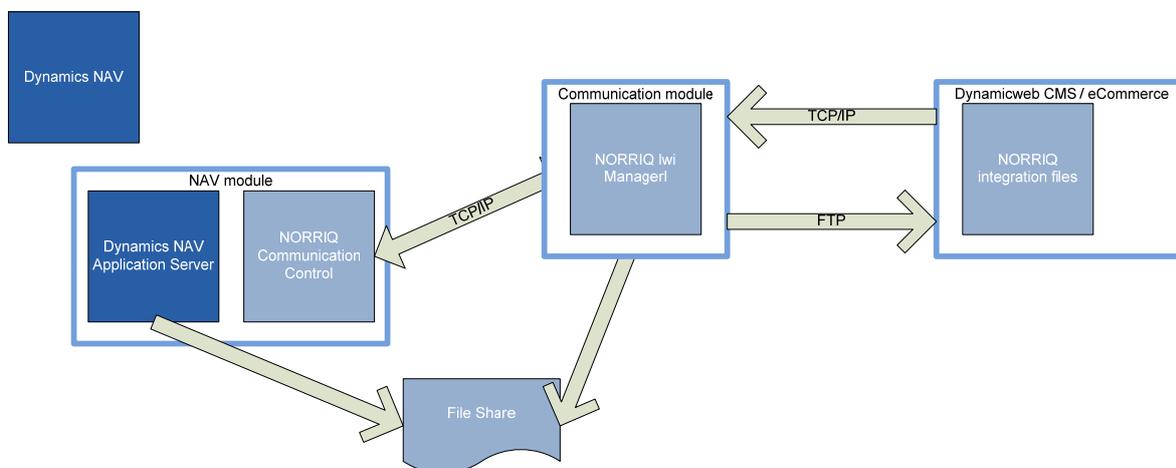


### 1.2.1 NAV module

At least one Navision Application Server (NAS) should be available for the integration. Note that a NAS is dedicated to a single company within the NAV database, so if multiple webshops are running for multiple companies, you must have additional NASs.

Two codeunits are started from NAS, one for export and one for real-time queries. Both could be started by the same NAS but note that a NAS can handle only one task at a time, meaning that it is not able to answer real-time queries while running an export job.

---

The typical setup involves one NAS with two startup parameters. The export runs automatically once every 24 hours, mostly at night. The problem with not being able to serve live price and order requests is therefore minimized. However, in some cases shops are forced updated during daytime, however a two NAS setup, one NAS for live requests and one NAS for exports, could ensure live requests being served at all times.

For webshops with high load, you could install multiple NASs to handle real-time queries.

The real-time codeunit uses the NORRIQ Communication Automation Control that needs to be installed on the same server as the NAS.

### 1.2.2  Communication module

The NORRIQ lwi AppManager acts as a communication gateway between NAV and Dynamicweb. Upon service initiation the manager will contact NAV through the running NAS for configuration details.

When the manager detects a new metadata export from NAV, it will transfer the xml file to Dynamicweb using FTP and the import scripts will be started on FTP completion.

Incoming requests from Dynamicweb will be sent to an appropriate NAS for execution.

The manager also checks Dynamicweb for failed orders, and will FTP found orders to the local export directory, for NAV processing.

### 1.2.3  Dynamicweb module

See separate documentation from Dynamicweb.

## 1.3 System Requirements

Microsoft Dynamics NAV:

Version 5.01+ is supported by NORRIQ, but it should be possible to adapt the code to run on all versions of NAV supporting Navision Application Server (NAS)

Server Operating System:

Windows 2000 Server or newer

Microsoft .NET framework version 2

# 2 Installation

## 2.1 NORRIQ lwi AppManager

Go to the N-lwi AppManager directory and start Setup.exe. Installation is very simple; it's a matter of specifying a directory name.

Default, the installation will suggest (if available):
64 bit: C:\Program Files (x86)\NORRIQ\NORRIQ lwi
32 bit: C:\Program Files\NORRIQ\NORRIQ lwi

Not changing the suggested paths, will ease problem solving at a later stage.

The N-lwi AppManager will be installed as a service running under the Local System account.

On installation completion, just start the service from the Service administration or by issuing the command *NET START APPMANLWI* from a command prompt. Otherwise specify another account before starting the service.

The AppManager creates a configuration file, AppManager.exe.config, in the installation directory. Normally you don't need to change this but if you for some reason don't what to use the standard port 30000 for communication between AppManager and NAV (NAS), you must change it in the configuration file. Open the file and locate the line *<add key="ServerPort" value="30000" />*.
Change the Value to match the desired port and save the file.
Restart the service.

When the APPMANLWI service is started and the NAS is recycled afterwards, it populates another configuration file, lwi.config. The details for this file are requested from NAV through the NAS. The lwi.config file contains Dynamicweb and FTP specific details.

The lwi.config file will only be correctly populated if the service is started and the NAS is restarted and NAV has been correctly configured.

Do not change settings directly in the lwi.config file, as it is populated from NAV on service start. Fill in the correct setup forms in NAV instead.

