



LS Retail – Training Manual

Version 5.05

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1 Introduction

1.1 Basic Information

This introduction contains prerequisites and useful information about the LS Retail training course.

This LS Retail course is mainly an instructor-led training course but assists as well on self-learning. The chapters contain instructional text, which introduces an area of the program and examples of how this area works.

1.1.1 Target Audience

The course is intended for people working at Microsoft Dynamics NAV Partners who want to set up and configure LS Retail, and for those who want to be able to provide support for the application. **This document is not intended for end-user training and partners are not allowed to give this documentation without written permission from LS Retail.**

1.1.2 Course Prerequisites

Participants need to have a good basic knowledge of Microsoft Dynamics NAV. Before you begin the course, you must have Microsoft Dynamics NAV, Version 5, installed. The setup of Replication and the Data Director may require the installation of a Microsoft Dynamics NAV database server. You should know how to work with Microsoft Windows Services and view events from the Event Log.

For the data distribution and replication part of the course you need to have solid understanding of the TCP/IP networking protocol. You need to know how IP addresses can be assigned and know how to use tools such as Ping and Tracert. You need to be familiar with how to assign service names to port numbers using the Hosts and Services files.

1.1.3 Demonstration Data

For certain chapters, especially the POS Management chapter, it is recommended to use the demonstration database in the 5.05 version of LS Retail.

1.1.4 About the Demonstration Data

All exercises are based on a fictitious company, CRONUS International Ltd, which started in May 2005 with two food markets, two fashion stores, one electric store, and a restaurant combined with pizzeria and call center.

The CRONUS International Ltd. Company is divided into five stores a restaurant and a head office. The stores are called CRONUS Super Market South, CRONUS Food Market North, CRONUS Fashion Store North, CRONUS Fashion Store South, CRONUS Electrical Store South and the CRONUS Restaurant. There are several POS Terminals and Cashiers per store.

Item Divisions are Food and NonFood. The item categories are: Audio/HiFi, Beverages, Clothing, Dairy Products, Drinks, Fruit and Vegetables, Home Appliances, Meals and Stationary. Each item category is divided into several product groups.

1.1.5 Dates

The dates shown in the screen shots have the European format. Therefore, if you use a different date format, there will be differences between the solutions in the training material and your solutions.

The demo data is designed for the work date 15.08.07. It is important that this date is used when performing the activities.

1.1.6 License Information

If you are using the demo-database, you need your Microsoft Dynamics NAV developer license to run the examples in this course.

1.1.7 Further Information

For further information about the LS Retail training course, refer to: support@LSRetail.com

1.2 Overview of Functionality

Following is a listing of the main functionality available in LS Retail.

1.3 Items

Items are the fundamental units in the LS Retail system. An item in LS Retail is actually an item from the Microsoft Dynamics NAV standard application, but with extensions made for the retail industry. In addition to the Navision standards items, LS Retail includes numerous features that concern item sales at the point of sale. Following is a list of the main features:

1.3.1 Barcodes and Variants

Each item can have any number of barcodes linked to it. It is possible to link the barcodes directly to the item or let them represent different units of measure for the same item, such as cases or packs. LS Retail also supports barcodes where the quantity (weight) or the price of the item is included in the barcode. It is also possible to link a barcode to a specific variation of the item, commonly referred to as Variants.

Variants are a part of the Microsoft Dynamics NAV standard application. In LS Retail the Variants have been extended so that they can have up to six different variant dimensions. The Variant creation process has also been modified in LS Retail, since Variants can be created automatically based on Variant Frameworks. It is also possible to create Barcodes representing the Variants at the same time, by assigning a Barcode Mask to the item.

The system can make sure that barcodes conform to the EAN standard.

1.3.2 Item Search

LS Retail has a special Item Search Window that allows the user to quickly search for items. Searches can be based on full or partial values of fields. The searchable fields consist of:

- Item Number
- Description
- Barcode
- Special Group
- Division
- Item Category
- Product Group
- Season
- Vendor Number
- Vendor Item Number
- Attribute Code and Attribute Value

1.3.3 Item Hierarchy

LS Retail has a five-level static item hierarchy:

1. **Item Division (called Division in LS Retail)** - the most general grouping of items. This functionality is only used for 'Open to Buy'.
2. **Item Categories** – categories within an Item Division.
3. **Product Groups** – groups within an Item Category
4. **Items**
5. **Variants**– used to represent variations such as color and size within the item.

Each item can belong to one Item Category and one Product Group. This relationship makes it possible to analyze sales on both group and category level. This also makes it possible to manage certain attributes common to all items within a group by changing the attribute at

group level and then copying the change to all items within the group. It is possible to control a number of item related attributes this way, which in turn simplifies the maintenance of the item file.

1.3.4 Item Distribution

LS Retail includes a functionality to control the ordering process. This is configured via Item Distribution, which in turn is configured at the store group level. Each item can have many item distribution lines. The stores select the appropriate distribution based on the priority of the store groups.

The two main functions of Item distribution are to specify:

- Where the item should be distributed
- To control the ordering process for the item

The ordering parameters consist of:

- Specifying if the item is active, on hold, not purchased again, out of stock, or blocked for sale.
- If ordering is by store or central
- If the ordering is manual or automatic
- The number of shelf facings for the item

1.4 Product Grouping

Grouping retail items together is a very important tool for making the handling of items more efficient.

1.4.1 Item Divisions

Item Divisions (called Divisions in LS Retail) represent the most general grouping of items but are only used for 'Open to Buy' and not for statistics, analyses etc.

1.4.2 Item Categories

Item categories represent the next general grouping of items, making it possible to examine sales statistics from a broader perspective.

1.4.3 Product Groups

In LS Retail, product groups provide default posting setup groups that the system assigns to the item when you choose a product group for it. Product groups can control the barcode construction and variant groups for the retail items included in each group. They can also make the process of locating items in sections and shelves easier and control the location distribution for the items. Furthermore, discount offers can be created for product groups, item variants as well as retail items.

1.4.4 Seasons

Seasons are used for the Merchandizing Module within LS Retail. On the Retail Item Search form you can filter on the seasons. It is possible to link Special Groups to Seasons.

1.4.5 Events

Events can group items for sales promotional purposes. A typical event would be an end of the year sales promotion. The promotions and discount offers have the option to get all the items which belong to an event, making the creation of the offer much easier and faster.

1.4.6 Special Groups

It is possible to group items, either for the retail item search or the dispense printing in LS Hospitality. Each item can be in more than one special group. This can also be useful for various statistical purposes. The promotions and discount offers have the option to get all the

items that belong to a special group making the creation of the offer much easier and faster. A special group can be linked to an event.

1.4.7 Item Attributes

The main purpose of Item Attributes is to give additional attributes to an item which could come from other NAV tables. It is a kind of alternative to adding new fields to the item table. Item Attributes can be used as a search filter on the Retail Item Search form.

1.4.8 Item Families

Item Families are a basic item grouping mechanism to give the retailer a possibility for additional item grouping.

1.5 Pricing

1.5.1 Prices

The pricing mechanism in LS Retail builds on the price structure in Microsoft Dynamics NAV. Items can have multiple prices that are valid on different dates. Prices can be based on different Units of Measure or Variants and can be in different currencies.

Different stores can have different prices. This applies to customers as well, except that customers cannot have a special price per store. The application can compare store prices (including special offers) with customer prices in order to find the lower price for the customer at the POS.

Prices can be based on Retail Price Groups, which in turn can have different VAT Posting Groups. This makes it possible to have different prices that are valid for customers in different VAT categories. This is useful in duty-free retailing or when working with multinational companies.

1.6 Special Offers

LS Retail supports four types of offers:

- Deal
- Promotion
- Discount Offer
- Multibuy Discount
- Mix & Match

A Deal is a special promotion with items and a selection of items from a POS PLU menu. The Deal has a special Deal price. The Deal must be selected manually from a POS button. If items that are in a Deal are selected manually – that is not by the Deal – on the POS, this will not trigger the Deal.

Promotions and Discount Offers work similarly. The main difference is that Promotions are regarded as periodic price changes and build the standard price while the Discount Offer will work as a discount at the POS. This means that a Discount Offer can be triggered on top of a Promotion. Both offers can be based on specific Price Groups or Currencies. An item can be in only one active promotion at the time.

As the name suggests, a Multibuy Discount offer gives different levels of discounts based on the number of Items the customer buys. In other respects it works in ways similar to the Discount Offer.

The last offer type is Mix & Match. It is a more versatile type of offer since it can be triggered by a combination of factors, such as Items, Product Groups and Variants. Discounts can be in the form of a deal price, a discount amount, a discount percentage, least expensive or be specified for individual Mix & Match lines.

Discount Offers, Multibuy and Mix & Match are called Periodic Offers. Items are not restricted of being included in just one periodic offer at a time, since periodic offers can be given different priorities. The offer with the lowest priority value will always be triggered first and the offer with the highest priority value is triggered last.

1.7 Retail Campaigns

By using Retail Campaigns a retailer can define a set of offers – Deals, Promotions, Discount Offers, Multibuy and Mix & Match – that are valid within the same validation period frame. A typical example would be an advertisement newsletter containing different pages. The offer can be assigned to a specific page in the newsletter and so it is possible to see the result of the retail campaign as a whole or by specific pages in the newsletter. Furthermore, it is possible to assign specific documents – transfer orders and purchase orders – to the campaign.

1.8 Coupons

Coupons are a merchandizing functionality of LS Retail.

A return coupon is a coupon that is issued at the POS in order to encourage the customer to return to the store. The coupon is usually in the form of some sort of discount or payment. These coupons can be triggered at the end of sale.

Manufacturer coupons are issued by the manufacturer of a product in order to increase sales and product awareness. These coupons are commonly printed on container boxes for the products or in newspapers and magazines. Once accepted, the manufacturer owes the store the coupon amount. Because of this, these coupons do not affect the profit of the sold item.

1.9 Customer Loyalty and Gift Registration

1.9.1 Customer Loyalty

The customer loyalty functions found in LS Retail allow you to assign loyalty points to your contacts based on their purchases. The points earned can then be used as payment on the POS.

The loyalty point calculation can be based on a number of rules that are applied to the items the customer buys. Rules can be based on:

- Items, Item Categories and Product Groups
- Promotions and Periodic Discounts
- Tender Types

The calculation rules can have starting and ending dates as well as quantity limits. The rules can be based on the total amount or the number of items bought. It is also possible to assign a fixed number of points per rule.

The loyalty module supports magnetic cards, which makes it an easy option to issue loyalty cards to customers.

In LS Retail 5.05 the customer loyalty functions are available in an online installation and by using the transaction server.

1.9.2 Gift Registration

Gift registration allows customers to register items they would like to receive as gifts, for example for a wedding. Each gift registration gets a unique number and is assigned to a person. This makes it easy to keep track of which gifts a person has requested.

Once the gifts have been registered it is possible to assign discounts to each gift and also the requested quantity. The system keeps track of which gifts have been bought in order to make sure that gifts are not bought many times.

In LS Retail 5.05 gift registration is only available in an online installation.

1.10 Infocodes and other features

1.10.1 Infocodes

Retail items can be assigned multiple infocodes, an important tool to receive additional information about the item sale or return. The system prompts the operator at the POS terminal for an input that can be validated against the customer file, the item file, as numeric, as belonging to a predefined code list, and so on. Infocodes can also be used with predefined tender types, customers, income/expense accounts and specific POS events.

1.10.2 Label Printing

You can assign a shelf label or an item label report to a retail item. For each store, you can print shelf labels and item labels for chosen items or only for items on which label information has changed. LS Retail provides basic label reports but you can change them or create entirely new ones to fit your needs better.

1.10.3 Linked Items

Retail items can be linked to other retail items, for example bottle deposits that are linked to drinks. This feature is only available on the POS but not in Navision Standard sales.

1.11 Stores

Stores are the basis for using POS terminals. Besides having a unique distribution location, you must specify a unique location in the standard Microsoft Dynamics NAV system. You can also assign a department to a store. For each store, you choose its closing method, its statement method, choose a G/L Account for rounding and set limits for allowing posting.

1.11.1 Tender Types

LS Retail allows you to define and configure functionality for the tender types in each store. You enter details for handling amount, change, receipt printing, posting and so on, depending on tender types such as cash, checks, accounts and foreign currency.

1.11.2 Income and Expense Accounts

You can link store income with income accounts and store expenses with expense accounts. You assign G/L accounts to these accounts for posting and enter POS terminal receipt texts.

1.11.3 Sections and Shelves

You can create a physical structure for each store, based on sections and shelves. On store level, retail items can be assigned to these sections and shelves. Sales and profit statistics are shown for one section and shelf per item. This feature does not support store optimization and inventory by section or shelf.

1.12 POS Terminals

POS Terminals represent the front end of your store. You can control various aspects of their functionality and default settings from LS Retail, such as the handling of return transactions, login/logout procedures, texts that will be printed on receipts and are displayed at the POS terminals.

1.12.1 POS Profiles

LS Retail works with four types of POS profiles: the Functionality profile, the Hardware profile, the Menu profile and the Interface profile. The functionality profile contains functional settings like the rounding of numbers or functions of the transaction server. The hardware profile contains the OPOS driver link for POS peripherals as well as the keyboard mapping. The

menu profile defines the menus setup. The Interface profile defines the look of the Interface, such as what to show/hide, colors, height/width and so on.

1.13 Staff

LS Retail keeps records of the members of the staff, such as ID number, address and phone number. You assign each member a type of authorization for various actions at the POS terminals, such as voiding transactions, performing tender declaration, overriding price, and maximum discount to give. A staff member can be assigned to its default store and to additional stores. The staff can act as a cashier or as a sales person on the POS terminal.

1.14 Customer

LS Retail has the option to use parts of the standard Microsoft Dynamics NAV Customer table with an extension relating to POS terminal operations like infocodes.

1.15 Currency

LS Retail allows you to control the rate of exchange for each currency on the POS terminals, currency symbols, how rounding is handled and how amounts are displayed.

1.16 Overview of Sales Statistics

LS Retail offers two kinds of statistics, one based on the POS terminal transactions, the other based on special statistics tables.

1.16.1 Transaction Statistics

LS POS writes the sales data into transaction tables. This allows statistics down to the source of information.

You can view a scrollable list of sales data for any period you select (with the possibility of viewing the transactions behind the figures) for retail items, product groups, item categories, infocodes, stores, sections, shelves, staff members and POS terminals.

1.16.2 Statistics Based on Statistics Tables

The number of transactions in the database can grow depending on the type of business involved. There are four special statistics tables in LS Retail: Item Sales, Staff, POS Terminal and Payment. If used they contain a summary of the transaction information, giving you access to certain compressed details from the transactions, even after they have been removed from the database.

1.17 Exchanging Data between Head Office, Stores and POS

In LS Retail, communication with the point of sale consists either of running the POS as a client in the stores database, replicating between store and POS or replicating between head office and POS.

1.17.1 Distribution Locations

Distribution locations are the basis for the flow of data, both between LS Retail databases and between LS Retail and POS terminals. An example of a distribution location is a head office, a store and a POS terminal. The distribution location contains information needed for replication.

1.17.2 Manual Exchange

The user can manually run replication jobs scheduled for automatic data exchange management.

1.17.3 Actions

LS Retail uses actions to keep track of which records have been changed in relevant tables. By using them you can greatly reduce the amount of data that needs to be sent to the POS

terminals or replicated between databases. An action is created every time you modify, add or delete a record in a table defined for this feature in LS Retail. The data exchange with POS terminals can be performed either on the basis of these actions or on the entire tables. Likewise, when replicating, you can choose to replicate by actions. Then, the system will only add, delete or update a record if an action for it exists.

1.17.4 Scheduler

LS Retail has a built-in scheduling mechanism that can be used to run batch jobs. The scheduling mechanism is also used to schedule transfers of data between head office and store or from store to POS terminals. These transfers can be done either with the LS Retail Replicator or the LS Retail Data Director.

The Scheduler is a flexible tool that can operate according to a number of parameters. Jobs can be scheduled to run on regular intervals.

The Scheduler can be run as a part of a Microsoft Dynamics NAV client or as a part of the Microsoft Dynamics NAV Application Server.

1.18 End of Day Procedures

The procedures that typically need to be executed at the end of the day, involve collecting and calculating transaction data, entering counted amount against the transaction amount and finally posting the data. If required, tender declaration can be run on each POS terminal.

1.18.1 Transactions

You can view all information on transactions that have been made at the POS terminals and imported into the LS Retail Back Office. Each transaction can include sales and payment entries, infocode, mix & match and tender declaration entries.

1.18.2 Pick up and Cash declaration

When the cashier ends the work for the day or for the shift, it is necessary to count the money and other countable tender types in the drawer so the system can compare it with the money that should be in the drawer.

This process is called **Cash Declaration**. It can be done at the POS or if not done at the POS, then later in the back office as part of the statement procedure.

If a part or all the money from the drawer shall be taken to bank, then the cashier can do a **Pick Up** which is called **Remove Tender** in the system. With the pick up procedure the cashier declares the amount of money and other tender type which can be picked up to be brought to the bank or kept in the safe.

1.18.3 Calculating and Posting Statements

When you create a statement and calculate it, the system marks all unmarked transactions made from and up to the date and time selected in the statement if the closing method of the store is by date. If the closing method is by shift, it marks all unmarked transactions that belong to the currently open work shift. It then sums up the transaction amounts in each tender type, and enters the result for each tender type into a statement line. It creates a line per staff member or POS terminal if the statement method is defined in such a way. It is possible to calculate the same statement repeatedly, as more transactions come in, to check on the total sales results.

1.18.4 Work Shifts

If you need to close down the POS terminals by work shift and need to make a statement per shift, you can choose a work shift closing method for your store. The closing of the store procedure ensures the correct handling of shifts, taking into consideration overlapping and continuing past midnight.

1.19 Batch Posting

The Batch Posting functionality in LS Retail allows users to place specific documents like sales or purchase orders, transfer orders and statements into a Batch Posting queue. The Batch Posting Scheduler will then run the Batch Posting.

For statements this means that together with the option to accept statements in the store the processing of statement posting can be done an easier way than with manual posting.

The store can create and calculate the statement, then do the tender declaration – if not done on the POS yet – and finally accept the statement. The headoffice can then check the statement and send it into the Batch Posting queue to be posted via the Batch Posting Scheduler.

1.20 Inventory Management

Inventory Management provides a simple method of collecting data for stock control. The processes used for these tasks are designed to be as simple as possible for the user. By creating a consistent look and feel for the user in all worksheet processes, the system ensures that the process is completed according to the process configuration. This produces more reliable data in the system as the user is always led through the process.