## 2.2  NORRIQ Communication Control

Go to the NComm directory and start Setup.exe. Installation is very simple; it's a matter of specifying a directory name.

Default, the installation will suggest (if available):
64 bit: C:\Program Files (x86)\NORRIQ\NORRIQ AppMan Comm
32 bit: C:\Program Files\NORRIQ\NORRIQ AppMan Comm

Not changing the suggested paths, will ease problem solving at a later stage.

The Communication Control will be installed as a Common Control available to NAV.

# 3 Core functionality

The main purpose of NORRIQ lwi for Dynamicweb is to make webshop maintenance as smooth as possible, leveraging existing information and business logic from Dynamics NAV onto the web.
In addition to data maintenance, the webshop should reflect customer specific prices as defined in NAV where relevant, including quantity, line and invoice discounts. This is done through live requests from eCommerce to NAV.

Data maintenance is handled via export/import of XML files, generated from NAV. Each day, at a predefined time, a NAS will initiate a full export. This export contains information necessary to populate a webshop in Dynamicweb eCommerce. Some of the information comes from existing NAV data (item information) while other is taken from the support tables installed with N-lwi, e.g. webshop categories and users.

The export does not contain detailed information about pricing – only a "suggested retail price" is included, taken from the "Unit Price" field in the item card.

When the NAS have completed generating the export file, it is saved to a local file folder or share. The N-lwi Manager checks the folder for export jobs. If export files are present, the Manager will contact Dynamicweb for a pipeline execution list prior to transferring the export file to Dynamicweb using FTP. After the file is transferred successfully, the import activities from the execution list are run through a pipeline runner on Dynamicweb to populate eCommerce.

**Important**: If FTP transfer of the export file fails, the pipeline runner will not be activated.

With a running shop, thing starts to get a bit more complex. One of the goals is to be able to show "live" prices when a customer logs into the website. Since it is possible to define customer prices in a large number of ways in NAV, it would be next to impossible to export a price matrix containing this information. Things get even more complicated if the NAV system has been modified in relation to the order/pricing process (and usually most installations have!), that would require custom modules to be written to handle that logic from Dynamicweb.

The live integration part of N-Lwi requests prices from NAV in the customer context of the logged in webshop user. This is explained later in this documentation.

# 4 Implementation NAV objects

Before installing the NORRIQ lwi object package to NAV, be sure that granule 6,072,190 is added to the license. There are no restrictions to the license that prevents you from modifying any of the objects within the addon.

N-lwi contains a number of table and forms that are used to maintain the metadata needed to run the webshop. In addition, there are also a number of code units to handle the interaction with the webshop.

A design goal for NORRIQ lwi is to make as few changes to standard objects within NAV as possible and we accomplished that to a wide extend. All the "working parts" are kept with objects in the addon but since N-lwi extends and re-use existing information from NAV, a few standard objects has extensions attached to them.

## 4.1 Changes to standard tables

Here are a brief summary of the changes to standard tables. For more details, please refer to the objects.

### 4.1.1 Table 18 – Customer

Added code to OnDelete

| Field No. | Field Name | Data Type | Length |
|-----------|-----------|-----------|--------|
| 6072186 | Webshop link | Code | 20 |

### 4.1.2 Table 27 – Item

Added code to OnDelete

| Field No. | Field Name | Data Type | Length |
|-----------|-----------|-----------|--------|
| 6072183 | Show on Web | Option | |
| 6072184 | Featured on web | Boolean | |
| 6072185 | Web visibility | Option | |

### 4.1.3 Table 36 – Sales Header

Changed code in "No." – OnValidate

| Field No. | Field Name | Data Type | Length |
|-----------|-----------|-----------|--------|
| 6072183 | N-lwi Order | Boolean | |
| 6072184 | N-lwi Payment ID | Text | 40 |

### 4.1.4 Table 37 – Sales Line

| Field No. | Field Name | Data Type | Length |
|-----------|-----------|-----------|--------|
| 6072183 | N-lwi Identifier | Text | 80 |
| 6072184 | N-lwi Price Calc | Boolean | |

### 4.1.5 Table 118 – Sales Invoice Header

| Field No. | Field Name | Data Type | Length |
|-----------|------------|-----------|--------|
| 6072183 | N-lwi Order | Boolean | |
| 6072184 | N-lwi Payment ID | Text | 40 |

## 4.2 Changes to standard Codeunit

### 4.2.1 Codeunit 1 – ApplicationManagement

Handling of two parameters to start N-lwi codeunits via NAS goes into the NASHandler function.

    'LWI'              : CODEUNIT.RUN(CODEUNIT::"N-lwi Comm");
    'LWIEXPORT'        : CODEUNIT.RUN(CODEUNIT::"N-lwi Export");

Code example:

```
IF CGNASStartedinLoop = FALSE THEN
   CASE Parameter OF
   // N-LWI start -->
    'LWI'      : CODEUNIT.RUN(CODEUNIT::"N-lwi Comm");
    'LWIEXPORT'  : CODEUNIT.RUN(CODEUNIT::"N-lwi Export");
   // N-LWI end <--
    'OSYNCH','JOBQUEUE':
     BEGIN
       IF NOT JobQueueSetup.GET THEN BEGIN
        JobQueueSetup.INIT;
        JobQueueSetup.INSERT;
       END;
       IF NOT JobQueueSetup."Job Queue Active" THEN BEGIN
        JobQueueSetup.VALIDATE("Job Queue Active",TRUE);
        JobQueueSetup.MODIFY;
       END;
       CODEUNIT.RUN(CODEUNIT::"Job Queue Dispacher");
     END;
   END;
```

## 4.3 NORRIQ lwi – Codeunits

Below is a description of the individual codeunits within the N-lwi Addon.

### 4.3.1 Codeunit 6072183 – N-lwi Comm

Responsible for all communication with the NORRIQ lwi AppManager.
Normally you should not modify this codeunit.

### 4.3.2 Codeunit 6072184 – N-lwi Export

All metadata export is handled from this code unit. Data is exported to an XML file that the NORRIQ-lwi AppManager picks up and import to Dynamicweb eCommerce.

Export can be run in two modes – Full and Update. Full will export all data and are typically run sometime during nighttime to avoid interruption of daily usage. Update will only export resent updates. Currently, only updates to Accounts are supported in Update-mode.

You would modify this codeunit either to export new kind of metadata or to change existing. A common task is to export additional fields that the customer has added to the Item table, this is done via Custom-Field XML nodes in the InsertItem function.

### 4.3.3  Codeunit 6072185 – N-Iwi Dispatch

Handles incoming requests and dispatch the request to a proper code unit.
Normally you should not modify this code unit.

### 4.3.4  Codeunit 6072186 – N-Iwi Util

A number of functions called from other code units and tables.
Normally you should not modify this code unit.

### 4.3.5  Codeunit 6072187 – N-Iwi Order

All functionality related to the Order process in Dynamicweb eCommerce.
Normally you should not modify this code unit.

**Function GetItemPrice** is called whenever eCommerce need sales prices for a specific customer. To re-use existing functionality in NAV, this is done by creating a temporary sales order with the requested items. It can be called in two modes – *item list* and *shopping basket*. In list-mode, it needs to return a sales price for a given item, while in basket-mode, in addition to finding the right price it also needs to calc all applicable discounts.

A common problem when implementing N-Iwi on existing NAV solutions are changes to standard order functionality that prevents a temporary sales line to be added via the NAS. This could be various popups or the use of Salesheader. Get on SalesLine records (instead of using GetSalesHeader).
As NAV does not have a property on a record to tell you if it is a temporary one, we have added a field to Sales Line, N-Iwi Price Calc, that is set to TRUE when the temporary lines are created. This makes it possible in your own code to take proper action when functionality is executed on a temporary Sales Line during price calculation.

**Function CreateOrder** is called when an order has been placed on the webshop. Data is written to web-order tables before calling the code unit "N-Iwi Create Order". If it is not possible to create a sales order based on the data, it will be kept in the weborder tables, otherwise it will be deleted.

**Function ChangePassword** can be called from a Dynamicweb custom module, in order to provide a change password option to a customer logged in to the webshop. The function will call NAV to change the password – and NAV will immediately after update Dynamicweb extranet with the new password information for the user.

**Function CreateCustomer** can be called from a Dynamicweb custom module, in order to create a new customer in NAV through the webshop order process.

### 4.3.6  Codeunit 6072188 – N-lwi Create Order

This code unit is responsible for creating the actual sales order.
Normally you should not modify this code unit.

### 4.3.7  Codeunit 6076800 – N-lwi Calculate Freight

This is an empty skeleton that makes it easy to implement freight handling.

### 4.3.8  Codeunit 6072190 – N-lwi Customer Center – Add on

The N-lwi Customer Center module services the N-lwi Customer Center module on Dynamicweb. The module provides access to "open orders" and "posted invoices" for logged in customers.

Though the objects are present in the standard N-lwi installation, Customer Center is not activated and is an add-on for the N-lwi solution. Contact Dynamicweb for purchase information.

# 5 Setting up NAV

Settings for the Dynamicweb integration are found two different locations in the navigation pane. Basic system setup is found in the Administration group
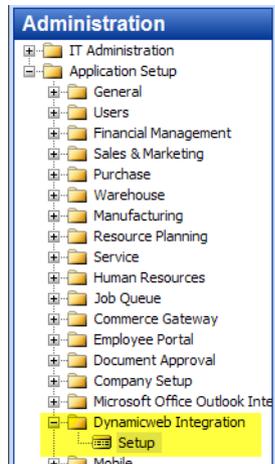


Webshop-related settings are found in the Sales group.
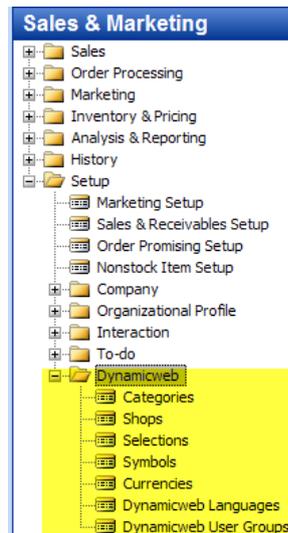


## 5.1 Dynamicweb relations

There are a number of tables that needs to match Dynamicweb eCommerce settings. If the content of these tables does not match Dynamicweb, there's a risk that Dynamicweb are unable to import data from NAV.