1.20.1 Product Distribution

The system offers the facility to determine the product range offered at the store. This narrows the store's view on the item master. For example a store that only has a range of 2000 items can only work (view, order) with these items, even though the company has 30000 items. This will simplify the view for the store and give head office more control of what is being offered at each store. Head office can then produce list of items that have not been ordered by store, according to the product distribution.

1.20.2 Worksheets

The worksheet gives the user a common look and feel for all journal stock-keeping processes. For each worksheet there is a Mask record that controls the behavior of the worksheet and worksheet lines. The worksheets work on top of standard Microsoft Dynamics NAV item journal lines and requisition lines, and the system uses worksheet lines for journals not offered by Microsoft Dynamics NAV. The worksheets are defined for specific stores. This makes it possible to define a specific configuration for each store.

The Mask record can be created by entering the type, journal name and store number or the user can go into very specific control configuration.

1.20.3 Stock Transfer

The system simplifies the usage of the Microsoft Dynamics NAV Standard Transfer Documents by organizing documents in four groups:

- Request
- Sent Requests
- To be picked
- To be received

The grouping gives the store staff a simpler view of the transfer documents pending.

1.20.4 Picking Documents

A picking document gives the functionality to pick items against a Sales Order, Purchase Return Order or Transfer Out Documents. The form will display all discrepancies between the picking document and the original document. These can be:

- Too many
- Not enough
- Not ordered

When using a radio frequency handheld terminal for picking, the system will notice the discrepancy at the time of scanning and when closing the picking the system will inform the user about the discrepancies on the handheld terminal and offer an opportunity to correct. When using a batch handheld, the user will not see the discrepancy until he imports the data to the system.

1.20.5 Receiving Documents

A receiving document gives the functionality to receive items against a Purchase Order, Sales Return Order or Transfer In Documents. The form will show the user all discrepancies between the receiving document and the original document.

1.20.6 Handheld Terminals

All processes in Inventory Management can be performed by handheld terminal. Using handheld terminals vastly increases productivity and simplifies data collection. There are three types of handheld terminal connection:

- Generic handheld terminals
- HandPoint handheld terminals
- Radio frequency handheld terminals

1.21 Reporting

1.21.1 General

LS Retail provides extensive reporting capabilities in addition to the standard Microsoft Dynamics NAV Inventory reports. Reporting can be done in a number of ways but is always based on one of three levels. These are:

- Transaction level
- Statistics level
- Sales history

Based on these three levels, the system provides a number of reporting options, both in the form of online analysis or in the form of reports.

Both report and online analysis provide support for Navision specific features such as Filters and FlowFilters. This allows the user to quickly filter the data the reports should be based on. The online analysis also supports period-based reporting, allowing the user to select the days, weeks, months, quarters or years the report should be based on. Custom date filtering is also supported.

Transaction and Statistics level reporting can also be done on time basis giving the possibility of analyzing the sales flow throughout the day.

In addition to this, sales on Item and Store level can be displayed in graphical format.

1.21.2 Advanced Statistics

The Advanced Statistics module contains additional reporting options for use on statistics level. This allows the user to set up an own analysis view on the data, similar to the Account Schedules module in the General Ledger module.

1.22 Maintenance

LS Retail includes a number of clean-up and archiving mechanisms that are used to control the growth of the database by either deleting or archiving some of the redundant data. Records from specific log tables can be deleted after some specified days and POS Transactions can be archived.

2 LS Retail Setup

The LS Retail System is a powerful link from the front end of your stores, the POS terminals, and your business accounting setup. It controls the fundamental needs for the retail business, such as items, prices, staff and customer. It offers various POS functionality as well as functionality for calculating and posting statements.

LS Retail offers several ways of exchanging data between stores, head office and POS terminals. By using the built in distribution management, you can control exactly what data is present in each store and thus set a limit on for example which items are sold and which discount offers are valid in each store.

LS Retail manages replication of data between databases and supports the head office - branch structure. Replication is scheduled by the user and can be set up in such a way that only changed information is replicated. It makes extensive use of the distribution principles.

LS Retail offers you a model on which to structure your business. You divide your business into store groups. You can divide each store into sections and shelves, and thus have access to statistical overview of sales for each store, section and shelf. In addition to keeping track of items in sections and shelves, you group items together into product groups and product groups into item categories, ensuring better control and overview of sales in your business.

LS Retail offers several ways of controlling item prices at the POS terminals. Among them are multiple retail item sales prices, discounts on specific items, product groups, item categories and all items. The system allows quantity discounts and discounts on combinations of items; this functionality is called mix & match. It provides extensive control of functionality for tender types and means to define how POS terminals operate in the store, together with staff operational authorization.

LS Retail gives you the possibility to extract accurate sales information by providing you with numerous statistical windows and reports that build on statistic tables, item value entries and transactions from the POS terminals. Thus, you can know which items or variants are most popular, which store or POS terminal is selling the most and how the staff performs. By examining peak hours and load on specific POS terminals, it helps to plan when you need more POS terminals open and schedule work shifts accordingly. Included in Microsoft Business Solutions-Navision is a report generator which gives you the opportunity to design your own reports or adapt standard reports to your needs.

Special statistics tables retain the main information on item sales, staff, POS terminals and payment broken down into user defined time intervals. You can choose whether you want to retain information on each item, product group or item category.

For the retail part Infocodes can be assigned to items, customers, tender types, income /expense accounts and some POS events. They make it possible for your business to get additional information needed at transaction time, such as, flight no., sales person ID, reasons for returns and so on.

POS actions allow further activity on POS events like showing messages and running special objects

LS Retail allows six retail variant dimensions to be used for size, color, style and other variant building reasons. It provides statistical breakdown of sales results on all of them. It can generate barcodes for these variants and perform barcode checking.

2.1.1 Checklist for Starting LS Retail

When you set up LS Retail, you must enter certain information before you can start running your business. Depending on how you want to structure your business, the setup can vary from one company to another. Certain setup is mandatory, other is optional.

For starting LS Retail perform the tasks according to the order given:

Order	Task/Overview	Mandatory
1	Installing External Components for LS Retail	Yes
2	Retail Setup	Yes
3	Inserting Default Data for LS Retail	No
4	Setting Up Mandatory Distribution Group	Yes
5	Setting Up Distribution Locations	Yes
6	Assigning Distribution Locations to Distribution Groups	Yes
7	Defining Store Groups	Yes
8	Numbering Principles	Yes
9	Setting Up Initial Entry Nos. for Distribution Locations	No
10	Setting Up Statistic Time Intervals	No
11	Selecting Statistics Tables	No
12	Importing Data from an Existing System	No
13	Configure Retail Users	No

2.2 External Components

To be able to run LS Retail POS, statistical graphs and the visual menu editor in LS Retail to run you must install certain OCXs.

To Install External Components for LS Retail:

1. Run **LS Retail Toolbox 4.4x.exe**

The system will install and register the components. The toolbox will be installed to: C:\Program Files\LS Retail\Toolbox. We recommend that you restart the computer after installing the toolbox. The toolbox needs to be installed on computers where you run LS POS, LS POS Setup, such as configuring the hardware profile, Graphical LS POS Design, PlusGraph, POS Dual Display or NAS Manager.

2.3 Creating Default Data

In order to make the setup process easier, you can insert certain default data, common when setting up LS Retail. Then you can change the settings as needed.

Default data can be automatically created for the following:

General Retail Settings:	LS Retail POS Settings:	Replenishment Settings
Distribution Groups	POS Commands	Replenishment Settings
Retail Setup	POS Colors	
Price Group	POS Lookup Menus	
System Version	POS Print Variables	
Label Reports	POS OPOS Messages	
Barcode Characters	POS Profiles	
Statistics Time Setup	POS Menus	
Barcode Masks		
Tender Types		
User Roles and Permissions		
Table Distribution		
Number Series		
Scheduler Subjobs		
Scheduler Types		

To Create Default Data for LS Retail:

1. Click **LS Retail – Back Office, Setup, Retail Setup**. In the **Retail Setup** window, click **Setup, Insert Default Data**.
2. In the **Insert Default Data** window place select the default data you want to insert by placing checkmarks in front of the relevant options.
3. By default all data is marked to be inserted. In case you like to insert only specific data, you can remove the checkmark from the not required data. To remove the checkmark from all data you need to click the **Clear All** button
4. Click **Insert**. The system will insert the default data, but you can change the data inserted as needed for your company.

2.4 Mandatory Distribution

When you start using LS Retail, before you start entering data into the system, you need to set up one distribution group that includes all locations.

To Set Up Mandatory Distribution Group:

1. Click **LS Retail - Scheduler, Distribution, Distribution Groups**.
2. Press **F3** to enter a new distribution group.
3. Fill in the **Group Code** for the Group that represents all Distribution Locations and the **Description** field.
4. Place a checkmark in the **No Filter** field.
5. Click **Group, Subgroups**.
6. Fill in the **Subgroup Code** and **Description** fields.
7. Place a checkmark in the **No Filter** field.

8. Fill in the Group Code for the Group that represents the Default Group.
9. Place a checkmark in the Default Group field.

You have now set up a distribution group that distributes data to all distribution locations, if no other distribution group is defined for a distribution location and a distribution group used as default.

2.4.1 Distribution Locations

Distribution Locations are used for defining the direction of data exchange, that is, from which location the data is sent and to which location the data is sent to in your system.

In every setup of LS Retail you must set up at least one distribution location, representing the head office in your system.

When you create a store the system creates a distribution location with the same identification number as the store.

When you create a POS terminal the system creates a distribution location with the same identification number as the POS Terminal.

There are two possible setups of distribution locations for POS terminals:

- If using the PlusCfront Replicator you set up an ordinary distribution location for the POS terminal.
- If using the Data Director you have the option to set up a distribution sublocation for the POS terminal.

The **Create New Store Wizard** on the store card allows you to create distribution locations or distribution sublocations for the POS terminals.

To Set up additional Distribution Locations:

1. Click **LS Retail - Scheduler, Distribution, Distribution Location Card**.
2. In the **Distribution Location window**, press **F3** to create a new distribution location.
3. Fill in the **Code** and **Description** and **Distribution Group** fields.
4. If setting up replication for the distribution location, fill in the **Replication** tab according to the online Help in the **Distribution Location** window.

2.4.2 Assigning Distribution Locations to Distribution Groups

Each distribution location is a member in a distribution group, as well as in a distribution subgroup.

Each distribution location is automatically assigned to the mandatory distribution group that preferably should have been set up before creating any distribution locations.

For each store created, a distribution location representing the store is automatically created, as well as a distribution subgroup that has been assigned to the distribution group the store locations is assigned to (not the mandatory distribution group though).

When setting up the system, you must define if further assignment of distribution locations to distribution groups and subgroups is needed.

To Assign Distribution Locations to Distribution Groups:

1. Click **LS Retail - Scheduler, Distribution, Distribution Location Card**, the **Distribution Location** window appears.
2. Browse to the relevant location. In the **Group Code** field, select the distribution group you want to assign the location to.
3. Click **Group, Subgroups**.

4. In the **Distribution Subgroups** window, select the relevant subgroup or create a new one.
5. Click **Subgroup, Member List**.
6. In the **Distribution Subgroup Members** window, select the desired distribution location(s) in the **Distrib. Loc. Code** field.

Attention

Each distribution location can be assigned to as many distribution subgroups within the same distribution group as needed. Besides being assigned automatically to the All Stores distribution group, each distribution location can only be assigned to subgroups in one distribution group.

2.4.3 Distribution Group Assignment

It can be very useful to check of which distribution groups and distribution subgroups a distribution location is a member.

To View Distribution Group Assignment:

1. Click **LS Retail - Scheduler, Distribution, Distribution Location Card**.
2. In the **Distribution Location** window, browse to the relevant location, and look up the **Distribution Group** field.
3. In the **Distribution Groups** window click **Groups** to view all distribution subgroups this distribution group contains.
4. Select a distribution subgroup and click **Subgroup, Member List** to view all members of the distribution subgroup.

2.5 Store Groups

2.5.1 Defining Store Groups

Store Groups are used to group stores in different categories like Food or Fashion. The Store Groups have a link to the Distribution Groups.

To Set up Store Groups:

1. Click **LS Retail - Scheduler, Distribution, Store Groups**.
2. Press **F3** to enter a new Store Group.
3. Select the Store Group Type, All for All Stores, Group for a Group of Stores or Store for a single store
4. Insert the new Store Group Code and the Description
5. Assign the required Distribution Group Code and Distribution Subgroup Code.

Attention

In the Store Grouping a store can belong to many Store Groups while in the Distribution Grouping a Store can only belong to one Distribution Group. Therefore it is possible to define Store Groupings which in the end don't have any members in the linked Distribution Grouping. You should avoid this since otherwise you might have problems with replication. A proper decision and setup is vital for the further process. It is not possible – or not realistic – to change a decision later.

Example 1: Stores are only grouped into Food Stores and Non Food Stores and they can only belong to one group. Then it is possible to have a Distribution Group for Food and a Distribution Group for Non Food since the Distribution Locations of the stores will be member of one Distribution Group only.

Example 2: Stores are grouped into Food Stores and Non Food Stores and as well into countries like Denmark and Sweden. A store can be therefore a member of Non Food Stores and Denmark while another store is a member of Food Stores and Sweden. Then it is not possible to have a Distribution Group for Food, for Non Food, for Denmark, and for Sweden since the Distribution Locations of the stores can be member of one Distribution Group only. Then there should be a general Distribution Group like Stores which has several subgroups, in this case Food, Non Food, Denmark and Sweden. The Distribution Location of the Non Food Store in Denmark has then to be a member of Distribution Group Stores, Distribution Subgroup Non Food and Distribution Group Stores, Distribution Subgroup Denmark. The Distribution Location of the Food Store in Sweden has then to be a member of Distribution Group Stores, Distribution Subgroup Food and Distribution Group Stores, Distribution Subgroup Sweden.

2.6 Retail Setup

In the **Retail Setup** window, you can decide how you want the program to manage the LS Retail system. Below is a description of which setup is carried out in each of the tabs in the **Retail Setup** window.

2.6.1 General

LS Retail offers varied features that can help you manage your retail business. You must register that LS Retail is in use and which store is your local store in the database you are working in. You can register the default price group and the default VAT business posting group used in your business.

2.6.2 Posting

When using different kind of discounts, you can select the way of posting. If you like to do the physical inventory (stocktaking) in LS Retail POS, you need to insert the Physical Inv. Ledger Template and the Physical Inv. Ledger Batch to store and post the stocktaking.

2.6.3 Labels

Parameters for label printing are defined here.

2.6.4 Sales History

For optimal statistics view you can select the type of statistics you want the system to keep and create a view for.

2.6.5 Global Refund

In case you use Global Refund for issuing Tax Free Cheques, you find a setting in LS Retail. LS Retail does not provide you with the external components for Global Refund. You need to contact Global Refund in order to get those. It is therefore normal and correct that you cannot compile the Codeunit 99008912, POS Global Refund Utility.

2.6.6 Version

This shows you the actual version of LS Retail.

Setting up Retail Setup:

1. Click **LS Retail – Back Office, Setup, Retail Setup**.
2. Place a checkmark in the **LS Retail in Use** field.
3. Fill in the **Local Store No. Field**.
4. On the **Numbering** tab, fill in the **Store No. Nos.** field.
5. Fill in other fields as needed.

2.7 Numbering Principles

In Microsoft Dynamics NAV, you can set up a complete numbering system consisting of a virtual unlimited number of number series for all types of basic information.

In every company in your retail business, you must assign unique identification codes to certain tables such as the Item, Staff, POS Terminal and Statement table, to ensure proper functionality of your system.

Numbering is important, not only for identification purposes, but because a practical numbering system makes the entire company more manageable. A practical numbering system can also reduce the number of errors that occur in the data entry.

In certain tables in LS Retail, you may want to have numbers inserted manually. You can set this up for all tables except Statements, which should have an automatic creation of numbers.

LS Retail offers you a way to select the initial entry numbers of ledger entries in each store where posting takes place. This is necessary when ledger entries are replicated from stores to head office.

Attention

If you use number series for a table, you need to insert records in the table in the head office database only if you are replicating it from head office to stores. Only if you are sure that the identification codes will be unique over all stores, then you can use number series when inserting records in the stores' databases.

2.7.1 Setting Up Initial Entry Nos. for Distribution Locations

You may want to replicate ledger entries between stores and head office. Therefore, ledger entries cannot start at number 1 in each store and the head office. Each store and the head office need to have its own number range that does not overlap the range of another store or the head office. The head office must also have its own numbering range because of the posting taking place there. In general, the head office should have the highest start numbers in order to avoid data inconsistencies.

You can select initial entry numbers for the tables listed below. If you are not replicating a specific table, you should not set up a numbering range for that table. You can either insert the numbering series manually for each location, or use a batch job to speed up the setup by creating numbering ranges for a table.

Here are the tables you should set up distribution location dependent entry number series for:

Table Name	Table Number
G/L Entry	17
Item Ledger Entry	32
G/L Register	45
Item Register	46
VAT Entry	254
Check Ledger Entry	272
Detailed Cust. Ledg. Entry	379
Detailed Vendor Ledg. Entry	380
Phys. Inventory Ledger Entry	281
Item Application Entry	339
Value Entry	5802

To Set Up Initial Entry Nos. for Distribution Locations:

1. Click **LS Retail – Back Office, Setup, Numbering, Initial Entry Nos. in Location**.
2. In the **Initial Entry Nos. in Location** window, press **F3** to create a new number range.
3. Fill in the **Table ID** field.
4. Fill in the **Initial Entry No.** field with the number you want to be the first entry number for the table in a particular distribution location.
5. In the **Distrib. Loc. Code** field select the distribution location you want to use the number range for this table in.

Repeat steps 2 to 5 for each number range you want to create for a table and a distribution location.

To Set up Entry No. for Several Distribution Locations:

1. Click **LS Retail – Back Office, Setup, Numbering, Initial Entry Nos. in Location**
2. In the **Initial Entry Nos. in Location** window, click **Functions, Create Initial Entry Nos.**
3. Fill in the **Table ID** field.
4. In the **Starting No.** field, enter the lowest initial entry number you want to give the table.
5. In the **Increment-by No. field**, enter the number by which the program should increment the initial entry number for the previous record, to get a initial entry number for the record it is currently creating.
6. In the **No. of Records** field, enter how many records you want the batch job to create, that is, for how many locations you are creating initial entry numbers for the table.
7. For each record the batch job has created, choose a distribution location in which the initial entry number will be used.

Attention

Before you set up Initial Entry Nos. for entries you should define carefully the ranges you want to set up. The total number range for a table is 2.000.000.000 (two billion) entries. It can be of help to estimate the number of entries created in each store for a given period of time, and also to keep in mind to spare a number range for stores that might be added to the system later on.