### 5.1.1 Languages

For each language in eCommerce, you need to make a matching record in the Language configuration table. You must specify the NAV language code that corresponds to the language in eCommerce and if the webshop runs in B2C mode with live prices from NAV, you need to specify the customer that should be used to calculate the prices. LANG1 and LANG2 ID's are looked up in Dynamicweb and entered into NAV.
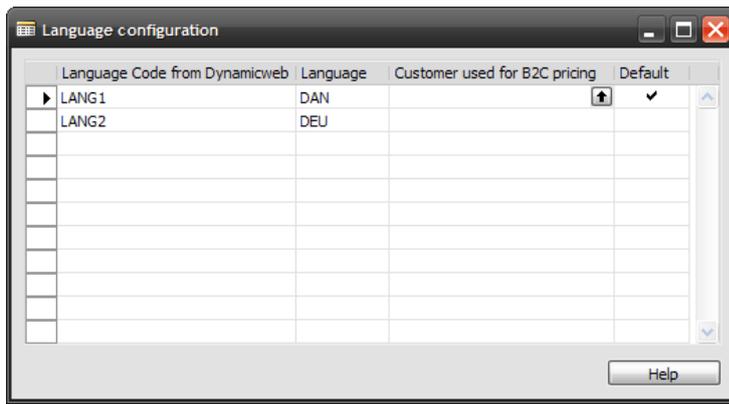
## 5.1.2 Currencies

You need to add the currencies that are used in Dynamicweb eCommerce. Since Dynamicweb assumes 3 character ISO codes for currency, you need to specify a Short Code in case any of the currencies in NAV is more than 3 characters.
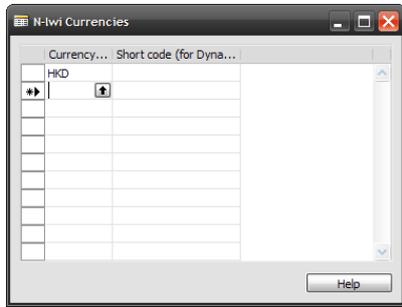


## 5.1.3 User groups

This needs to match the user groups created in eCommerce. When adding extranet users to Dynamicweb, they get assigned to a group based on information in this table. The ID must correspond with the group ID on Dynamicweb.
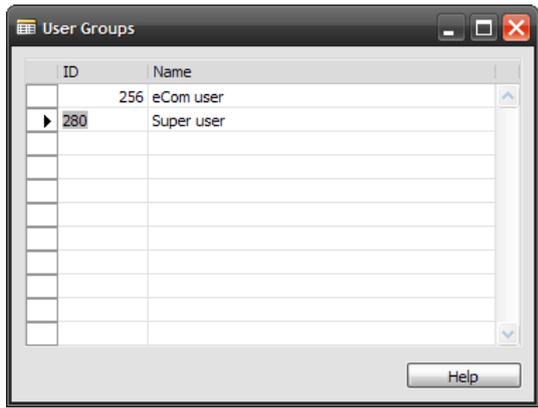
## 5.2  Integration setup

This is the basic setup for the Dynamicweb integration.



The setup form is accessed through the Administration menu:
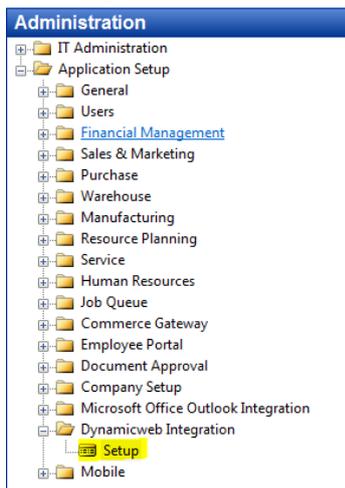


| Property | Description |
| --- | --- |
| Address / port to AppManager | The address (ip) that the NAS uses to communicate with NORRIQ AppManager. |
| Port to AppManager/Webservice Port | Communication port to the NORRIQ AppManager, and the Web Service Port for the eCommerce communication. If you change the port to anything else than the default, be sure to change it in the AppManager configuration and lwi configuration as well. |
| Company ID | This ID is a unique identification of the company. If you have multiple webshops connected to different companies, be sure that they have different IDs. |
| Create order as.. | You can choose whether orders from web should be created as sales orders or as quotes. |
| Templates for customer creation | When new customers are created from the web, this is the template used as a base of the new customer. |

| Time for export | The time of day that the export should run. Specify a time with limited activity on the webshop if possible. |
|---|---|
| Update webshop now | Check this to trig an immediate full update of the web-shops. You might use this after a lot of changes to categories, products etc. |
| Default group for webshop users | Specify which Dynamicweb user group accounts should belong to. |
| Default group for Related Items | Specify which Dynamicweb group should be used for Related Items |

## 5.3 Webshops
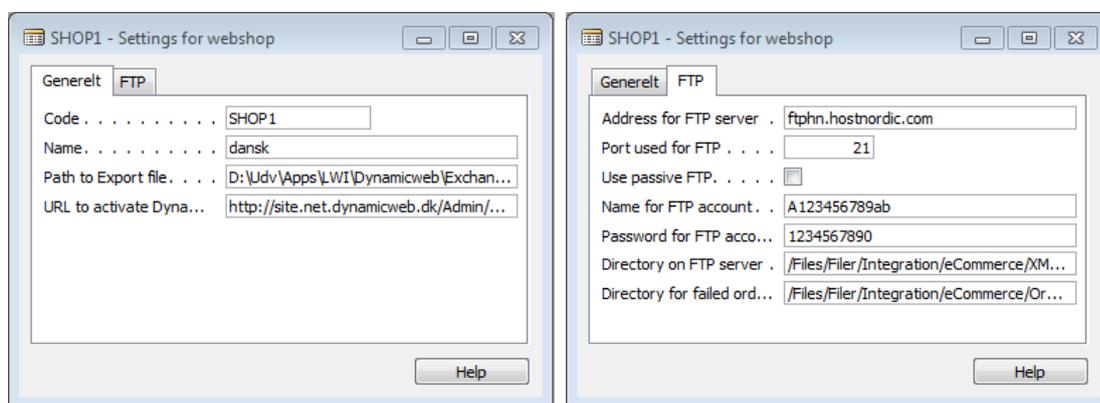


The shop code SHOP1 is the shop id from the created shop on Dynamicweb. The procedure is to create the shop in Dynamicweb first, and then reference the shop id(SHOP1) in NAV second.

**Important**: It is vital that the paths specified ends with a trailing backslash for local paths and forward slash for http paths.

Example of path to "URL to activate Dynamicweb Import":
http://site.net.dynamicweb.dk/Admin/Public/WebServices/Integration/PipelineRunner.aspx?pipeline=/Files/Filer/Integration/Ecommerce/

It is possible to maintain multiple shops from within the same company. Each shop must be set up in Dynamicweb eCommerce before activated from NAV.

The path for the export file is usually something like:
D:\NLWI\Export\

The Dynamicweb activate url is usually:
http://site.net.dynamicweb.dk/Admin/Public/WebServices/Integration/PipelineRunner.aspx?pipeline=/Files/Filer/Integration/Ecommerce/

The directory on FTP server is usually(*):
/Files/Filer/Integration/eCommerce/XML/SHOP1/

The directory for failed orders is usually(*):
/Files/Filer/Integration/eCommerce/OrderFailover/SHOP1/

(*) Depends on what folder is the root folder for the FTP account.

Each shop should have a unique Export Path and unique FTP path. These settings are sent from NAV to AppManager when the NAS connects to it, so if these settings are changed for a running system, you need to restart the NAS.
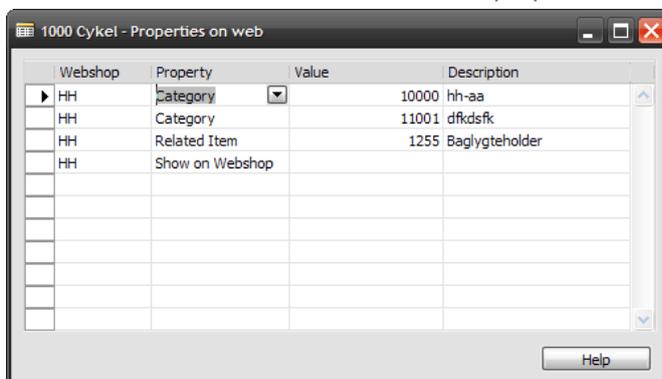
## 5.4  Categories
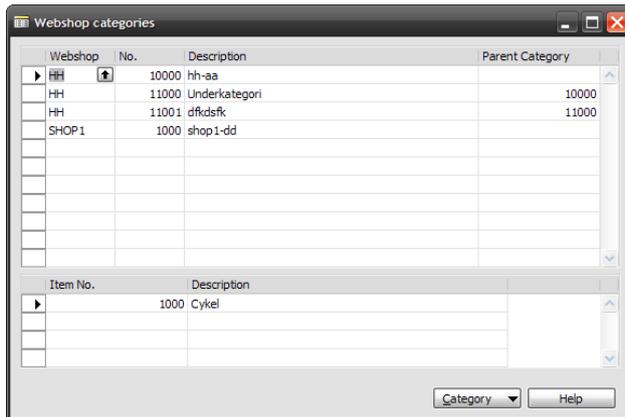


Categories are fundamental for navigation in a webshop. They are a hierarchical structure that can have as many levels as needed. You can have different categories for different shops.