The head office must have the highest start number. A rule of thumb is to keep the numbering range over 1.000.000.000 (one billion) for the head office location and distribute the lower numbers between the stores.

When you replicate from store to store through head office, you cannot replicate the tables that you have set up initial entry numbers for from head office to store, since the entry number in the head office would be too high for the number range in the store.

2.7.2 Setting Up Distribution Location Dependent No. Series

You can use numbering series for identification codes in tables that can be dependent on distribution locations. If you set up a number series for a table where each location has its own series, you need to select the correct number series each time you insert a record into the table, depending on which distribution location the record will belong to or be valid in.

You can set up a number series per distribution location for the following tables in LS Retail. Standard Microsoft Dynamics NAV tables, such as the **Item** and **Customer** table are excluded.

Here is a list of the tables you should set up distribution location dependent number series for:

Table	Useful Hints
Staff	A common setup is to assign each record to all stores. You choose whether to have one series for all stores or one series per distribution location
POS Terminal	Each record is assigned per store. You choose whether to have one series for all stores or one series per distribution location. It is recommended to use one number series only.
Promotions	A number series for promotion numbers
Periodic Discount Numbers	Records are not assigned per store, but they might have a store dependent distribution. You can set up one general number series and then several location dependent number series if you want to be able to tell where the offer is valid from its identification code/number.
Statement	Records are assigned per store. You should not allow manual creation of statement numbers.

When you have set up location dependent numbering series you can assign those to stores.

2.8 Importing Data from an Existing System

There are important structural features in the LS Retail system you must take into consideration when importing data from an existing system.

It is important to look at the code in the **OnInsert** and **OnModify** triggers in all tables into which you are importing data.

You also need to consider how the tables will be distributed in the system. You can select distribution after you import data, but you can also consider creating distribution in the code that imports the data. Defining distribution is therefore a very important task to carry out before importing data into the system.

Example:

Importing Item Table Data

Field	Useful Hints
Unit Price Incl. VAT	Calculate the <i>Unit Price Including VAT</i> field by creating a batch job that runs the <i>OnValidate</i> trigger code for the <i>Unit Price</i> field, after you have assigned the appropriate posting groups to the item.

3 Store Setup

The store is one of the main units in the LS Retail system. It is a distribution location, it has its own tender types, POS functionality, income and expense accounts, staff and work shifts. It can be divided into sections and shelves. Setting up the stores and the head office in your business are usually among the first steps when setting up your LS Retail system.

In LS Retail, you can have multiple stores and keep track of sales for each one. The following setup must be carried out for a store:

- You register a number for the store, its name, address and other registration information.
- You give the store a location code and use it as a link from the store to the standard Microsoft Dynamics NAV stock control and accounting. You can assign a responsibility center, a department code and a project code.
- If you run the store in a multinational environment, you can define a currency code for the store.
- You register store closing procedures and handling of statements
- You set up tender types
- You set up and select a POS functionality profile for controlling POS terminals
- You can set up income and expense accounts, work shifts, staff and a section/shelf structure.
- When you have set up the general store information, you need to configure the distribution location setup for the store.
- If you would like to use the cash management, you configure the safe in the store and depending on the end of day/start of day procedures you decide about fixed start amount for the POS.

3.1 Checklist for Store Setup

When you set up a store in LS Retail, you must enter certain information before you can start running the store. Depending on how you want to structure your business, the setup can vary from one store to another. Certain setup is mandatory, other is optional.

For setting up stores in LS Retail follow the tasks according to the order given. Note that it has been assumed that certain tasks have already been carried out in the Retail Setup; therefore those tasks are not mentioned in the checklist.

Order	Task/Overview	Mandatory
1	Setting Up Stores	Yes
2	Defining Statement/Closing Method	Yes
3	Store Grouping	Yes
4	Assigning No. Series to Stores	Yes
5	Setting Up Tender Types	Yes
6	Setting Up Cash Declaration Setup	No
7	Defining a fixed POS start amount per staff.	No
8	Setting Up Safes	No
9	Setting Up Functionality Profiles	Yes
10	Assigning Functionality Profiles to Stores	Yes
11	Setting Up Staff Members	Yes

12	Setting Up Distribution Groups	Yes
13	Setting Up Work Shift Setup	No
14	Setting Up Income/Expense Accounts	No
15	Setting Up Sections	No
16	Setting Up Shelves	No
17	Assign the Store to a Store Hierarchy	No

3.2 Store Closing Methods

3.2.1 Before You Start

There are two decisions you have to make before you start operating the system:

- Selecting a method for the end of day procedure (store closing)
- Select how to divide statements

3.2.2

3.2.3 Store Closing Methods

There are two methods of closing the store:

- By Date and Time

This is the most common way of closing the store.

When you close by date and time, you can count the tender types either with declaration on the POS terminals themselves or you can enter the counted amounts in the statements in the back office. If you close by date and time, you can have the statement cover as many days and as much time, or have as many per day, as you want. Please note that this decision has an influence on how detailed the ledger entries are.

- By Shifts

Work shifts are not used for assigning staff to the work shift.

Work shifts are used for grouping together transactions that belong to one statement. If you use this method to close stores, the system creates open work shift entries for each POS terminal used on the shift. These entries belong to one work shift. All transactions that come in from the terminals while the work shift is open are marked with the work shift number. You must perform a tender declaration on the POS terminal to tell the system that the shift is over on the terminal. When all open work shift entries are closed, the whole work shift is closed.

The store statement is limited to include transactions in just one work shift if you use the work shift close store method. Therefore, if you have three work shifts in a store, you need to create three statements each day.

You would use this method when your 'working day' goes over midnight since you can define whether the shift date reference is the start time or end time. In that way you can define the shift to belong to the day before midnight or the new day.

3.2.4 Store Statement Methods

There are three methods how to divide the statements:

- By Total
- By POS terminals
- By Staff

3.2.5 Dividing Statements by Total

When you divide the statement on totals, the results of the statement calculations show amounts summed up in one line for each tender type used in the transactions included in the statement.

3.2.6 Dividing Statements by POS Terminals

When you divide the statement by POS terminals, the results of the statement calculations show one line for each tender type used in the transactions included in the statement, per POS terminal. Thus you can view the total results in tender types for each POS terminal. This results in tender declaration per POS terminal.

3.2.7 Dividing Statements by Staff

When you divide the statement by staff, the results of the statement calculations show one line for each tender type used in the transactions included in the statement, per staff member. Thus you can view the total results in tender types for each staff member. This results in tender declaration per cashier.

3.3 Store Groups

3.3.1 Defining Store Groups

Store Groups are used to group stores in different categories like Food or Fashion. The Store Groups have a link to the Distribution Groups. They can be used in cases as you would like to distribute items by store groups or retail price groups or offers by store group.

To Set up Store Groups:

Click **LS Retail - Scheduler, Distribution, Store Groups**.

Press **F3** to enter a new Store Group.

Select the Store Group Type, All for All Stores, Group for a Group of Stores or Store for a single store

Insert the new Store Group Code and the Description

Assign the required Distribution Group Code and Distribution Subgroup Code.

Attention

In the Store Grouping a store can belong to many Store Groups while in the Distribution Grouping a Store can only belong to one Distribution Group. Therefore it is possible to define Store Groupings which in end don't have any members in the linked Distribution Grouping. You should avoid this since otherwise you might have problems with replication.

*Example 1: There is only one special store grouping, Food Stores and Fashion Stores. There is no other store grouping and there are no plans to change that in the future. A store belongs only to Food Stores or Fashion Stores but not to both. In that case you can work with 2 distribution groups, FOOD and FASHION.
Optional if you like to be more flexible you'd rather work with only one distribution group STORES and distribution subgroups FOOD and FASHION.*

Example 2: There is more than one special store grouping, Food Stores and Fashion Stores plus stores in Denmark and Sweden. A store can belong to more than one store group. In that case you have to work with only one distribution group STORES and distribution subgroups FOOD, FASHION, DENMARK and SWEDEN.

3.4 Store Setup

You need to set up general store information, configure the distribution location setup for the store and set up tender types and POS functionality profile for the store.

To Set Up Stores:

1. Click **LS Retail - BackOffice, Setup, Store Card**.
2. Press **F3** to insert a new store.
3. If you have set up a default number series for stores, the system will fill in the **No.** field automatically. If not, you must fill it in.
4. On the **General** tab the following fields are mandatory: **No.**, **Name**, and **Location Code**.
5. On the **Statement/Closing** tab the following fields are mandatory: **Statement Method**, **Max.Diff. to Allow Post.**, **Max Round. in Stmt.**, **Rounding Account**, **Closing Method**, **Store VAT. Bus. Post. Gr.** and **Store Gen. Bus. Post. Gr.**
6. If you would like to use the **Batch Posting** for statements in this store you need to activate it on the **Statement/Closing** tab.
7. For each store you can decide to allow the store staff to only accept statements but not to post them. This is very useful if you work in a distributed database environment. With the **Only Accept Statements** parameter on the **Statement/Closing** tab set, the store staff can not post the statement when using the **Store Statement** form. This functionality becomes even more powerful when combined with the batch posting.
8. For **Cash Management** on the POS you can decide whether to start the POS with a flexible or fixed amount or not to check for a start amount.
9. In the **Statement Nos.** field on the **Numbering** tab, click the **AssistButton** to see the **No. Series** window. Select the relevant number series, and then click **OK** to copy it to the field.
10. Fill in the remaining fields as needed.

Repeat steps 2 to 7 for each store you want to set up.

In order to 'multiply' stores based on a template store you can use the copy functions under **LS Retail - BackOffice, Setup, Store Card, Function Button**. Here you can copy Tender Types, Sections and Shelves, Work Shifts, Income/Expense Accounts and the POS Receipts. Optionally you can use the 'New Store Wizard' which you find under **LS Retail - BackOffice, Setup, Store Card, Function Button** as well.

3.5 Wizard to Create New Stores

The 'New Store Wizard' is a tool to multiply stores in a convenient and easy way, once you have set up and configured the first or a 'template' store. Instead of using the various copy functions to copy different setup and configurations like the tender types of income/expense account from one store to another, the 'New Store Wizard' combines the copy functions plus allows you to copy existing POS terminals as well.

To use the Wizard for new Stores:

1. Click **LS Retail - BackOffice, Setup, Store Card**.
2. Select the 'template store'.
3. Click **Functions, Create New Store Wizard**.
4. Fill in the Name of the New Store, its Address, Post Code and City.
5. In the field '**Location**' fill in the location code which you like to use for this store.
6. If you like to create new POS terminals, then you need to define the **Template POS Terminal** and how many POS Terminals shall be in the new store. The Transaction number range is not used in LS Retail.
7. In the **POS Distribution** you select whether the system should create Distribution Locations, Sublocations or none of them.
8. Furthermore you can select to copy Inventory Masks and Handhelds (if you use Inventory Management) and Hospitality setup (if you use LS Hospitality).
9. Click **Next**.
10. The system will ask you for the descriptions of the new POS Terminals. Fill in this description.
11. Click **Finish**.

3.6 Numbering Series

In every company in your retail business, you must assign unique identification codes to certain tables such as the Item, Staff, POS Terminal and Statement table, to ensure proper functionality of your system. When you have set up location dependent numbering series you can assign those to stores.

To Assign No. Series To Stores:

1. Click **LS Retail – BackOffice, Setup, Store Card**.
2. On the **Numbering** tab in the **Store Card** window, select the numbering series you want to assign to the store. You must fill in the **Statement Nos.**, **POS Terminal Nos.**, and the **Staff ID Nos.** fields. In case you like to use special prices out of promotions or periodic discounts you need to select number series for them as well.

3.7 POS Functionality Profiles

In order to run the POS terminals you must set up POS functionality profiles and assign these to stores. You can have multiple POS functionality profiles in your system, one for each store. To minimize setup you might want to use the default data setup and change the settings where needed.

To Set Up POS Functionality Profiles:

1. Click **LS Retail - POS, Profiles, Functionality**.
2. Press **F3** to insert a new functionality profile.
3. On the **General** tab, fill in the mandatory field **Profile ID** with a unique identification code for the functionality profile.
4. On the **Amount** tab the following fields are mandatory: **POS Currency Symbol**, **Multiple Items Symbol**, **Amount Rounding To**, **Amount Decimal Places**, **Price Rounding To**, **Price Decimal Places**.
5. Fill in the remaining fields as needed.

Repeat steps 2 to 5 for each POS functionality profile you want to set up.

To Assign Functionality Profiles to Stores:

1. Click **LS Retail – BackOffice, Setup, Store Card**. The **Store Card** window appears.
2. Browse to the relevant store, on the **General** tab you select a functionality profile into the **POS Func. Profile** field.

As an alternative, the POS Functionality Profile can be assigned to a POS Terminal. You can find additional information in chapter 4, POS Setup.

3.8 Tender Types

Before setting up tender types you must set up general tender types that give default settings to tender types. To minimize setup you might want to consider using the default data setup available.

There are eleven default tender types you might want to set up for your store:

Code	Description	Default Function
1	Cash	Normal
2	Check	Check
3	Cards	Card
4	Customer Account	Customer
6	Currency	Normal
7	Voucher	Normal
8	Gift Card	Normal
9	Tender Remove/Float	Tender Remove/Float
10	Coupons	Coupons
11	Loyalty Cards	Normal

3.8.1 General Tender Types

Before you set up any store tender types in LS Retail, you need to set up the general tender types.

Setting up General Tender Types:

1. Click **LS Retail – POS, General, Tender Types**.
2. Insert the necessary Default Data from the Retail Setup or fill in the **Tender Type Setup List** window according to the setup given above.

3.8.2 Store Tender Types

LS Retail allows you to configure a range of different functionality for the tender types in each store. You enter details for handling amount, change, authorization, posting and so on. Each setup depends on the tender types being set up.

For each tender type used in the store, you need to define several parameters, such as how it handles amount, change and so on, to ensure its usage is correct on the POS terminals. You also register the G/L account or bank account into which to post the tender type.

You can also assign an infocode to each tender type you set up to prompt the cashier at run time, to create or check entries with unique entry codes or to collect information from the cashier inserted at run time.

Finally, you can also assign extra print setup to each tender type.

To Set Up Tender Types:

1. Click **LS Retail – BackOffice, Setup, Store Card**.
2. Browse to the relevant store.
3. Click **Store, Tender Types**.
4. Press **F3** to insert a new tender type.
5. Select a general tender type in the **Code** field. The system will insert default settings for the tender type.
6. On the **Posting Tab** fill in the mandatory **Account Type, Account No. and Difference G/L Acc.**
7. Fill in the remaining fields as necessary.

Repeat steps 4 to 7 for each tender type you want to set up.

3.8.3 Copying Store Tender Types

If you have already set up tender types for another store, you can copy the tender types from that store to the new store and change the setup where necessary.

To Copy Tender Types between Stores:

1. Click **LS Retail – BackOffice, Setup, Store Card**.
2. Browse to the relevant store.
3. Click **Functions, Copy Tender Types to Curr. Store**.
4. On the **Request Form**, select the store from which you want to copy tender types, and, if necessary, the relevant tender types.
5. Click the **Override if Tender Exists** field to insert a check mark if you have already created tender types in the active store.
6. Click **OK**.

3.8.4 Cash

Certain tender types must be set up with specific properties. One of them is cash.

To Set Up Cash:

1. Click **LS Retail – BackOffice, Setup, Store Card**. Browse to the relevant store. Click **Store, Tender Types**.
2. Press **F3** to insert a new tender type.
3. Select the general tender type representing cash in the **Code** field. The system will insert default settings for the tender type.
4. Place a checkmark in the **May Be Used** and **Drawer Opens** fields.
5. On the **Amount** tab, allow over- and under-tendering which needs the **Keyboard Entry Allowed** to be set.. You may also want to insert check marks in the **Return/Minus Allowed** and **Keyboard Required** fields. Finally, in case you have rounding in the **Rounding** and **Rounding To** fields, you must define the rounding properties.
6. On the **Posting** tab fill in the **Account Type, Account No. and Difference G/L Acc.** fields. You may also want to fill in the **Multiply in Tender Operations, Float Allowed, Counting Required** and **Compress Paym. Entries** fields.
7. For enhanced **Cash Management** functionality you can define the POS Pickup Warning Amount which gives a message at the POS in case there is a higher amount in the drawer than specified here.

3.8.5 Tender Remove/Float

The tender remove/float tender type represents a tender type used for balancing the remove or add transactions on the terminals. You can use the same tender type for removing and inserting float. There are certain settings you must carry out for the tender remove/float tender type.

To Set Up Tender Remove/Float:

1. Click **LS Retail – BackOffice, Setup, Store Card**. Browse to the relevant store. Click **Store, Tender Types**.
2. Press **F3** to insert a new tender type.
3. Select the general tender type representing tender remove/float in the **Code** field. The system will insert default settings for the tender type.
4. On the **Posting** tab, fill in the **Account Type**, **Account No.** and **Difference G/L Acc.** fields.
5. You can have only one tender type of the function **Tender Remove/Float**.

3.8.6 Checks

You need to set up the Checks tender type to be able to receive payment in checks in your store. There are certain settings you must carry out for the checks tender type.

To Set Up Checks:

1. Click **LS Retail – BackOffice, Setup, Store Card**. Browse to the relevant store. Click **Store, Tender Types**.
2. Press **F3** to insert a new tender type.
3. Select the general tender type representing checks in the **Code** field. The system will insert default settings for the tender type.
4. On the **General** tab, place a checkmark in the **Card/Account No.** field
5. If you want the program to prompt the cashier for a card or account number, you can enter the prompt text in the **Ask for Card/Account** field.

3.8.7 Currency Tender Type

The Currency tender type represents all currency used in the LS Retail system. Before you can use this tender type, you must set up currencies and specify retail information for currencies. There are certain settings you must carry out for the currency tender type.

To Set Up Currency Tender Type:

1. Click **LS Retail – BackOffice, Setup, Store Card**. Browse to the relevant store. Click **Store, Tender Types**.
2. Press **F3** to insert a new tender type.
3. Select the general tender type representing currency in the **Code** field. The system will insert default settings for the tender type.
4. Place a checkmark in the **May Be Used** and **Drawer Opens** fields.
5. On the **Amount** tab, allow over- and undertendering.
6. You may also want to insert check marks in the **Return/Minus Allowed** and **Keyboard Entry Allowed** fields.
7. In case you have rounding, in the **Rounding** and **Rounding To** fields, you must define the rounding properties.
8. On the **Posting** tab fill in the **Account Type**, **Account No.** and **Difference G/L Acc.** fields.
9. You may also want to fill in the **Multiply in Tender Operations**, **Float Allowed**, **Counting Required** and **Compress Paym. Entries** fields.