It is possible to add items to the categories in the sub form in the "Webshop categories" window as well as adding an item to a category through the Item card.

On the webshop, categories are listed in order on No., so by using large steps for the numbers, it would be possible to insert new categories at a later time.

### 5.4.1  Specifying web properties for an item

There are a number of properties that affect the appearance of the item on web. To open the Web properties form, choose the menu Item / Web properties.

Properties are assigned individual per webshop.

| Property | Description |
|---|---|
| Category | Show the item in this category in the shop-navigation.<br>An item can be in multiple categories. |
| Related item | Specify another item as a related item to this one |
| Show on webshop | If the item has "Selected" in the Show on webshop-field, this property will specify what shop the item are shown on. |
| Symbol | Specify graphic symbol on an item, e.g. ecological items |

## 5.5  Variants

Items with variants will be exported with the corresponding variant codes on the items for one dimension variants. Multiple dimension variants are not supported by default in N-lwi.

### 5.5.1  Related items with variants issue

The Dynamicweb eCommerce portal does not support related items with a specific variant code.

## 5.6  Selections

Selections can be set up in NAV under the setup group. In the first form, the selection fields, code and name, are defined. Use [Shift] + F5 to add items to the selection.
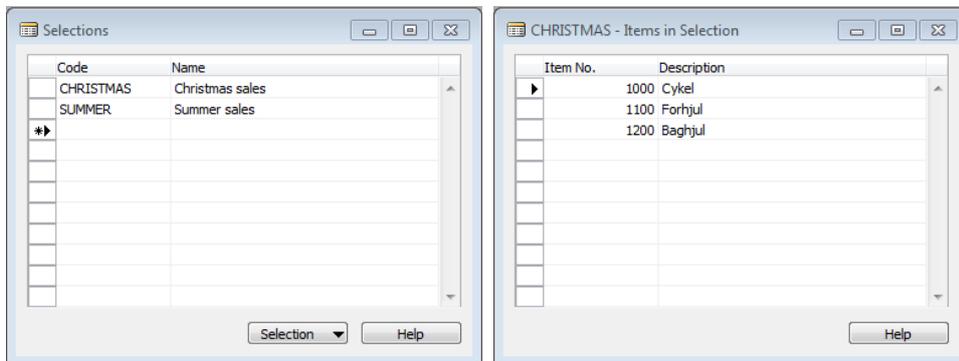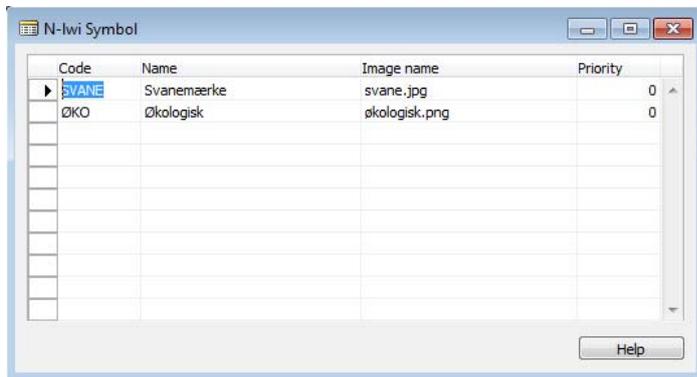


On the item card, the property "Visibility on webshop" can be set to weather the item should be public or private. Private selections are a way to allow certain customers to have access to certain items not accessible to the ordinary user. The selections are meant to be used as an extension of the total number of items visible to a customer.

On the customer card you can use the customer menu, to select which selections can be accessed by the current customer.
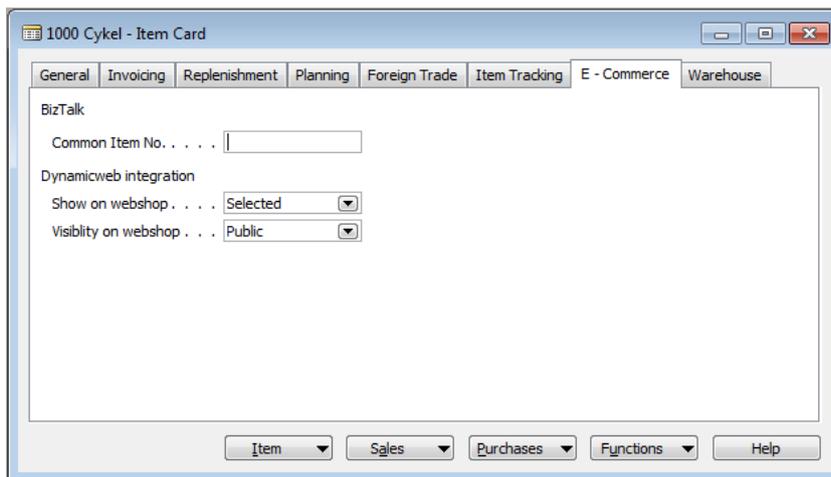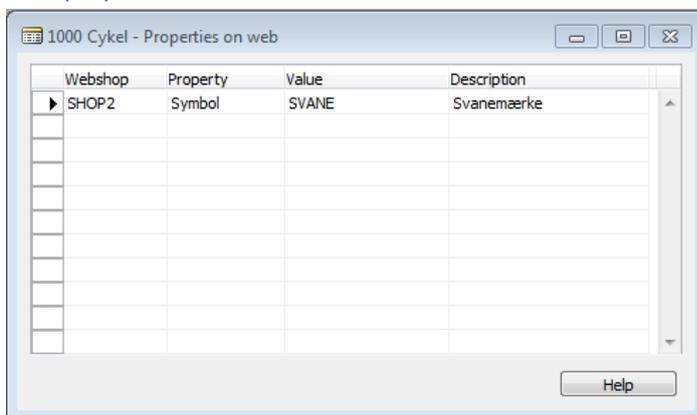
## 5.7  Symbols

Maintaining item symbols, e.g. ecological branding, can be done from the N-Lwi Setup form Symbols. The table maintains the symbol code, which is added to items from the web properties form, symbol description, symbol image file name and priority (sorting priority).



Web properties form from the item card:



More than one symbol can easily be added to each Item. In the export, a "symbols" node is added to each item, if "symbols" properties have been added to the item in NAV. If more than one "symbols" property has been added to an item, the "symbols" node in the export will be comma separated.

## 5.8  Setting up customers for web use

Setting up a customer to use eCommerce is as simple as going to the customer card, navigate to the E-commerce tab and assign a shop to the customer.
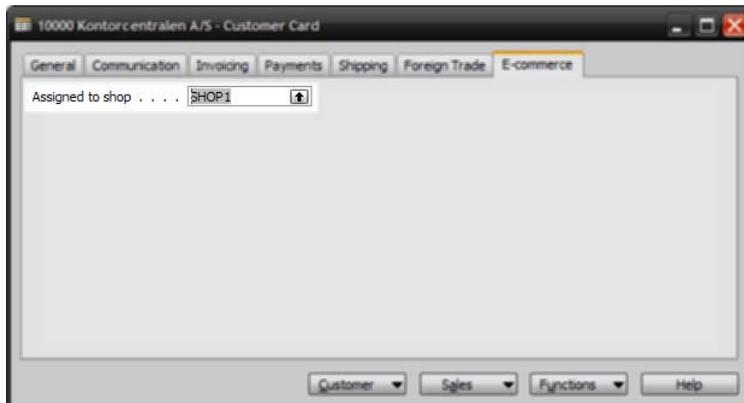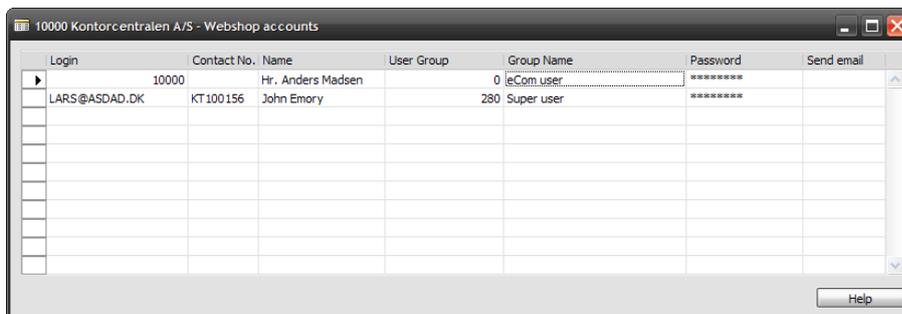


When the customer is assigned to a shop, a default eCommerce account is created with the customer no. as login. It is possible to add multiple logins to the same customer by opening the Webshop accounts form (menu Customer / Webshop accounts)
Each account needs to have a unique id and could optionally be connected to a Contact (in the Marketing module).

When accounts are created, a notification is sent to Dynamicweb and an email is send to the user with username and password. It is possible to resend the email by checking the "Send email" field.

In case the user has forgotten his password, and for some reason resending it is not an option, it is possible to assign a new password to the customer by entering the Password column and click the 3-bot button (assist button)
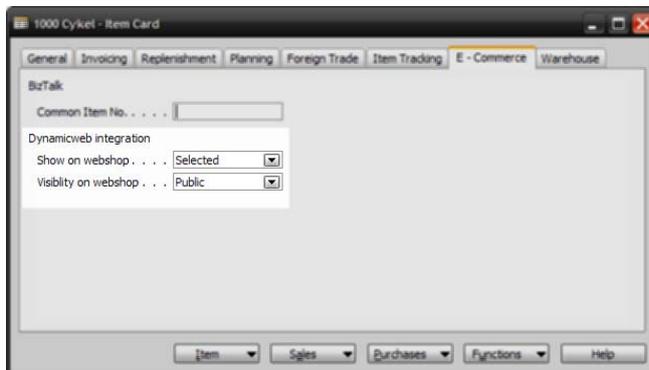
## 5.9  Sending items to web

Populating items from NAV to Dynamicweb eCommerce is a matter of setting a few properties on the item.



| Property | Description |
|---|---|
| Show on webshop | Values: None, All, Selected<br>If you choose All, the item will be exported to all webshop.<br>If the item should only be visible on selected web-shops, choose Selected and use the Web proper-ties of the item to specify which shops. |
| Visibility on webshop | Public means that this item is visible to all. Selection indicates that it is only visible to custom-ers that have it in their selection list.<br><br>This feature is often used with private label prod-ucts. |

**Important:** If property "Show on Webshop" is set to value "Selected", the web property of the item must have an empty value in field "Value".