You can use currencies on the POS terminals. When specifying retail specific information for currencies, you build on the currencies set up for the standard Microsoft Dynamics NAV system, and add retail information, such as the exchange rate on POS terminals and the currency symbol used on POS terminals.

To Specify Retail Information for Currencies:

1. Click **LS Retail - POS, Setup, General, Retail Currencies**. The **Retail Currencies** window appears.
2. Browse to the relevant currency and click **Currency, Card**.
3. Fill in the **Currency Card** by using the online Help for the standard Microsoft Dynamics NAV system.
4. For use in Retail you should fill in the **POS Currency Symbol** and **Lowest Accept. Denomin. Amt.** fields.
5. If you want to determine exchange rate at POS terminals, click **Exch. Rates** and fill in the **POS Exchange Rate Amount** and **POS Rel. Exch. Amount** fields.

3.8.8 Cards

The Cards tender type represents all types of cards used in your system, such as debit or credit cards. Only one Card tender type representing cards should be set up in each store, the specific manufacturers types of cards are then defined in the Card Setup.

To Set Up Cards:

1. Click **LS Retail – BackOffice, Setup, Store Card**. Browse to the relevant store. Click **Store, Tender Types**.
2. Press **F3** to insert a new tender type.
3. Select the general tender type representing cards in the **Code** field. The system will insert default settings for the tender type.
4. On the **General** tab, place a check mark in the **Card/Account No.** field if you want the program to prompt the cashier for the card number. You can enter the text prompted in the **Ask for Card/Account** field.
5. On the **Amount** tab, click the **Undertender Allowed** field to insert a check mark as well as **Keyboard Entry Allowed**.

3.8.9 Card Setup

To use the tender type *Cards* you can set up the manufacturer cards available in your market, that is, debit and credit cards such as Visa and Master Card.

To Set Up Card Setup:

1. Click **LS Retail – BackOffice, Setup, Store Card**. Browse to the relevant store. Click **Store, Tender Types**.
2. Browse to the Cards tender type. Click **Tend. Type, Card Setup**.
3. Press **F3** to insert a new tender card.
4. Fill in the **Card No.** and **Description** fields.
5. On the **Posting** tab, fill in the **Account Type**, **Account No.** and **Difference G/L Account** fields.
6. Repeat steps 3 to 6 for each card setup.

Attention

The system does not actively support numbering series for tender type cards.

3.8.10 Vouchers

This tender type represents vouchers issued and endorsed at the POS terminals. There are certain settings you must carry out for the voucher tender type.

When you set up vouchers you must also set up infocodes both for issuing and endorsing vouchers, each with their own types of data entries linked to the infocode. If you want to have a check on the amount that lies behind the application entry, place a checkmark in the **Check Amount** field in the **POS Data Entry Type** window. This results in that the voucher is only accepted for tender if the amount for the purchase matches the one on the voucher.

You should also set up and assign extra prints for issuing, and if needed, endorsing vouchers.

To Set Up Vouchers:

1. Click **LS Retail – BackOffice, Setup, Store Card**. Browse to the relevant store. Click **Store, Tender Types**.
2. Press **F3** to insert a new tender type.
3. Select the general tender type representing vouchers in the **Code** field. The system will insert default settings for the tender type.
4. Click **Tend. Type, Infocodes**. In the **Infocode Code** field, select the relevant infocode. There is usually one infocode for issuing vouchers and one for endorsing. The infocode for issuing vouchers is required when the transaction is *positive*; the infocode for endorsing vouchers is required when the transaction is *negative*.
5. Close the **Tender Type Infocodes** window.
6. Click **Tend. Type, Extra Print Setup**. In the **Setup ID** field, select the relevant extra print. There is usually one infocode for issuing vouchers and one for endorsing.
7. Close the **POS Extra Print Setup** window.

3.8.11 Gift Cards

This tender type represents vouchers issued and endorsed at the POS terminals. To issue gift cards you must also set up an item representing the gift card. There are certain settings you must carry out for the gift card tender type.

When you set up gift cards you must also set up infocodes both for issuing and endorsing gift cards, each with their own types of data entries linked to the infocode. If you want to have a check on the amount that lies behind the application entry, place a checkmark in the **Check Amount** field in the **POS Data Entry Type** window. This results in that the gift card is only accepted for tender if the amount for the purchase matches the one on the gift card.

You can use entry number series for assigning POS terminal numbers to gift card entries.

You should also set up and assign extra prints for issuing, and if needed, endorsing gift cards.

To Set Up Gift Cards:

1. Click **LS Retail – BackOffice, Setup, Store Card**. Browse to the relevant store. Click **Store, Tender Types**.
2. Press **F3** to insert a new tender type.
3. Select the general tender type representing vouchers in the **Code** field, the system will insert default settings for the tender type.
4. Click **Tend. Type, Infocodes**. In the **Infocode Code** field, select the relevant infocode. The infocode used for creating data entries should be required when negative. The infocode used for applying to data entries should be required when positive.
5. Close the **Tender Type Infocodes** window.
6. Click **Tend. Type, Extra Print Setup**. In the **Setup ID** field, select the relevant extra print. There is usually one infocode for issuing gift cards and one for endorsing.
7. Close the **POS Extra Print Setup** window.

3.8.12 Gift Card Income Accounts

To issue gift cards, you can set up an income account representing the gift card. This way assumes that the gift card is somehow a liability.
Please note the legal aspects regarding the use of an item for that purpose and the taxation.

To Set Up Gift Card Income Accounts:

1. Click **LS Retail – BackOffice, Setup, Store Card**. Browse to the store, for which you want to set up income/expense accounts.
2. Click **Store, Income/Expense Accounts**.
3. Press **F3** to enter a new account.
4. In the **No.** and **Description** fields, enter a number and description for the account.
5. In the **Account Type** field, select the account type, *Income* or *Expense*.
6. In the **G/L Account** field on the **Posting** tab, select the relevant account number.
3. Click **Account, Infocodes**.
7. In the **Infocode Code** field, select the relevant infocode -one that assigns gift card numbers, when required should be positive.
8. Close the **Income/Expense Account Infocodes** window
4. Click **Account, Extra Print Setup**. In the **Setup ID** field, select the relevant print setup - one that prints a gift card.
5. Close the **POS Extra Print Setup** window.

3.8.13

3.8.14 Gift Card Items

To issue gift cards, you can alternatively set up a gift card item representing the gift card. This way assumes that the gift card sale is like a normal item sale.
Please note the local legal aspects regarding the use of an item for that purpose and the taxation.

To Set Up Gift Card Items:

1. Click **LS Retail – BackOffice, Retail Item Card**.
2. Press **F3** to create a new item.
3. Refer to the Online Help for information about creating retail items. Note that the item's description should refer to gift cards.

4. If you do not want the price on the gift card to be predefined, select the **Must Key in New Price** option in the **Keying in Price** field on the **POS Terminals** tab.
5. Since you usually do not have stock on the gift cards, you should make it a non stock item by setting the parameter **No Stock Posting** on the **Invoicing** tab.
6. Click **Item, POS, Infocodes**.
7. In the **Infocode Code** field, select the relevant infocode, one that assigns gift card numbers, when required should be positive.
8. Close the **Item Infocodes** window.
9. Click **Item, POS, Extra Print Setup**. In the **Setup ID** field, select the relevant print setup - one that prints a gift card.
10. Close the **POS Extra Print Setup** window.
11. Repeat steps 1 to 4 for each gift card item you want to set up. If you do not define the price on the item, one gift card should be enough.

3.8.15 Customer Accounts

The customer account tender type allows you to charge the payment at sales time to a customer account from the POS terminal. You can also use this tender type when collecting sales information or customer specific discounts but making payment with another tender type. In that case you need to set up customer specific information.

To Set Up Customer Accounts:

1. Click **LS Retail – BackOffice, Setup, Store Card**.
2. Browse to the relevant store. Click **Store, Tender Types**.
3. Press **F3** to insert a new tender type.
4. Select the general tender type representing cards in the **Code** field. The system will insert default settings for the tender type.
5. On the **General** tab, place a checkmark in **Card/Account No. fields**. If you want the program to prompt the cashier for the account number, you can enter the prompt text in the **Ask for Card/Account** field.
6. On the **Amount** tab, allow over and under-tendering. You may also want to place a check mark in the **Keyboard Entry Allowed** fields.
7. On the **Printing** tab, you may want to enter a text prompting the cashier to insert an invoice into the printer.

When you have set up customers, you can set up retail related information for each customer; that is if the customer account is for registration purposes only.

To Specify up Retail Information for Customers:

1. Click **LS Retail – BackOffice, Retail Customer Card** The **Customer Card** window appears.
2. Browse to the relevant customer.
3. On the **LS POS** tab place a checkmark in the **Other Tender in Finalizing** field if you do not want to post into this customer's account, but only retain sales information about him and/ or give him customer related discounts.

3.8.16 Coupon Tender Type

The Coupon tender type is used to allow payment with coupons. This is only available if the coupon functionality of LS Retail is used.

To Set Up the Coupon Tender Type:

1. Click **LS Retail – BackOffice, Setup, Store Card**.
2. Browse to the relevant store. Click **Store, Tender Types**.
3. Press **F3** to insert a new tender type.
4. Select the general tender type representing coupons in the **Code** field. The system will insert default settings for the tender type. On the Amount tab, do not allow over-tendering.

3.9 Extra Print Setup

Extra Prints are receipts or documents that are printed along with the receipts printed when you have finishing tendering, selling items or registering income/expense accounts at the POS terminals. In order to print extra prints you have to assign them to the relevant tender types, retail items or income/expense accounts in your store, for example for vouchers and gift cards.

To Set up Extra Print Setup:

1. Click **LS Retail – POS, Setup, Functionality, Extra Print Setup Card**.
2. In the **POS Extra Print Setup Card** window, press **F3** to create a new printout.
3. Fill in the **Code** and **Description** fields.
4. In the **Print Type** field, select if you want to print out a slip or a document.
5. Insert the lines you want to be printed out.

You can assign extra prints of receipts for given tender types, for example vouchers. In order to assign extra prints you first have to set up extra prints.

To Assign Extra Print Setup to Tender Types:

1. Click **LS Retail – BackOffice, Setup, Store Card**.
2. Browse to the relevant store and click **Store, Tender Types**.
3. Browse to the tender type that you want to assign extra prints to.
4. Click **Tend. Type, Extra Print Setup**. The **POS Extra Print Setup** window appears.
5. In the **Setup ID** field, select the extra print you want to assign to the tender type.

3.10 Cash Declaration Setup

When working on statements you can declare tender in the statement and/or re-declare tender from the POS terminals. For each store you can set up a cash declaration setup. You can also copy an existing cash declaration setup. The cash declaration setup also defines the available coins and notes used for the cash declaration on the POS.

To Set Up Cash Declaration Setup:

1. Click **LS Retail – BackOffice, Setup, Store Card**. The **Store Card** window appears.
2. Click **Store, Cash Declaration Setup**.
3. If needed in the **Cash Declaration Setup** window, select the currency code. Code “” represents the local currency.
4. Select a coin or a note in the **Type** field.
5. Insert the relevant amount for the coin/note you are setting up in the **Amount** field.

Repeat steps 3 to 5 for each type of cash you are setting up.

3.11 Fixed Start Amounts for the POS Start

When starting the POS in the morning or at the beginning of a shift, the cashier needs to register how much tender he puts into the drawer as the start amount for giving change to customers.

This can be a flexible amount or it can be a fixed amount which is predefined per store. If the decision is to work with a fixed amount, then the money would stay in the drawer at the end of the day/shift before and just needs to be confirmed for the new day/shift.

To Define the Fixed Start Amount:

1. Click **LS Retail – BackOffice, Setup, Store Card**.
2. Browse to the store, for which you want to define the fixed start amount.
3. Click **Store, Fixed Start Amount**.
4. Define the **Tender Type** and if necessary the **Currency**.
5. Specify the **Amount in Currency**.
6. Repeat step 4 to 5 for each tender type you like to have in the list.

3.12 In-Store Safes

LS Retail contains functionality for cash management by using in-store safes. The safe keeps track of the amount of money stored in it, taken out of the safe and put into a cash drawer or taken out of a cash drawer and placed into the safe. Cash management covers two types of float handling:

- Cash that is placed in the drawer, for example, as change, a function which is called float entry.
- Cash that is removed from the drawer, a function which is called remove tender or pick up.

Payment media is taken out of the safe and placed in the drawer or taken out of the drawer and placed in the safe.

To create a Safe for a Store:

1. Click **LS Retail – BackOffice, Setup, Store Card**.
2. Browse to the relevant store, then click **Store, Safes**.
3. In the **Safe List** press F3 to insert a new **Safe**.
4. Fill the Code and Description field.
5. Repeat steps 2 to 4 for each safe you want to set up.
6. Close the **Safe List**.

3.13 Income/Expense Accounts

You use income accounts to register direct income at the POS terminals, and expense accounts to register direct expenses at the POS terminals. You link all store income with income accounts and store expenses with expense accounts. You assign G/L accounts to the accounts for posting as well as POS terminal receipt texts. The income/expense functionality is used to keep prepayments on suspended transactions as well.

If you have already set up income/expense accounts for another store, you can copy the accounts from this store to the new store and change the setup where necessary. You can assign infocodes to income/expense accounts and define extra prints for those as well.

To Set Up Income/Expense Accounts:

1. Click **LS Retail – BackOffice, Setup, Store Card**. Browse to the store, for which you want to set up income/expense accounts.
2. Click **Store, Income/Expense Accounts**.
3. Press **F3** to enter a new account.
4. In the **No.** and **Description** fields, enter a number and description for the account.
5. In the **Account Type** field, select the account type, *Income, Expense or Suspense*.
6. In the **G/L Account** field on the **Posting** tab, select the relevant account number.

Repeat steps 3 to 6 for each account you want to set up.

3.13.1 Copying Income/Expense Accounts

You can copy income/expense accounts from an existing store to a new store, and then edit the accounts setup to fit to the new store, thus saving the time it would take to set up the accounts from scratch. Please note that you might like to use different G/L accounts for different stores.

To Copy Income/Expense Accounts:

1. Click **LS Retail – BackOffice, Setup, Store Card**.
2. Browse to the relevant store. In the **Store Card** window click **Functions, Copy Income/Expense Accounts**.
3. For the **Copy Income/Expense Accounts** batch job, select the store from which you want to copy in the **Copy from Store** field
4. Click **OK**.

The system will copy all income and expense accounts between the stores along with infocodes and extra print setup.

3.13.2 Extra prints

You can assign extra prints of receipts for income/expense accounts. In order to assign extra prints you first have to set up extra prints.

To Assign Extra Print Setup to Income/Expense Accounts:

1. Click **LS Retail – BackOffice, Setup, Store Card**.
2. Browse to the relevant store and click **Store, Income/Expense Accounts**.
3. Browse to the income/expense account you want to assign extra prints to.
4. Click **Account, Extra Print Setup**. The **POS Extra Print Setup** window appears.
5. In the **Setup ID** field, select the extra print you want to assign to the account.

3.14 Work Shifts and Staff

Work shifts are used for collecting transactions together that belong to one statement. If you use the *Shift* method to close stores, the system creates open work shift entries for each POS terminal used on the shift. These entries belong to one work shift. All transactions that come in from the terminals while the work shift is open are marked with the work shift number.

When all open work shift entries are closed, the whole work shift is closed.

The store statement is limited to include transactions in just one work shift if you use the *Shift* closing method. Therefore, if you have three work shifts in a store, you need to create three statements each day.

The system provides procedures to correct transactions that have been assigned to wrong shifts.

You can define up to 9 work shifts for a 24 hour period. Their time span cannot overlap and they must cover 24 hours. You can choose whether to post with the starting or ending date of the shift, if the shift lasts beyond midnight. Each staff member must enter the POS abbreviation code for the work shift he/she is working on, as well as his/her staff ID when logging on the POS terminal.

To Set up Work Shift Setup:

1. Click **LS Retail – BackOffice, Setup, Store Card**.
2. Browse to the relevant store. In the **Store Card** window, click **Store, Work Shift Setup**. The **Work Shift Setup** window appears.
3. Press **F3** to create a new work shift.
4. Fill in the **No.** and **Description** fields.
5. In the **Start Time** field insert the starting time of the work shift you are setting up.
6. When you leave the line, the program will prompt you with a message of automatic recalculation of ending times which you must confirm by clicking on **OK**.

Repeat steps 3 to 6 for each work shift you want to set up.

3.14.1 Copying Work Shifts

If you have already set up work shift setup for another store, you can copy the setup from this store to the new store and change the setup where necessary.

To Copy Work Shift Setup:

1. Click **LS Retail – BackOffice, Setup, Store Card**.
2. Browse to the relevant store. In the **Store Card** window, click **Functions, Copy Work Shift Setup**.
3. For the **Copy Work Shift Setup** batch, select the store from which you want to copy work shift setup in the **Copy from Store** field.
4. Click **OK** to run the batch job.

The system will copy the work shift between the two stores.

3.14.2 Staff

Each staff member must have a number for identification purposes, both in the back office and on the POS terminals.

The system keeps records on staff members, such as ID number, address and phone number. You assign each member a type of authorization for various actions at the POS terminals, such as voiding transactions, performing tender declaration, overriding price, and maximum discount to give. A staff member can be assigned to a store. In case a staff member shall be able to work in all stores, don't assign him to a store.

To Set Up Staff Members:

1. Click **LS Retail – POS, Setup, Staff, Staff Card**.
2. Press **F3** to enter a new staff member.

3. In the **ID** field, select the relevant number series for staff in the store, to which the staff member belongs.
4. In the **First Name**, **Last Name** and **Name on Receipt** fields, enter the name of the new staff member and how it should appear on receipts.
5. You can assign the staff to a store or even to many stores. In the field **Store No.** you select the store in which the staff is working as default. If you leave that field blank, then the staff can work in all stores. If you like to assign the staff to additional stores, then you click **Staff, Store Links**. In there you can select the additional stores for the staff to work in.
6. In the **Employment Type** field, select whether the staff member should be a *Cashier*, *Salesperson* or *Other*.
7. In the remaining fields on the **General** tab, define the user privileges of the staff member.
8. On the **Personal** tab, insert the relevant information as necessary.

Repeat steps 2 to 8 for each new staff member you want to set up.

3.14.3 Assigning Privileges to Staff Members

Depending on the level of staff, staff member can have different privileges in handling POS functionality. Staff members can be e.g. store managers, first cashiers or cashiers.

Store managers are marked with the privilege parameter **Manager Privileges**. For those there are no limitations in discounts and POS functions. Even when some restrictions are defined, they don't have any effect.