This item will export:



This item will NOT export:

## 5.10    Customer Center – Add on

The Customer Center module services web requests for "open orders" and "posted invoices". In NAV limits for the size of the lookup result can be maintained. Adjusting settings is done on the setup form. See chapter 5.2 for access information.
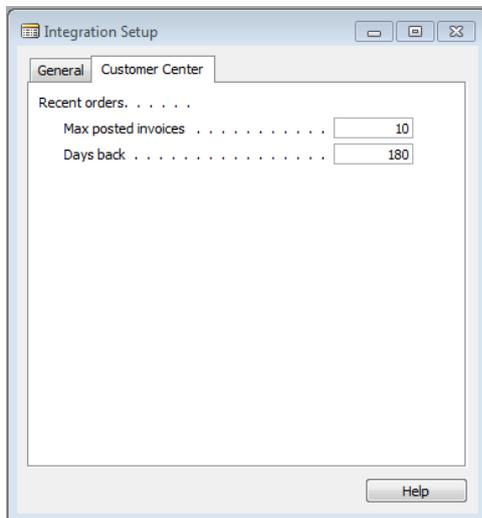
# 6 Error tracing

It is possible to track orders that, for one reason or another, fails to complete in NAV. Failed orders are stored in tables with corresponding error messages. The failed orders can be accessed through the menu: Sales & Marketing – Sales – Dynamicweb – Failed web orders.



In the error message field, the cause of order creation can be read. After correcting the error, the order can be created by hitting F11 or using the web order menu.

# 7 Export data check

On export, a setup data check is initiated in NAV to ensure the export file will be accepted and imported for a well functioning integration on the Dynamicweb eCommerce portal.

The routine checks:
- Setup form: Default user group. Must be different from 0 or "" (Error 01).
- Setup form: Default related group. Must be different from "" (Error 02).
- Currencies: Must have at least one defined currency (Error 03).
- Shops: Must have at least one defined shop (Error 04).
- Language: Must have at least one defined language (Error 05).
- User group: Must have at least one defined destination user group (Error 06).

Errors are written to "Sales & Marketing" – Sales – Dynamicweb – Error Log.

# 8 N-lwi live calls

With N-Lwi, the Dynamicweb eCommerce solution is extended with code libraries, providing certain live calls to NAV. Regardless of the type of call, the N-Lwi Manager and NAV will return a status reply, with a status number and status message depending on request outcome.

By standard, the following return codes to the web from NAV are:

0:      The call to NAV was handled as expected with no errors.
-1:     The call went through to NAV which failed in execution of request.
-2:     The call did not go through to NAV. No connection. This error is likely to appear if the NAS or NAV Database services are stopped or have malfunctioned.

# 9 Installation checklist

Below are a number of checklists for each element in the setup. Note that depending on the chosen security setup, communication server and NAV server might be the same physical box.

## 9.1 Backend communication server

| Description | See also | Done! |
|---|---|---|
| Install NORRIQ lwi AppManager | 2.1 | |
| If needed, modify settings to specify a port other than the default (33000) | 5.2 | |
| Ensure that traffic from the internet on the chosen port is directed to this server | Administrator | |
| Test connection local from AppManager server: http://localhost:33000 (or corresponding port) | | |
| Test connection from eCommerce server: http://IpOfManagerServer:33000 (or corresponding port) | | |
| Firewall is often open on all ports from internal net to Internet, but check anyway that traffic is allowed on communication and ftp ports if communication fails. | Administrator | |

## 9.2 Backend NAV server

| Description | See also | Done! |
|---|---|---|
| Install the NORRIQ Communication Component | 2.2 | |
| If needed, install one or more NAV Application Servers (NAS) | w1w1atas.pdf on the NAV installation CD | |
| Configure the NAS to start with the LWIEXPORT and LWI parameters.<br><br>Beware that it is not possible to server live request when the export-process is running. | 1.2.1 | |
| Optionally configure one NAS to start with the LWI parameter and another with LWIEXPORT. | 1.2.1 | |

## 9.3  Configuring NAV

| Description | See also | Done! |
|---|---|---|
| Fill Integration Setup | 5.2 | |
| Add Languages | 5.1.1 | |
| Add Dynamicweb User Groups | 5.1.3 | |
| Add currencies | 5.1.2 | |
| Add the required shops | 5.3 | |
| Add categories | 5.4 | |
| Setup items for web | 0 | |
| Setup customers for web | 0 | |
| Optionally, force an update of the shop | 5.2 | |