To assign Privileges to Staff Members:

1. Click **LS Retail – POS, Setup, Staff, Staff Card**.
2. Browse to the staff member.
3. On the **Privileges Tab** assign the privileges.
4. You can group staff members to **Staff Permission Groups** in order to save time in assigning privileges. In that case you select the permission group in the **Permission Group** field. Then the specific settings which might be on the staff card don't have any effect anymore even they might still be visible.

Optionally you can use Staff Permission Groups to define special POS Menus by Staff Permission Group.

To assign POS Menus to Staff Permission Groups:

1. Click **LS Retail – POS, Profiles, Menu Profile**.
2. On your Menu Profile click the **Group Menus** tab.
3. Under **Permission Group ID** select your staff permission group for which you like to have a set of special menus.
4. In the Menu Columns select the required POS Menus.

3.15 Sections and Shelves

Sections and shelves represent the physical structure within each store. You can register the size of each section, and assign retail items to appropriate sections within each store. Then you can collect section level sales statistics.

On store level, retail items can be assigned to sections and shelves. Sales and profit statistics are then shown for one section and shelf per item.

To Set Up Sections:

1. Click **LS Retail – BackOffice, Setup, Store Card**

2. Browse to the relevant store and then click **Store, Sections**.
3. Press **F3** to create a new section.
4. Fill in the **Code** and **Description** fields.
5. In the **Section Size** and **Size In** fields, register the size of the section.

Repeat steps 3 to 5 for each section you want to set up.

To Set Up Shelves:

1. Click **LS Retail – BackOffice, Setup, Store Card**.
2. Browse to the relevant store, and then click **Store, Sections**.
3. Browse to the relevant section, and then click **Section, Shelves**.
4. Press **F3** to insert a new shelf.
5. Fill in the **Code** and **Description** fields.
6. In the **Section %** field, register the proportional size of the shelf within its section.

Repeat steps 4 to 6 for each shelf you want to set up.

3.15.1 Copying Sections and Shelves

If you have already set up sections and shelves for another store, you can copy the setup from that store to the new one and change the setup where necessary.

To Copy Sections and Shelves:

1. Click **LS Retail – BackOffice, Setup, Store Card**.
2. Browse to the store, to which you want to copy an existing section profile.
3. Click **Functions, Copy Sections**.
4. In the **Copy from Store** field, click the AssistButton to see the **Store List** window. Select the relevant store number, and then click **OK** to copy it to the field.
5. Click **OK**.

4 LS Retail POS Setup

The LS Retail POS front end system is designed for use in different retail outlets as a part of the LS Retail. It can be installed as a stand-alone Microsoft Dynamics NAV client, providing security and resilience as it has an option to automatically transfers sales entries into the back office.

Running with a local database it also provides you with full operation even in critical situations when network or communication is down. If so, all data will be auto-updated when connection is re-established.

LS Retail POS can also be installed as a session in Microsoft Dynamics NAV on a local network giving you online access to important central information. Finally, it can run as a single module, directly connected to head office by Replicator and without installing the store module.

4.1 Checklist for POS Setup

When you set up LS Retail POS, you must enter certain information before you can start running the POS terminal. Depending on how you want to run the POS terminal, the setup can vary from one POS terminal to another. Certain setup is mandatory, other is optional.

There are four steps involved in setting up a new POS terminal. You must:

- Set up a new POS terminal
- Set up and assign POS interface-, -menu- and -hardware profiles to POS terminals.
- Set up and assign a POS functionality profile to the relevant store or POS terminal.
- Activate the POS through the POS Local Setup.

To set up LS Retail POS perform the tasks in the following order. Note that is assumed that certain tasks have already been carried out in the store setup; therefore those tasks are not mentioned in the checklist.

Order	Task/Overview	Mandatory
1	Installing Files for LS Retail POS	Yes
2	Setting Up POS Terminals	Yes
3	Inserting Default Data for LS Retail	Yes
4	Registering POS Modules	No
5	Registering External POS Commands	No
6	Setting Up Menu Profiles	Yes
7	Assigning Menu Profiles to POS Terminals	Yes
8	Setting Up Menus	Yes
9	Defining Macros	No
10	Setting Up Objects to Run	No
11	Specifying Receipt Texts	Yes
12	Registering Receipt Logos	No
13	Setting up Hardware Profiles	Yes
14	Configuring Keys	No
15	Assigning Hardware Profiles to POS Terminals	Yes
16	Assigning Functionality Profiles to Stores	Yes

17	Assigning Functionality Profiles to POS Terminals	No
18	Defining POS Actions	No
19	Configure Sales Types	No
20	Registering POS Terminals Locally	Yes

4.1.1 External Components

In order for the LS Retail POS to run you must install certain OCXs.

To Install External Components for LS Retail POS:

1. Run the **LS Retail Toolbox 4.4x.exe** installation program. It installs the necessary OCX controls used in LS Retail POS.
2. Follow the instructions given in the installation program to complete the installation.

Attention

The program will not run without the OCXs. Besides installing these on each POS terminal, you may need to install those on the clients where changes are made to the LS Retail POS objects, in order to be able to compile those objects. It is not possible and not necessary to compile the codeunits 99001850, POS Weighing Utility and 99008912, POS Global Refund Utility.

4.2 Setting up POS Terminals

For each POS terminal you can set up a variety of features. You need to enter information concerning the operation and functionality of the POS terminals, such as, discounts and handling of returns. You should also enter texts that will be printed on receipts and displayed at the POS terminal.

To Set Up POS Terminals:

1. Click **LS Retail - POS, Setup, POS Terminal Card**.
2. Press **F3** to insert a new POS terminal.
3. Fill in the **Description** fields. The No. should come automatically from the number series.
4. Fill in the following mandatory fields: **Store No.**, **Hardware Profile**, **Menu Profile** and **Interface Profile**.
5. On the **Display** tab, select settings for the customer display, if needed.
6. On the **Printing** tab, select settings for options what to print on the OPOS Printer.
7. Click **POS Term.**, **Receipt Printing** to specify receipt texts. This is an option in case you do not like to use the receipt texts configured on the store card. If the receipt text has been configured on the store card, you can select to use it from there so you just define it once per store and use it on all POS Terminal within the store.

Repeat steps 2 to 7 for each POS terminal you want to set up.

You can copy the setup from one POS terminal to another and then make the necessary changes. You can copy the fields, top receipt text and/or bottom receipt text from a specific POS terminal.

To Copy POS Terminals:

1. Click **LS Retail - POS, Setup, POS Terminal Card**.
2. Browse to the relevant POS terminal.
3. Click **Functions, Copy to Current Terminal**.
4. On the **POS Terminal** tab, select the POS terminal you want to copy from.
5. On the **Options** tab, you can determine whether you want to copy the fields, top receipt text and/or bottom receipt text from the specified POS terminal.
6. Another Menu Item allows you to copy from the current POS Terminal.

4.2.1 Registering POS Terminals Locally

For each Navision Client you set as a POS terminal you need to register the POS terminal locally.

This information will be stored in the *LSRETAIL.INI* file under a section name that is by default the same as the Company Name in the database. By default this file is stored locally in the default WINDOWS directory. Also, the value in the **Last Receipt No.** field can never be put lower than the last registered slip number on the POS terminal.

In the Retail Setup you can define whether the section identifier shall be the Company Name or the Company Name plus User ID. To work with different settings than the default one is mainly used when the POS works online for example via Terminal Server.

To Register POS Terminals Locally:

1. Click **LS Retail - POS, Setup, Pos Local Setup**. The **POS Local Setup** window appears.
2. Fill in the **Store Number**, **Terminal Number** and **Last Receipt No** fields.
3. In case you are 're-registering' the POS you can use the Function 'Get Last Receipt' to get the last receipt number.
4. Click **Save** to confirm.

The registration creates/writes an .ini file named *LSRETAIL.INI* which by default is located in the Windows (OS) folder. The file shows information about the actual POS Terminal. In case you would like to keep the file in a different location because of restrictions in the Windows user rights, you can specify a different folder.

To specify a different (not default) folder for the LSRETAIL.INI file:

1. Click **LS Retail – Back Office, Setup, Retail Setup**. The **Retail Setup** window appears.
2. In the field **IniFile Path** you can specify the path to the LSRetail.ini file

In the *LSRETAIL.INI* file a so called section identifier which is in brackets shows by default the Navision company name.

Example: [CRONUS LS4.10.01 W1 DEMODATA]

If you run LS POS with a local database or online in Client/Server environment, this is the proper section identifier.

If you run LS POS in a Citrix or Terminal Server environment, you need to change the setting of the section identifier.

To specify the IniFile section identifier:

1. Click **LS Retail – Back Office, Setup, Retail Setup**. The **Retail Setup** window appears.
2. In the field **IniFile section identifier** you select the option: **Company_Userid**

The section identifier will then show the Navision company name followed by the Navision user of the specific POS.

Example: [CRONUS LS4.10.01 W1 DEMODATAPOS001]

4.3 Interface Profiles

Interface Profiles are used to define the basic layout of the POS form. The size (resolution) of the form can be defined as well as different 'internal' menus and colors.

The following menus and menu sections can be configured:

- General Settings
- Journal Menu
- Main Menu
- Additional Menus 1 – 3
- Number Pad
- Bitmap
- Input Section
- Information Section
- Total Section
- Customer Information
- Start Up/Login

To Set up Interface Profiles:

1. Click **LS Retail - POS, Profiles, Interface**. The **POS Interface Profile Card** window appears.
2. Press **F3** to create a new hardware profile.
3. Fill in the **Profile ID** and **Description** fields.
4. Select the screen resolution and specific parameters.
5. Select colors for special POS functions and events.
6. Define the other menus.

You can use a 'Graphical' Layout Editor for the menu definition:

7. Click **LS Retail - POS, Profiles, Interface**. The **POS Interface Profile Card** window appears.
8. Click Profile, Layout Editor.
9. You can move and resize the menus like in Windows.
10. In order to test the Interface Profile you can click the 'Run' button.

In the POS Interface Profile Setup window you can copy a selected interface profile to a new profile in order to save time and ensure consistency of POS profiles. You can only copy POS interface profiles between profiles in the same company in the database.

To Copy POS Interface Profiles:

1. Click **LS Retail - POS, Profiles, Interface**. The **POS Interface Profile Card** window appears.
2. Browse to the **POS profile** you want to copy to.
3. In the **POS Interface Profile Card** window, click **Functions, Copy Profile**. The Copy Interface Profile batch job window appears.
4. In the **Copy from Profile** field, select the profile you want to copy from.
5. Click the **OK** button.

The POS Interface Profile is linked to the POS Terminal and can optionally be linked to a cashier.

In case it is linked to a cashier, this will overrule the setting from the POS terminal.

To Assign Interface Profiles to POS Terminals:

1. Click **LS Retail - POS, Setup, POS Terminal Card**.
2. Browse to the relevant **POS Terminal**.
3. Select the Interface Profile in the **Interface Profile** field.

To Assign Interface Profiles to Staff:

1. Click **LS Retail - POS, Setup, Staff, Staff Card**.
2. Browse to the relevant **Staff**.
3. Select the Interface Profile in the **POS Interface Profile** field.

4.4 Menu Profiles

One of the tasks you have to carry out when setting up a POS terminal is setting up a Menu Profile, and assign it to the POS terminal. The Menu profile keeps information about appearance on the POS terminal, such as colors, menus to run and if certain features should be visible or not on the POS terminal screen.

You can set up as many Menu profiles as needed in your business.

To Set up Menu Profiles:

1. Click **LS Retail - POS, Profiles, Menu**. The **POS Menu Profile Card** window appears.
2. Press **F3** to create a new Menu profile.
3. Fill in the **Profile ID** and **Description** fields.
4. Fill in the mandatory fields **Start Menu**, **Sales Menu**, **Payment Menu** and **Tender Op. Menu**.
5. For different **Staff Permission Groups** like **Managers** or normal **Cashiers** you can define different menus under the '**Group Menu**' tab. Please note that in case you don't define special menus there, all the cashiers will use the Menus defined under the '**General**' tab.
6. Fill in other fields in the window according to your needs.

You can also use default data to set up your Menu profiles.

When you have set up a Menu profile you need to assign to the relevant POS terminal(s) before you can run the terminal.

To Assign Menu Profiles to POS Terminals:

1. Click **LS Retail - POS, Setup, POS Terminal Card**.
2. Browse to the relevant **POS Terminal**.
3. Select the Menu profile in the **Menu Profile** field.

4.4.1 POS Colors

In the POS Color Setup window you can view, create and customize colors for the display. You can also use default data setup to install default colors for the POS terminals.

To Set Up Colors:

1. Click **LS Retail - POS, Setup, General, Color Setup**. The **POS Color Setup** window appears.
2. Fill in the **Color Code** and **Description** fields.
3. In the **Foreground** field insert a number representing a RGB value of a color. The RGB color values are described in the standard Microsoft Dynamics NAV online CSIDE Reference Guide.
4. One color is used as the default color for voided lines on the POS. You can select it by setting the '**Default for voided**' parameter.
5. In case you would like to show the colored lines in Bold, select the '**Bold**' parameter.

4.5 Menus

On LS Retail POS, menus are used for triggering POS commands. From the user's view menus are the working area where the user can select items to sell, selects payments and carries out predefined POS operations. From the setup view the menus serve as a platform where you can combine predefined POS commands with user defined parameters. The LS Retail POS system allows you to create two types of menus:

- On-Screen menus controlled either by menu keys on the side of the screen or, in the case of a touch screen, by the screen itself. In case of a soft key screen, on-screen menus can only hold as many menu keys as the number of soft keys, usually 8. In case of a touch screen, there can be more menu keys.
- Fixed Keys menus, assigning functions to keys on the fixed keyboard of the POS Terminal. There can only be one fixed key menu set up for each POS terminal.

There are several types of menus you must set up to run a POS terminal. The mandatory menus are:

- Lookup menu
- Search menu
- Start menu
- Sales menu
- Payment menu
- Tender Operation menu

Menus are controlled either by the menu keys on the side of the screen or, in the case of a touch screen, by the screen itself.

For a menu, you set up menu keys – dynamic keys that appear on-screen and change during run time. You can set up numerous menu key menus for each hardware profile you are using.

To Set up Menus:

1. Click **LS Retail-POS, Profiles, Menu**. The **Menu Profile Card** window appears.
2. Browse to the relevant profile and click **Profile, Menu Editor**, the **POS Menu** window appears.
3. Instead of using the Menu Editor which works in a Table Form way you can choose to use the Menu Visual Editor by click **Profile, Menu Visual Editor**.
4. Press **F3** to create a new menu.
5. Fill in the **Menu ID** and **Description** fields.
6. In the **Menu Type** field select the menu type *Menu*.
7. In the **Map Enter To** field you can select a POS command to run when pressing the *Enter* key. In the **Map Parameter** field you can insert a parameter for that command.
8. In the **Key No.** field in the menu lines, insert a number of a defined menu key as set up in the **POS Key Command** window or the menu key as you like to have it in the touch menu.
9. Fill in the **Description** and **Command** fields as desired.
10. On the **Attributes** tab, set the number of columns and rows if the menu is used for touch screens.

Repeat steps 7 to 9 for each menu line you want to include in the menu.

Example

*In Sales menus, the **Map Enter To** field can have the **ITEMNO** command selected. This means, that when a value is keyed in and the Enter key pressed on the sales menu, the program will recognize the value inserted as an item number.*

4.5.1 Visual Menu Editor

You use the Visual Menu Editor to view and set the Menu features of the menus for the POS terminals. In the Menu you can for example set the font and colors of each button.

To Set Properties for Menu Buttons:

1. Click **LS Retail-POS, Profiles, Menu**. The **Menu Profile Card** window appears.
2. Browse to the relevant profile and click **Profile, Visual Menu Editor**, the **POS Menu Editor** window appears.
3. For each button you want to set properties for: double-click the button, the **POS Button Properties** window appears.
4. Select the button properties as needed.

Attention

You cannot edit buttons in the Menu editor unless you have set the number of columns and rows in the menu setup.

4.5.2 Start Menus

You must set up a start menu for each POS Menu profile you are setting up.

To Set up Start Menus:

1. Click **LS Retail-POS, Profiles, Menu**. The **Menu Profile Card** window appears.
2. Browse to the relevant profile and click **Profile, Menu Editor**. The **POS Menu** window appears.
3. Press **F3** to create a new menu.
4. Fill in the **Menu ID** and **Description** fields.
5. In the **Menu Type** field select the menu type *Menu*.
6. The **Menu Caption** field should have a descriptive prompt for the user to select a mode, for example; *Select Command*.
7. In the **Map Enter** to field preferably select the *ITEMNO* command. If so; leave the **Map Parameter** field blank.
8. In the **Key No.** field in the menu lines, insert the number representing the order of the key on the POS terminal screen.
9. Fill in the **Description** and **Command** fields as desired.

The following commands are often used in the start menu:

- LOGOFF
- START
- REFUND
- TRAINING
- VOID_TR
- SUSPEND

It is also recommended to run the tender operation menu and the manager menu from the start menu.

Repeat steps 8 and 9 for each menu line you want to include in the menu.

4.5.3 Sales Menus

You must set up a sales menu for each POS Menu profile you are setting up. On the sales menu, you define the items or sales available at the POS terminal.

To Set up Sales Menus:

1. Click **LS Retail-POS, Profile, Menu**. The **Menu Profile Card** window appears.
2. Browse to the relevant profile and click **Profile, Menu Editor**. The **POS Menu** window appears.
3. Press **F3** to create a new menu.
4. Fill in the **Menu ID** and **Description** fields.
5. In the **Menu Type** field select the menu type *Menu*.
6. In the **Map Enter** field preferably select the *ITEMNO* command. If so; leave the **Map Parameter** field blank.
7. In the **Key No.** field in the menu lines, insert the number representing the order of the key on the POS terminal screen.
8. Fill in the **Description** and **Command** fields as desired.

The following commands are often used in the sales menu:

- LOOKUP
- INCEXP
- PLU_K
- QTYCH
- TOTAL

Repeat steps 8 and 9 for each menu line you want to include in the menu.

4.5.4 Payment Menus

You must set up a payment menu for each POS Menu profile you are setting up. On the payment menu, you define the tender types you want to post a payment into. If you are setting up currencies, payment into customer account, or predefined amount, look for related topics for help.

To Set up Payment Menus:

1. Click **LS Retail-POS, Profile, Menu**. The **Menu Profile Card** window appears.
2. Browse to the relevant profile and click **Profile, Menu Editor**. The **POS Menu** window appears.
3. Press **F3** to create a new menu.
4. Fill in the **Menu ID** and **Description** fields.
5. In the **Menu Type** field select the menu type *Menu*.
6. In the **Map Enter To** field you can select a POS command to run when pressing the *Enter* key. In the **Map Parameter** field you can insert a parameter for that command.
7. The **Menu Caption** field should have a descriptive prompt for the user to select a mode, for example: *Select Payment*.
8. In the **Key No.** field in the menu lines, insert the number representing the order of the key on the POS terminal screen.
9. Fill in the **Description** and **Command** fields as desired.

The following commands are often used in the payment menu:

- TENDER_K
- CURR_K
- VOID
- SUSPEND

Repeat steps 8 and 9 for each menu line you want to include in the menu.

4.5.5 Tender Operation Menus

On the tender operation menu you define the tender operations available at the POS terminal. A tender operation menu must be set up to the Menu profile assigned to the POS terminal, before you run tender operations from there.

To Set up Tender Operation Menus:

1. Click **LS Retail-POS, Profile, Menu**. The **Menu Profile Card** window appears.
2. Browse to the relevant profile and click **Profile, Menu Editor**. The **POS Menu** window appears.
3. Press **F3** to create a new menu.
4. Fill in the **Menu ID** and **Description** fields.
5. In the **Menu Type** field select the menu type *Menu*.
6. In the **Map Enter To** field you can select a POS command to run when pressing the *Enter* key. In the **Map Parameter** field you can insert a parameter for that command.
7. In the **Key No.** field in the menu lines, insert the number representing the order of the key on the POS terminal screen.
8. Fill in the **Description** and **Command** fields as desired.

The following commands are often used in tender operation menus:

- TENDER_D
- FLOAT_ENT
- REM_TENDER
- OPEN_DR
- POST

Repeat steps 7 and 8 for each menu line you want to include in the menu.

4.5.6 Price Control Menus

You can set up a price control menu on which you can define functionality for price change and price check.

To Set up Price Control Menus:

1. Click **LS Retail - POS, Profile, Menu**. The **Menu Profile Card** window appears
2. Browse to the relevant profile and click **Profile, Menu Editor**. The **POS Menu** window appears.
3. Press **F3** to create a new menu.
4. Fill in the **Menu ID** and **Description** fields.
5. In the **Menu Type** field select the menu type *Menu*.
6. In the **Map Enter To** field you can select a POS command to run when pressing the *Enter* key. In the **Map Parameter** field you can insert a parameter for that command.
7. In the **Key No.** field in the menu lines, insert the number representing the order of the key on the POS terminal screen.
8. Fill in the **Description** and **Command** fields as desired.

The following commands are often used in price control menus:

- PRICECHK
- PRICECH
- DISCPR
- DISCAM

Repeat steps 7 and 8 for each menu line you want to include in the menu.

4.5.7 Currency Menus

You can set up menus that define currency, when you receive payment in currency and want to post it into a currency account.

To Set up Currency Menus:

1. Click **LS Retail - POS, Profile, Menu**. The **Menu Profile Card** window appears
2. Browse to the relevant profile and click **Profile, Menu Editor**. The **POS Menu** window appears.
3. Press **F3** to create a new menu.
4. Fill in the **Menu ID** and **Description** fields.
5. In the **Menu Type** field select the menu type *Menu*.
6. In the **Map Enter To** field you can select a POS command to run when pressing the *Enter* key. In the **Map Parameter** field you can insert a parameter for that command.
7. In the **Key No.** field in the menu lines, insert the number representing the order of the key on the POS terminal screen.
8. Fill in the **Description** field.
9. In the **Command** field, select the *TENDER_K* function.
10. In the **Parameter** field select the tender type to which you want to post into.
11. In the **Post Command** field select the *CURR_K* function.
12. In the **Post Parameter** field select the currency that you want to which account you want to post.

Repeat steps 7 to 12 for each menu line you want to include in the menu.

4.5.8 Customer Payment Menus

You can set up a menu to pay into a customer's account, or include the menu lines in predefined menus.

You can also set up menu lines to register a customer's sale, without registering a payment into his account. This can be useful if you want to collect data of sale to the customer or give him customer specific prices and discounts.

Before you can run customers at the POS terminals and before registering into customers' accounts, you must have set up a lookup form for customers.

To Set up Customer Payment Menus:

1. Click **LS Retail - POS, Profile, Menu**. The **Menu Profile Card** window appears
2. Browse to the relevant profile and click **Profile, Menu Editor**. The **POS Menu** window appears.
3. Press **F3** to create a new menu.
4. Fill in the **Menu ID** and **Description** fields.
5. In the **Menu Type** field select the menu type *Menu*.
6. In the **Map Enter To** field you can select a POS command to run when pressing the *Enter* key. In the **Map Parameter** field you can insert a parameter for that command.
7. In the **Key No.** field in the menu lines, insert the number representing the order of the key on the POS terminal screen.
8. Fill in the **Description** field – enter something like 'Lookup'
9. In the **Command** field, select the *SELECTCUST* function.
10. Create another key and enter a Description like 'Post to Account'.
11. In the **Command** field, select the *TOACCOUNT* function.
12. It would be helpful for the user to have a 'Back' button as well.

4.5.9 Predefined Amount Menus

You can set up a predefined amount menu for the tender types you are setting up in a menu. When a predefined amount menu line is triggered a fixed payment amount for a particular tender type is selected as a payment.

To Set up Predefined Amount Menus:

1. Click **LS Retail - POS, Profile, Menu**. The **Menu Profile Card** window appears
2. Browse to the relevant profile and click **Profile, Menu Editor**. The **POS Menu** window appears.
3. Press **F3** to create a new menu.
4. Fill in the **Menu ID** and **Description** fields.
5. In the **Menu Type** field select the menu type *Menu*.
6. In the **Map Enter To** field you can select a POS command to run when pressing the *Enter* key. In the **Map Parameter** field you can insert a parameter for that command.
7. In the **Key No.** field in the menu lines, insert the number representing the order of the key on the POS terminal screen.
8. Fill in the **Description** field.
9. In the **Command** field, select the *AMOUNT_K* function.
10. In the **Parameter** field, insert the amount that you want to be used automatically.
11. In the **Post Command** field, select the *TENDER_K* function.
12. In the **Post Parameter** field, select the tender type you want to be used automatically.

Repeat steps 7 to 12 for each menu line you want to include in the menu.

4.5.10 Search Menus

You must set up one search menu for each Menu profile. Search menus are used for searching for items, such as retail items, customers or variants on the POS terminals.

To Set up Search Menus:

1. Click **LS Retail - POS, Profile, Menu**. The **Menu Profile Card** window appears
2. Browse to the relevant profile and click **Profile, Menu Editor**. The **POS Menu** window appears.
3. Press **F3** to create a new menu.
4. Fill in the **Menu ID** and **Description** fields.
5. In the **Menu Type** field select the menu type *Menu*.
6. In the **Map Enter To** field you can select a POS command to run when pressing the *Enter* key. In the **Map Parameter** field you can insert a parameter for that command.
7. In the **Key No.** field in the menu lines, insert the number representing the order of the key on the POS terminal screen.
8. Fill in the **Description** and **Command** fields as desired.

The following commands and parameters are often used in the search menu:

- OK
- FINDNO
- FINDNAME
- LINE_UP
- LINE_DN
- FIND

Repeat steps 7 and 8 for each menu line you want to include in the menu.

4.5.11 Lookups

You must set up a lookups and include them in menus that are used for looking up records in predefined tables during run time operations on the POS terminals. When you have set up one lookup form in your business, you should include the lookups into a lookup form, one for each Menu profile.

To Set up Lookups:

1. Click **LS Retail – POS, Setup, Functionality, Lookup List**
2. In the **POS Lookup List** window you can select the Lookup Menus for different lookup IDs
3. Lookup Menus
4. Lookup menus are used for looking up records in predefined tables during run time operations. You must set up one lookup menu for each Menu profile.
5. Before setting up lookup menus, you must also set up one lookup. The lookup is set up for all tables you want the lookup menus to act upon.

To Set up Lookup Menus:

1. Click **LS Retail - POS, Profile, Menu**. The **Menu Profile Card** window appears
2. Browse to the relevant profile and click **Profile, Menu Editor**. The **POS Menu** window appears.
3. Press **F3** to create a new menu.
4. Fill in the **Menu ID** and **Description** fields.
5. In the **Menu Type** field select the menu type *Menu*.
6. In the **Map Enter To** field you can select a POS command to run when pressing the *Enter* key. In the **Map Parameter** field you can insert a parameter for that command.
7. In the **Key No.** field in the menu lines, insert a number of a defined menu key as set up in the **POS Key Command** window.
8. Fill in the **Description** and **Command** fields as desired.

The following commands are recommended in the lookup menu lines:

- OK
- MENU Parameter: Name of search menu
- TOUCHKEYB
- PAGE_UP
- PAGE_DN
- GO_FIRST
- GO_LAST
- CANCEL

Repeat steps 7 and 8 for each menu line you want to include in the menu.

Attention

Running a search menu from the lookup menu is recommended.

4.6 Macros

You can set up macros when you need to assign more than two commands to a key (primary and secondary command). The system allows you to define complex combined commands with any number of commands.

To Define Macros:

1. Click **LS Retail - POS, Profiles, Menu**.
2. Browse to the relevant profile and click **Profile, Macro**. The **POS Macro Card** window appears.
3. Fill in the **Macro ID** and **Description** fields.
4. Press **F3** in the macro lines to create a new line.
5. Fill in the **Command** field with a selected POS command. Fill in the **Parameter** field with the command's parameter.
6. Repeat step 4 and 5 for each command you want to include in the macro, and run after the one in the preceding line.

Attention

All commands in a macro are run consecutively, one immediately after the other. Take care therefore not to insert into a macro a command which requires keyboard input.

To run a macro you have to insert it in a menu as a menu line. Macros are combined commands that are run by pressing one key on the POS terminal keyboard.

You can set up a menu for macros or include the macro in a predefined menu.

To Include Macros in Menus:

1. Click **LS Retail - POS, Profiles, Menu**. The **POS Menu Profile Card** window appears.
2. Browse to the relevant profile and click **Profile, Menu Editor**. The **POS Menu** window appears.
3. Press **F3** to create a new menu.
4. Fill in the **Menu ID** and **Description** fields.
5. In the **Menu Type** field select the menu type *Menu*.
6. In the **Map Enter To** field you can select a POS command to run when pressing the *Enter* key. In the **Map Parameter** field you can insert a parameter for that command.
7. In the **Key No.** field in the menu lines, insert a number of a defined menu key as set up in the **POS Key Command** window.
8. Fill in the **Description** field.
9. In the **Command** field select *MACRO*.
10. Fill in the **Parameter** field with the selected a macro.

4.7 Run-Objects

You can set up Navision objects, that is, Forms, Reports, Dataports and Codeunits that can be run from the POS terminals. When a Run-Object has been set up you must include it in a menu, either in a soft key on a menu, or in a fixed key menu.

To Set up Run-Objects:

1. Click **LS Retail - POS, Setup, Functionality, Run-Objects**. The **POS Run Object** window appears.
2. Press **F3** to create a new Run-Object.
3. Fill in the **Object Code** field with a unique identification code for the run object.
4. In the **Object Type** field select the type of object you want to run.
5. In the **Object ID** field select the number of the item you want to run.

To Include Run-Objects in Menus:

1. Click **LS Retail - POS, Profiles, Menu**. The **POS Menu Profile Card** window appears.
2. Browse to the relevant profile and click **Profile, Menu Editor**, the **POS Menu** window appears.
3. Press **F3** to create a new menu.
4. Fill in the **Menu ID** and **Description** fields.
5. In the **Menu Type** field select the menu type *Menu*.
6. In the **Map Enter To** field you can select a POS command to run when pressing the *Enter* key. In the **Map Parameter** field you can insert a parameter for that command.
7. In the **Key No.** field in the menu lines, insert a number of a defined menu key as set up in the **POS Key Command** window.
8. Fill in the **Description** field.
9. In the **Command** field in the relevant menu line select the **RUNOBJ** POS command.
10. Fill in the **Parameter** field by selecting a code for the desired Run-Object.

4.8 POS Modules

A POS Module is a set of **External POS Commands** and other parameters such as **POS Actions** defined in a codeunit that can then be registered for LS POS in a single process.

A typical example of such a **POS Module** is the LS Hospitality functionality for the POS. It has a set of POS Commands and POS Actions to run the special functionality in the Hospitality business.

To Register a POS Module:

1. Have the codeunit for the external command developed.
2. Decide about the necessary POS Actions.
3. Click **LS Retail – POS, Setup, Functionality, POS Modules**.
4. In the POS Modul Card click **Module, Register**.
5. Select the codeunit containing the POS Modul and press OK.
6. If required you can now register POS Actions or Parameters.

4.9 External Commands

External POS Commands give you an option to develop additional POS functionality without changing the LS Retail – POS objects. The External POS Commands are codeunits, which have to be programmed following a certain “POS Command” protocol. They can be registered and behave like internal commands, allowing multiple command parameters.

An example of External POS Commands can be found in codeunit 99008916, POS Gift Registration. The object must follow certain rules:

1. It must have the ‘POS Menu Line’ as a parameter: OnRun(VAR Rec : Record "POS Menu Line").
2. It must have a registration function:
 - IF "Registration Mode" THEN
 - Register(Rec)
3. It can create the parameters needed without adding fields.
4. It can return values to the POS.

To Register External POS Commands

1. Have the codeunit developed.
2. Click **LS Retail - POS, Setup, Functionality, External Command List**. The **POS External Command List** window appears.
3. Press **F3** to create a new line.
4. Fill in the **Function Code** and **Description** fields.
5. In the **Codeunit** field select the codeunit that contains the new External POS Command(s).
6. Click **Command, Register**.
7. From the Object list select the required object and press **OK**.
8. The POS command can then be found under **LS Retail - POS, Setup, Internal Commands**.

4.10 POS Actions

Pos Actions allow the POS to run some 'actions' based on typical POS events. This gives a high flexibility in setup and configuration of PPOS functionality without the need of special development.

Such POS events can be:

Start of Transaction	Total
Send to Suspension	Start POS
Retrieve from Suspension	New Sale Starts
End of Transaction	Staff Logon
Tender	POS Closing
Tender Declaration	POS Logoff
Void Transaction	On Timer
Negative Adjustment	Void Line
Refund Sales	Cursor Move
Discount at Total	Drawer Open
Discount Line	Drawer Close
Negative Discount Line	Message
Override Price in Line	KeyLock Changed
Quantity Change	On POS Command
Negative Quantity	Staff Logoff
Line	Price Check
	Line Amount Changed
	Customer

Data Trigger to trigger the POS Actions can be:

- Item
- Item Category
- Product Group
- Customer
- POS Command

POS Actions to be triggered can be:

- Stop/Error
- Infocode
- Run Command
- Message

To Create a New POS Action

1. Click **LS Retail - POS, Setup, Functionality, POS Actions**. The **POS Actions** window appears.
2. Press **F3** to create a new line.
3. Fill in the **Relation, Action Trigger** and other fields depending on the functionality you like to achieve.

4.11 Hardware Profiles

One of the tasks you have to carry out when setting up a POS terminal is setting up a Hardware Profile, and assign it to the POS terminal.

The hardware profile keeps information about how the program manages the hardware connected to your POS terminal. It contains setup for each of the peripheral devices. These are; the receipt/document printer, customer display, magnetic strip reader, cash drawer, barcode scanner, scale, keylock, keyboard, tone device, magnetic ink reader and **connection to an EFT server**.

You can set up as many hardware profiles as needed in your business.

To Set up Hardware Profiles:

1. Click **LS Retail - POS, Profiles, Hardware**. The **POS Hardware Profile Card** appears.
2. Press **F3** to create a new hardware profile.
3. Fill in the **Profile ID** and **Description** fields.
4. Fill in the fields in the relevant tabs for each kind of hardware according to your needs.

You can also use default data to set up your hardware profiles.

When you have set up a hardware profile you need to assign to the relevant POS terminal(s) before you can run the terminal.

To Assign Hardware Profiles to POS Terminals:

1. Click **LS Retail - POS, Setup, POS Terminal Card**.
2. Browse to the relevant POS Terminal.
3. Select the desired hardware profile in the **Hardware Profile** field.

It is possible to let POS print the receipt to two different OPOS printers. If this is necessary, you can select a different **Hardware Profile** on the **POS Terminal Card, Printing Tab** and set a parameter to print on the second printer.

In the POS Hardware Profile Setup window you can copy a selected hardware profile to a new profile in order to save time and ensure coherency of POS profiles. You can only copy POS hardware profiles between profiles in the same company in the database.

To Copy POS Hardware Profiles:

1. Click **LS Retail - POS, Profiles, Hardware**. The **POS Hardware Profile Card** window appears.
2. Browse to the POS profile you want to copy from.
3. In the **POS Hardware Profile Setup Card** window, click **Functions, Copy Profile**. The Copy Hardware Profile batch job window appears.
4. In the **Copy from Profile** field, select the profile you want to copy from.
5. Click the **OK** button.

4.12 Configuring Keys

The LS Retail POS application offers four ways of configuring keys. Before configuring keys you should set up key commands to assign numbers to menu keys, fixed keys as well as for defining keyboard wedging.

- Menu Keys

Menu keys are dynamic keys, which appear on-screen and change during run time based on the different menus. They are operated by soft menu keys on the side of the POS terminal screen or, in case of a touch screen, by touch.

- Fixed Keys

Fixed keys are keys that are on the POS keyboard. They have certain names or values that are predefined and can usually be found in the hardware documentation. You can assign numbers to each one, making them identifiable to the program. You can assign commands to some of these keys through a fixed keys menu. There should only be one fixed key menu in each **POS profile**.

- Keyboard Wedge

A keyboard wedge needs to be defined when a peripheral (MSR or Scanner) is connected through the keyboard port. If you define a keyboard wedge with the signature value of the peripheral, the application will be able to recognize the signature value and interpret the transmission as from the peripheral instead of a keyboard input.

- Search

The Search option is related to the option in LS POS to 'Find As You Type'. If the 'Find As You Type' is activated in the **POS Hardware Profile**, the lookup will start as soon as you start to type. All Alphanumeric buttons on the keyboard and the minus (-) sign are automatically used in the lookup. To activate other buttons enter the name of the key in the *Key Name* column and in the *Key Type* column set the type as **Search**.

Attention

When defining keyboard wedging, and before you set up menu keys and fixed keys you must set up Key Commands.

To Set up Key Commands:

1. Click **LS Retail-POS, Profiles, Hardware**. The **POS Hardware Profile Card** window appears.
2. Browse to the relevant hardware profile and click **Profile, Key Commands**, the **POS Key Commands** window appears.
3. In the **Key Name** field, enter the value of the key, to which you want assign a number. For the menu keys, this value can for example be in the range *Shift+F1* to *Shift+F8* (top to bottom), although these values may differ between hardware manufacturers. If you are unsure of the appropriate values for you hardware, refer to the hardware documentation.
4. Fill in the **Key Name**, **Description**, **Key Type** and **Key No.** fields.

Repeat steps 3 and 4 for all key commands you want to set up.

4.12.1 Keyboard Wedging

You can set up keyboard wedging for LS Retail POS. A keyboard wedge needs to be defined when a peripheral (MSR or Scanner) is connected through the keyboard port. If you define a keyboard wedge with the signature value of the peripheral, the program will recognize the signature value and interpret the transmission as from the peripheral instead of a keyboard input. **You can set up a keyboard wedge for each hardware profile you are using.**

To Set up Keyboard Wedging:

1. Click **LS Retail-POS, Profiles, Hardware**. The **POS Hardware Profile Card** appears.
2. Browse to the relevant hardware profile and click **Setup, Key Commands**, the **POS Key Commands** window appears.
3. Press **F3** to create a new key command.
4. In the **Key Name** field, enter the signature value of the peripheral you are defining a keyboard wedge for. Refer to the hardware documentation for information about this value.
5. In the **Description** field, enter a description for the wedge.
6. In the **Key Type** field, select **Wedge**.
7. In the **Key No.** field, enter **0 (zero)**.
8. In the **Wedge** option field, select **MSR** or **Scanner**, determining whether the specified Keyboard Wedge signature value belongs to the MSR or the Scanner.

Repeat steps 3 to 8 for all keyboard wedge keys you want to set up.

4.12.2 Mapping Keys

You can map a key on the POS terminal to replace the value of one key with the value of another key. For example, if you map *A* as *B* and press *A* within the program, the program will interpret it as a *B*. This can for example be useful if you have to disable the Escape key. You can map keys for each hardware profile you are using.

To Map Keys:

1. Click **LS Retail-POS, Profiles, Hardware**. The **POS Hardware Profile Card** appears.
2. Browse to the relevant hardware profile and click **Profile, Key Mapping**.
3. In the **POS Key Mapping** window, press **F3** to create a new key-to-key mapping.
4. In the **Map From** field, enter the name or value of the key you want to map from.
5. In the **Description** field, enter a description for the key-to-key mapping.
6. In the **Map To** field, enter the name or value of the key you want to map to.

Repeat steps 3 to 6 for all keys you want to map.

Attention

You have to be aware of that the setup of keys on a keyboard depends on how the particular keys are set up in your country.

Example

If you map 'Down' as 'a' and press 'Down' the program will interpret it as an 'a'.

If you map 'Shift+3' as 'Enter' and press 'Shift+3' the program will interpret it as an 'Enter'.

4.12.3 Fixed Keys

You can set up a menu for fixed keys. Fixed keys are keys that are on the POS terminal keyboard. These have certain names or values that are predefined and can be found in the hardware documentation. You can assign numbers to each one, making them identifiable to the program. You can assign functions to some of these keys through a fixed keys menu. There should only be one fixed key menu in each Menu profile.

To Set up Fixed Keys:

1. Click **LS Retail-POS, Profiles, Menu**. The **POS Menu Profile Card** appears.
2. Browse to the relevant profile and click **Menu Profiles, Menu Editor**. The **POS Menu** window appears.
3. Press **F3** to create a new menu.
4. Fill in the **Menu ID** field.
5. In the **Menu Type** field, select **Fixed Keys**.
6. In the **Description** field, enter a description for the menu.
7. Do not fill in the **Map Enter To** and **Map Parameter** fields.
8. In the **Key No.** field, enter the number of the fixed key you want to assign a function to. This number should already have been defined as a menu key in the **POS Key Commands** window.
9. Fill in the **Description** field.

Repeat steps 8 and 9 for all fixed keys you want to set up.

4.13 Receipts

You must specify texts that will appear on receipts and invoices, and displayed at the POS terminal.

To Specify Receipt Texts:

1. Click **LS Retail – POS, Setup, POS Terminal Card**, the **POS Terminal Card** window appears.
2. Browse to the relevant POS terminal and click **POS Term., Receipt Printing**. The **POS Terminal Receipt Printing** window appears.
3. On the **General** tab, define the maximum length of the receipt and the number of empty lines at top and bottom.
4. On the **Top** tab, insert the text to appear on the top of the receipt, and define the properties of the text.
5. On the **Bottom** tab, insert the text to appear on the bottom of the receipt, and define the properties of the text.

In case you prefer to have the receipt text the same for all the POS Terminals in one store, you can define the text under the related store.

6. Click **LS Retail – POS, Setup, Store Card**, the **Store Card** appears.
7. Browse to the relevant store terminal and click **Store, Receipt Printing**. The **Store Terminal Receipt Printing** window appears.
8. On the **General** tab, define the maximum length of the receipt and the number of empty lines at top and bottom.
9. On the **Top** tab, insert the text to appear on the top of the receipt, and define the properties of the text.
10. On the **Bottom** tab, insert the text to appear on the bottom of the receipt, and define the properties of the text.
11. The selection of whether the POS terminal shall use the text from the store or from itself is done in the field 'Receipt Setup Location' on the POS Terminal Card.

You can register a logo that is printed on receipts on all POS terminals that are using a particular hardware profile. This is done via the POS Hardware Profile.

To Register Receipt Logos:

1. Click **LS Retail - POS, Profiles, Hardware**. The **POS Hardware Profile Card** appears.
2. Browse to the relevant hardware profile and click **Profile, Receipt Logo**.
3. In the **Receipt Logo** window, click **Logo**, then select if you want to Import, Export or Delete a registration for a receipt logo.
4. Browse to the location of the image file and select it.

Attention

The location of the image on the POS terminal should not be changed without registering the logo again. Also, the images should not be compressed. It is recommended that the images are printed out in grayscale colors.

4.14 Sales Types

Sales Types is multi-purpose functionality of LS POS. The idea of a sales type is to 'park/suspend' a POS Transaction with a number of predefined parameters. A Sales Type could for example be used to suspend a POS transaction with prepayment, to suspend a POS Transaction as a sales order or sales quote or to open a table in a restaurant and keep it open during the rounds.

The sales type works as a parameter of the SUSPEND function or as a default sales type linked to a POS terminal.

4.14.1 Suspending Sales with Prepayment

Suspension can be used to put sales on hold and retrieve them later to finish them. Sales Types of the Suspend Type *POS Transaction* allow payments to be a part of these suspended transactions. Thus they give the possibility to use prepayment as part of the amount. To allow prepayment the user must also set up a GL account on the Sales Type that will hold prepayments until the transaction is finalized. The POS is set up with Suspension buttons which take the Sales Type as parameter both on the final menu (for suspending with prepayment) and start menu (for retrieving).

To Set Up Suspend With Prepayment

1. Click **LS Retail - POS, Setup, Store Card**.
2. Browse to the required store.
3. Click **Store, Income/Expense Accounts**.
4. In the **Income/Expense Account** create a new income/expense account.
5. Select the **Account Type** to be **Suspense**.
6. On the **Posting Tab** select a **G/L** account that has no VAT (0 %).
7. Fill in the other fields as required.
8. Create another Income/Expense account of the Account Type **Income** for posting voided prepayments.
9. Click **LS Retail – POS, Setup, General, Sales Types**.
10. In the **Sales Type Setup** create a new sales type.
11. Set the **Suspend Type** to be **POS Transaction**.
12. You can select whether the system asks for a deposit.
13. Select the Income/Expense account created under 4. as the **Prepayment Account No.**
14. Select the Income/Expense account created under 8. as the **Voided Prepayment Account No.**
15. Create a **POS Button** in the LS POS payment menu to be the suspend button. The POS command is **SUSPEND**, as parameter select the sales type you've created above.

To Set Up Suspend as Sales Order

1. Click **LS Retail – POS, Setup, General, Sales Types**.
2. In the **Sales Type Setup** create a new sales type.
3. Set the **Suspend Type** to be **Sales Order**
4. Create a **POS Button** in the **LS POS** payment menu to be the suspend button. The POS command is **SUSPEND**, as parameter select the sales type you have created above.
5. When you suspend the **POS Transaction**, the system will create a sales order.

4.15 Functionality Profiles

The POS Functionality Profile is giving the POS parameters on how to run different POS functionalities. These functionalities come from different groups:

- General

Here we find general parameters like definition of customer and price handling, transaction purge and use of cash management

- Amount

Parameters like VAT printing, POS symbols and Amount/Price rounding can be found here.

- Windows Printing

It is possible to define which reports shall be used for POS Windows printing. Please note that the standard kind of POS printing is OPOS printing and not Windows printing.

- Staff & Logon

Different functionalities handling the logon/logoff of staff at the POS can be configured here.

To Set up Functionality Profiles:

1. Click **LS Retail - POS, Profiles, Functionality**. The **POS Functionality Profile Card** appears.
2. Press **F3** to create a new functionality profile.
3. Fill in the **Profile ID** and **Description** fields.
4. Fill in the fields in the relevant tabs for the functionality as mentioned above.

You can also use default data to set up your functionality profiles.

When you have set up a functionality profile you need to assign to the relevant store(s) before you can run the POS terminals of that store(s).

To Assign Functionality Profiles to Stores:

1. Click **LS Retail – Back Office, Setup, Store Card**.
2. Browse to the relevant Store.
3. On the **General Tab** select the functionality profile in the field **POS Funct. Profile**.

As an alternative, the Functionality Profile can be assigned to a POS Terminal.

To Assign Functionality Profiles to POS Terminals:

1. Click **LS Retail - POS, Setup, POS Terminal Card**.
2. Browse to the relevant POS Terminal.
3. On the **General Tab** select the functionality profile in the field **Functionality Profile**.

Attention

In case you assign the Functionality Profile to POS Terminals, it is important that the profiles follow the same rules that apply to the whole store for example in rounding, VAT printing, cash management or transaction server. Therefore it is recommended to assign the functionality profile to a store rather than to a POS Terminal.

4.16 Advanced Learning

4.16.1 Using OPOS drivers for POS peripherals

OPOS drivers provide a standardized way for software to use POS terminal hardware. The LS Retail POS relies on the OPOS standard.

When setting up OPOS for LS Retail POS, you must:

- Run the install for the OPOS drivers on the POS terminal.
- Assign the OPOS driver and its device name to the hardware in the Hardware Profile Setup for LS Retail POS.

When installing OPOS drivers, specific registry entries are created, in which you can find the identifying device names of the hardware, used by the LS Retail POS.

4.16.2 OPOS Registry Entries

According to OPOS standards, each OPOS Control requires some data in the system registry in order for it to locate the proper Service Object and initialize it for the device.

When set up, all OPOS Service Object entries are placed in the registry:

HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS

4.16.3 Entries Used by LS Retail POS

Each peripheral used by LS Retail POS, must have an identifying entry for each device type. These must be inside the following entries created by the OPOS installation procedure:

- CashDrawer
- Keylock
- LineDisplay
- MSR
- POSPrinter
- Scale
- Scanner
- ToneIndicator

Each device is assigned a Device Name by a Service Object installation procedure. The default value of the Device Name key is the *Programmatic ID* of the Service Object. This string is needed by the Control Object, so that the Service Object may be loaded and the OLE Automation interfaces established between the Control Object and the Service Object. A *Logical Device Name* can be added to the registry. Both the *Programmatic ID* and the *Logical Device Name* can be used as the Device Name for each peripheral using OPOS drivers.

Example

When the EPSON TMH-6000 POS Printer has been installed its identifying entries are registered at:
HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS\POSPrinter\TMH-6000

*In this example, the Printer Device Name, used as input in the **Printer Device Name** field in the **POS Hardware Profile** table, is TMH-6000.*

You can set up a printer for each hardware profile you are using. You can set up preferences and properties both for the receipt and the document printer.

When creating a new hardware profile, all commands for the printer are set up by default. You can change those settings if needed.

To Set up OPOS Printers on POS:

1. Click **LS Retail - POS, Profiles, Hardware**.
2. Browse to the relevant hardware profile and click the **Printer** tab.
3. If using an OPOS driver, select the **OPOS** option in the **OPOS ID** field.
4. If the **OPOS** option was selected in the **OPOS ID** field, you must enter the OPOS driver name for the printer into the **Printer Device Name**. Both the Programmatic ID and the Logical Device Name can be used as the Device Name for the printer. You can find the Programmatic ID and the Logical Device Name in the registry:
5. `HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS\POSPrinter`.
6. Optionally you can use the lookup on that field to retrieve the device name from the registry.
8. Fill in other fields as needed.

If you would like to test the OPOS printer, you can do this from LS Retail after you have set it up in the POS Hardware Profile.

To test OPOS Printers from LS Retail:

1. Click **LS Retail - POS, Profiles, Hardware**.
2. Browse to the relevant hardware profile and click the **Printer** tab.
3. Click **Open Device**, in the **State** field the system shows the actual OPOS State.
4. In the following forms select the POS Terminal and the Staff.
5. Click **Print Slip** – the OPOS Printer prints a test receipt.
6. Click **Close Device**.

The following are the Device States in OPOS:

0. OCX not initialized
1. Closed
2. Idle (should be working and ready)
3. Busy
4. Error

The use of OPOS Printers is the most common way for POS Printers and LS POS is mainly designed for those printers. There are clear benefits for using OPOS Printers like the interaction via the OPOS drivers.

Nevertheless you can use Windows drivers as well. Please note that there is only a demo report available in LS Retail. You might have to customize this report. The object number of the report is 99001512.

To Define Reports for Windows Printing on POS:

1. Click **LS Retail - POS, Profiles, Functionality**
2. Browse to the relevant functionality profile and click the **Windows Printing** tab.
3. Select the required reports.

In LS Retail POS you can set up a line display for each hardware profile you are using.

To Set up Line Displays:

1. Click **LS Retail - POS, Profiles, Hardware**.
2. Browse to the relevant hardware profile and click the **Displays** tab.
3. If using an OPOS driver, select the *OPOS* option in the **Display** field.
4. If the *OPOS* option was selected in the **Display** field, you must enter the OPOS driver name for the line display into the **Line Display Device Name** here. Both the Programmatic ID and the Logical Device Name can be used as the Device Name for the line display. You can find the Programmatic ID and the Logical Device Name in the registry:
5. *HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS\LineDisplay*.
6. Optionally you can use the lookup on that field to retrieve the device name from the registry.
7. Fill in other fields as needed.

See Appendix A for a special section on POS Commands.

4.16.4 Dual Display

Instead or in addition to using a Customer Line Display you can use a so-called dual display to inform the customer. The dual display is a screen like the one for the cashier but is shows the information for the customer like the line display. In addition it can show a HTML as well for example to show advertisements to the customer. For details about the Dual Display hardware please refer to your hardware supplier.

Attention

*If you would like to use a scale in connection with the POS, you must have a customer line display.
The scale does not work when there is no customer line display connected. This is a requirement for the scale certification.
The dual display does not replace the customer line display in this case so if you like to use a dual display and a scale you must still have a customer line display.*

To Set up Dual Display:

1. In the **LS Retail Toolbox** folder you will find a folder with the name **DualDisplay**. This folder contains the external components for the use of a dual display.
2. Run the *ddisp.exe* from the **DualDisplay** folder.
3. Click **LS Retail - POS, Profiles, Hardware**.
4. Browse to the relevant hardware profile and click the **Displays** tab.
5. In the field **Dual Display** you select whether you like to use a dual display.
6. In the field **Dual Demo File Path** you select the HTML which you like to show on the dual display. A demo can be found in the folder **WWW** under the **DualDisplay** folder.
7. Restart the LS POS to activate the use of Dual Display.

5 Inventory Setup and Management

Items are the fundamental unit in the LS Retail System. LS Retail includes several features concerning item sales at the point of sale. Following is a list of the main features:

5.1.1 Item Divisions

Item Divisions (called Divisions in LS Retail) represent the most general grouping of items. They are used for 'Open to Buy' and some reports.

5.1.2 Item Categories

Item Categories represent the next level for grouping of items, making it possible to examine sales statistics on a broad perspective. You can also use Item Categories when setting up Open Department sales. Item Categories provide default posting setup groups for the related items.

5.1.3 Product Groups

Product Groups provide basic parameter that the system assigns to the item when you select a Product Group for it. Product Groups can control the barcode construction and variant groups for the retail items included in each group. They can also make the process of locating items in sections and shelves easier and control the location distribution for the items. Furthermore, discount offers can be created at Product Group level, as well as at variants and retail item levels.

5.1.4 Variants

Retail items can have 6 different variant dimensions like color, size and style. Each combination can be represented by a unique barcode. Thus, statistical results of sales by variants are available.

5.1.5 Barcodes

Retail items can be represented with one or more barcodes in addition to item number itself. Multiple barcodes are essential, that is, if the same product comes from different manufacturers, or if the item has different variants.

The system can generate barcodes for all variant combinations with a mask that takes barcode numbers from a number series.

The system also supports *EAN 8*, *EAN 13*, *UPC-A* and *UPC-E* standard barcodes.

5.1.6 Printing

The system supports the generation of Item Labels and Shelf Labels, using pre-formatted reports.

5.2 Checklist for Inventory Setup

When you set up inventory in LS Retail, you must enter certain information before you can start running the system. Certain setup is mandatory, other is optional.

For setting up inventory in LS Retail follow the tasks according to the order given, note that it has been assumed that posting groups have already been set up in the General Ledger of Microsoft Dynamics NAV, as well as tasks carried out in the Retail Setup, therefore those tasks are not mentioned in the checklist.

Order	Task/Overview	Mandatory
1	Setting up Units of Measure	Yes
2	Setting Up Comparison Units of Measure	No
3	Setting Up Item Division	No
4	Setting Up Item Categories	Yes
5	Setting Up Product Groups	Yes
6	Setting Up Price Groups	Yes
7	Setting Up Special Groups	No
8	Setting Up Item Attributes	No
9	Setting Up Seasons	No
10	Setting Up Events	No
11	Creating Retail Items	Yes
12	Registering Item Prices	Yes
13	Linking Items	No
14	Setting Up Variant Framework	No
15	Creating Variants	No
16	Setting Up Barcode Mask Characters	No
17	Setting Up Barcode Masks	No
18	Entering Barcodes	No
19	Assigning Sections and Shelves to Items	No
20	Setting Up Item Distribution	No
21	Specifying Receipt Texts for Items	No
22	Setting Up Item Labels	No
23	Setting Up Shelf Labels	No
24	Assigning Extra Print Setup to Retail Items	No

5.3 Item Divisions

The use of Item Divisions is not mandatory. It can be used for Open-To-Buy, reports, and retail item search.

To Set Up Item Divisions:

1. Click **LS Retail – Back Office, Setup, Item, Groups, Divisions**.
2. Press **F3** to enter a new Item Division.
3. Fill in the **Code** and **Description** fields.

5.4 Item Categories

There are two more levels of Retail Product Grouping in LS Retail:

- **Item Categories:** The higher level. Each Item Category contains a number of Product Groups.
- **Product Groups:** The lower level of grouping. Each Product Group contains a number of retail items.

It is important to have a well-defined Item Category structure, before you start to set up Item Categories. Before setting up Item Categories you should define how detailed the Item Category structure should be in order to serve best the needs of your business. Then you create Item Categories and assign closely related Product Groups to the same Item Category.

To ensure the correct handling of retail items, you need to set up Item Categories. You can use Item Categories to:

- Group Product Groups
- Define default Posting Groups
- Base POS cost calculation on Item Categories
- Collect and view statistics on Item Category level
- Set up an Open Item category sale

To Set Up Item Categories:

1. Click **LS Retail – Back Office, Setup, Item, Groups, Item Categories**.
2. Press **F3** to enter a new Item Category.
3. Fill in the **Code** and **Description** fields.
4. Fill in the **Default Profit %** field if needed. To base POS cost calculation on an Item Category you must select the *Item Category Based* option in the **POS Cost Calculation** field for each retail item involved.

Repeat steps 2 and 4 for each Item Category you want to set up.

Microsoft Business Solution NAV does not allow a sale on open item groups. Only sales on items is possible. Nevertheless you can set up open item category sale or open product group sale, meaning that when you have an item that does not have an item number registered, you can sell the item as a part of the Item Category or a Product Group.

Attention

When selling an open item category sale, statistics will not be retained on item level, but on Item Category level, also; the inventory will not be updated.

To Set up Open Item Category Sale:

1. Create a retail item. In the Description field, insert a description of the Open Item Category sale.
2. In the **Item Category Code** field **Retail Item Card**, select the relevant Item Category.
3. On the **POS tab** in the **Retail Item Card** window, select the option *Must Key in New Price* in the **Keying in Price** field.
4. Select the required **POS Cost Calculation** and **No Stock Posting** on the **Invoicing tab**.

When performing an Open Item Category sale, you select the item created above as the Item Category to be sold.

You can make a similar setup for a Product Group.

5.5 Product Groups

Product Groups provide a convenient way of handling barcode generation and checking, as well as supporting default variants for the retail items included in the group.

It is important to have a well defined Product Group structure, before you start to set up Product Groups. Before setting up Product Groups you should define how detailed the Product Group structure should be in order to serve best the needs of your business.

Then you create Product Groups and assign closely related retail items to the same Product Group. This is especially true for retail items that have variants.

To Set Up Product Groups:

1. Click **LS Retail – Back Office, Setup, Item, Groups, Product Groups**.
2. Press **F3** to enter a new Product Group.
3. Fill in the **Code** and **Description** fields.
4. In the **Item Category** field, click the AssistButton to see the **Item Categories** window. Select the relevant Item Category, and then click **OK** to copy it to the field.
5. Fill in the remaining fields as appropriate.

Repeat steps 2 to 6 for each Product Group you want to create.

When you select a Product Group for a retail item, the Item Category, the posting groups, the section and shelf location, the barcode mask and variant groups of the Product Group will all be automatically assigned to the item. When you make changes to these features after you have assigned items to the group, you can use a function to copy these features specifically to the items.

To Copy from Product Groups to Retail Items:

1. Click **LS Retail – Back Office, Setup, Item, Product Groups, Product Groups, Card**. The **Retail Product Group Card** window appears.
2. Browse to the relevant Product Group and click **Functions, Copy from Product Group to Items**.
3. On the **Options** tab, place a check mark in the fields for which settings you want to copy from the Product Group to its items.
4. Click **OK** to run the function. The program will copy the requested information to the retail items in the group.

Attention

Before copying information from Product Groups to retail items, the relevant retail items must already have been assigned to the Product Groups.

5.6 Retail Items

Basically, a retail item is created and set up as an ordinary item in the inventory system. For example you can use the standard Navision Bill of Material item setup and explode a retail item's BOM when posting statements.

When you have entered the necessary information and closed the window, the system creates an action in the Actions table. The new item will then be on file and ready to be sold, after the system next exports retail item data to the POS terminals.

To Create Retail Items:

1. Click **LS Retail – Back Office, Retail Item Card**.
2. Press **F3** to enter a new retail item.
3. Fill in the **No.** field, by selecting the appropriate number series.
4. Fill in the **Description** field.
5. If needed, fill in the **Base Unit of Measure** field, by selecting the appropriate unit of measure.
6. In the **Product Group Code** field, select the relevant Product Group code. Notice that the **Item Category** field is automatically filled with the Item Category of the Product Group.

7. On the **Invoicing** tab, note that the **Gen. Prod. Posting Group**, **VAT Prod. Posting Group** and **Inventory Posting Group** fields have all been copied from the Product Group as default values. You can change these groups for each retail item.
8. Fill in the **Cost** and the **Unit Price Including VAT**.
9. If the item needs to be weighed on a scale at sales time, place a check mark in the **Scale Item** field on the **POS** tab.
10. If you like to work with additional prices, click **Pricing** and select the relevant sales code.
11. Fill in other fields in the **Item Card** window as needed.

Repeat steps 2 to 11 for each retail item you want to create.

5.6.1 Item Linking

You can link retail items together, so that every time the main retail item is sold, the retail items that are linked to it are sold also. This is for example used when selling drinks in bottles, then the bottles are linked to the drinks so that every time the drink is sold, the bottle is sold with it.

Linking can for example be used when selling a bed. Then you can link the mattress, frame and legs to the bed item, so that each time the bed is sold (bearing zero price), the other items are sold automatically with it.

To Link Items:

1. Click **LS Retail – Back Office, Retail Item Card**. The **Retail Item Card** window appears.
2. Click **Item, Item Linking, Linked Items**. The **Linked Items** window appears.
3. In the **Linked Item No.** field, select the relevant item from the **Item List** window.
4. In the **Unit of Measure** field, select the Unit of Measure you like to have the item linking for.
5. In the **No. of Items** field, fill in how many units of this item should be linked to the main item; that is the item in the **Linked Item No.** field.
6. If the linked item shall be returned later – for example an empty bottle with bottle deposit paid for – then the **No. of Items should be negative and on the item (the bottle item) the parameter Qty. Becomes Negative should be set**. Then when selling the main item and the linked item, the linked item is sold 'positive'. When returning the linked item, it is negative.

Attention

It is important to make a distinction between the main item and the linked item. Each time the main item is sold, the item that is linked to it, the linked item, is sold also. The reverse does not apply, that is, when the linked item is sold, the main item is not sold also. The main item cannot be linked to other items, that is, it can never appear as a linked item. Neither can you link an item to it self.

When linked items are sold, the retail items that are linked to it are sold also. You can view which retail items have been linked to other retail items.

To View Linked Items:

1. Click **LS Retail – Back Office, Retail Item Card**. The **Retail Item Card** window appears.
2. Click **Item, Item Linking, Where-Linked List**.
3. In the **Where-Linked List** window, you can see the main item to which item the relevant item is linked. The **No. of Items** field indicates how many units of the item are linked to the main item.

5.7 Special Groups

A retail item can be a part of special groups. They are used for extra grouping out of the static item hierarchy.

To Set Up Special Groups:

1. Click **LS Retail – Back Office, Setup, Item, Groups, Special Groups**.
2. Press **F3** to enter a new Special Product Group.
3. Fill in the **Code** and **Description**.

To Assign Items to Special Groups:

1. Click **LS Retail – Back Office, Retail Item Card**. The **Retail Item Card** window appears.
2. Click **Item, Special Groups**.
3. In the field **Special Group** select the special group.

Repeat steps 3 to 5 for each special group you would like to assign to the item.

Special Groups can be used in LS Retail Standard for the Retail Item Search, definition of station printing and as a filter on the POS Command DYNMENU.

You can link a special group to an **Item Hierarchy**. This gives the option to see the special groups in the **Sales History**.

Optionally you can decide in the **Retail Setup, Sales History** Tab to '**Include Special Groups**'. In that case you do not need to link it to a **Item Hierarchy** but still can see them in the **Sales History**.

Special Groups can be assigned to **Seasons** and **Events**.

5.8 Item Attributes

Item Attributes are used to assign any number of additional fields for items:

- Text, Numeric, Amount & Dates
- Lookups to Navision tables
- Lookups with pre-defined options
- Define valid input
- Define number of instances allowed per item, or unlimited pr. Item

They are used for filtering and lookups without extra development.

Item Attributes are automatically added to items based on:

- Item Category
- Item Product Group

To Set Up Item Attributes:

1. Click **LS Retail – Back Office, Setup, Item, Attributes, Attributes Setup**.
2. Press **F3** to enter a new Attribute.
3. Fill in the **Code**.
4. Set the other parameter as needed

To assign Item Attributes to Item Categories and Product Groups:

1. Click **LS Retail – Back Office, Setup, Item, Attributes, Item Attribute Settings**.
2. Select the **Attribute Code** and the **Item Category** and **Product Group** you would like to assign it to.

Item Attributes are set automatically when item created based on item category or based on product group.

Item Attributes can be created manually as well. The Item Attributes must be linked to item category or product group before.

To assign Item Attributes to an item:

1. Click **LS Retail – Back Office, Retail Item Card**. The **Retail Item Card** window appears
2. Click **Item, Attributes**.
3. To create an Attribute press F3.
4. To delete an Attribute press F4.

Item Attributes are more flexible than Special Groups when it comes to specific configurations. They can be used in LS Retail Standard for the Retail Item Search.

5.9 Seasons

A Season is used to group items together for merchandising purposes. A Season has a Starting Date and an Ending Date. A Special Group can be assigned to a season.

The Season is used in the Retail Item Search and in a sales report by Season. You can populate promotions and discount offers with items from a season via a special group, making the item list for both easy to define.

To Set Up Seasons:

1. Click **LS Retail – Back Office, Setup, Item, Groups, Seasons**.
2. Press **F3** to enter a new Season.
3. Fill in the **Code** and **Description**.
4. Select a **Starting and Ending Date**.
5. If required, select a special group for this Season.

To Assign Items to Special Groups:

1. Click **LS Retail – Back Office, Retail Item Card**. The **Retail Item Card** window appears.
2. On the **Merchandising Tab** select the Season Code.

5.10 Events

An Event could be for example an End-of-Season sale or a promotion of items for Easter. The Event has a starting date and an ending date. A Special Group can be linked to an Event.

The promotion and discount offer allow importing items which are assigned to an Event and a report gives sales information for an Event.. A Special Group can be linked to an Event.

To Set Up Events:

1. Click **LS Retail – Back Office, Setup, Item, Groups, Events**.
2. Press **F3** to enter a new Event.
3. Fill in the **Code** and **Description**.
4. Select a **Starting and Ending Date**.
5. If required, select a special group for this Event.

To Assign Events to an Item:

1. Click **LS Retail – Back Office, Retail Item Card**. The **Retail Item Card** window appears
2. Click **Item, Events**.
3. In the field **Event Code**, select the Event.
4. Fill in a Comment if required.

5.11 Item Families

Item Families are a basic item grouping mechanism to give the retailer a possibility for additional item grouping.

To Set Up Item Families:

1. Click **LS Retail – Back Office, Setup, Item, Groups, Item Families**.
2. Press **F3** to enter a new Item Family.
3. Fill in the **Code** and **Description**.

To Assign Item Families to an Item:

1. Click **LS Retail – Back Office, Retail Item Card**. The **Retail Item Card** window appears
2. On the **General Tab** you can select the **Item Family Code**.

5.12 Variant Framework

Variants allow you to handle retail items that have up to 6 different variant dimensions. By assigning a unique barcode for each variant combination, you can scan in the barcode at the POS terminal and let the program find which variant of the item is being sold. You can therefore collect and view statistics of variant sales.

When you have assigned barcode masks to Product Groups or items the program uses the barcode mask to generate barcodes automatically for each variant combination. This can be extremely useful if there are many variant dimensions possible as the combination increase greatly with added variant codes. Otherwise, the combinations will have to be manually assigned to each barcode representing a variant.

When you have assigned a variant framework code to an Product Group you can create variants for the retail items in the Product Group. You can also assign a variant framework code to retail items and then create variants for retail items.

5.12.1 Variant Framework Codes

Before you set up variant dimensions, variant framework codes must have been set up.

To Set Up Variant Framework Codes:

1. Click **LS Retail – Back Office, Setup, Item, Variant Framework, Variant Framework Codes Setup**.
2. Insert a Framework Code and fill in the description.
3. Select the **Item Category** and **Product Group**.
4. Fill in the **Barcode Mask** field in case you like to use the barcode mask.
5. Fill the other fields as needed

Repeat steps 2 to 5 for each Variant Framework Code you want to set up.

In the **Variant Framework Combinations** you define the combinations of **Variant Dimension Base Values** you like to use for the specific Variant Framework Codes.

To Set Up the Variant Framework Combinations:

1. Click **LS Retail – Back Office, Setup, Item, Variant Framework, Variant Framework Codes Setup**.
2. Click **Settings, Combinations**.
3. In the **Code** field select the **Dimension Setups** you like to have included in the combination.
4. In the subform you can see the Values, for example colors.

5.12.2 Variant Framework Base Values

Base values for the variant framework can be values for size, color, style and others.

To Set Up the Variant Framework Base Values:

1. Click **LS Retail – Back Office, Setup, Item, Variant Framework, Variant Framework Base Values**.
2. In the **Code** field define the Base Value Code like COLOR, SIZE, STYLE.
3. In the Sub Form specify the Values like different colors, sizes and styles.
4. For colors you can see the color by clicking the AssistEdit button on the **Color** field.
5. The logical order allows resorting of the values.

5.12.3 Assigning the Variant Framework

Before creating variants for retail items you must either assign a variant framework code to the Product Group the retail item belongs to, or assign the variant group combination to the item itself. If you want to create item variants for all items in a Product Group you should assign variants to the Product Group. When assigning the Product Group to the retail item, the item will inherit the variant group combination, which you can change if needed.

To Assign a Variant Framework Code to Product Groups:

1. Click **LS Retail – Back Office, Setup, Item, Groups, Product Groups**. The **Product Group** list appears.
2. Browse to the Product Group you want to assign a variant framework code for.
3. Click **Product Group, Card**.
4. In the field Variant Framework Code select the required Variant Framework Code.

To Assign a Variant Framework Code to Product Groups to Retail Items:

1. Click **LS Retail – Back Office, Retail Item Card**, the **Retail Item Card** window appears.
2. Browse to the retail item you want to assign a variant framework code to.
3. On the **General** tab in the field **Variant Framework Code** select the required Variant Framework Code.

5.12.4 Creating Variants

Variant combination is created for each item. Before creating variants you must either assign a Variant Framework Code to the Product Group the retail item belongs to, or assign the variant group combination to the item itself.

To Create Variants:

1. When you assign the Variant Framework Code to a retail item, the system will guide you through the selection.
2. You can select the different Variant Dimension Values coming from the Variant Framework code.
3. The system will create Variants according to the selection and the Suffix / Sequence No. from the **Retail Setup**.
4. Optional you can follow this way:
5. Click **LS Retail – Back Office, Retail Item Card**, the **Retail Item Card** window appears.
6. Browse to the retail item you want to assign a variant framework code to.
7. Click **Item, Variant Framework, Functions, Register Defaults**.

5.13 Units of Measure

Before you start creating retail items you should set up units of measure codes, which you assign to retail items. You can set up an unlimited number of unit of measure codes.

To Set Up Units of Measure:

1. Click **LS Retail – Back Office, Setup, Item, Unit of Measure, Units of Measure**. The **Units of Measure** window appears.
2. Fill in the **Code** and **Description** fields.
3. If you want the unit of measure to be the one the scale and barcodes use as a base unit of measure, place a checkmark in the **Weight Unit of Measure** field.

To calculate the item price for a comparison unit, you need to set up comparison units of measure and the conversion factors between them. For example, to calculate kilogram price for an item that is sold in a 100g package, you need to set up the conversion factor between the unit of measure of the item and the comparison unit. When you have set up comparison units of measure, you can assign those to items and have the program calculate the item price for the comparison unit, for example, the kilogram price for an item that is sold in a 200 g package. Setting up comparison units of measure makes it possible to compare prices of items even if they are of varying quantities and units of measure.

Once you have defined the conversion factor between one unit and other two units, that is, between **A** and **B**, and **A** and **C**, the program will automatically calculate the conversion factor between **B** and **C**. This saves you a considerable amount of work when setting up comparison units of measure.

To Set Up Comparison Units of Measure:

1. Click **LS Retail – Back Office, Setup, Item, Unit of Measure, Comparison Units of Measure**. The **Comparison Units of Measure** window appears.
2. Press **F3** to enter a new comparison unit of measure.
3. Fill in the **Code** and **Description** fields.
4. Click **Comp. Unit, Conversion**, for a unit you want to use as bases for conversion. The **Conversion** window appears. Note that the program has automatically entered the conversion factor **1** between the chosen base comparison unit and itself.
5. In the **Comparison Unit Code** field, select a unit of measure.
6. Fill in the conversion factor in the **Conversion Factor** field, keeping in mind the equation:
*Base Unit = Comparison Unit * Conversion Factor.*

Repeat steps 5 and 6 for additional units you want to convert to the base unit.

Once you have completed entering conversion factors between the base unit and the selected units, the program has created conversion entries and calculated conversion factors between each pair of the selected units.

Example

You have set up three comparison units, Liter, Milliliter and Centiliter. You first select Liter to set up its conversion values. The conversion factor between Milliliter and Liter is 1000 and the conversion factor between Centiliter and Liter is 100. When you have entered this information in the Conversion window for Liter, the program has already created a conversion value entry for Milliliter and Centiliter. If you later add another unit, like fluid ounces, you only need to set up a conversion factor with one unit, such as Liter. The program then calculates and creates entries for the other units connected with Liter.

If the base unit is kilogram and the comparison unit is gram, the conversion factor is 1000. If the base unit is gram and the comparison unit is kilogram, the conversion factor is 0,001.

5.13.1 Comparison Prices

You can have the system calculate a comparison price for an item, based on a particular comparison unit of measure. This enables you to compare the prices of items that are sold in units of different size.

To Calculate Comparison Prices:

1. Click **LS Retail – Back Office, Retail Item Card**, the **Retail Item Card** window appears.
2. Browse to the item, for which you want to calculate comparison prices.
3. Click the **Comparison Price** tab.
4. Fill in the **Base Comp. Unit Code** field, by selecting the relevant comparison unit code.
5. In the **Qty. Per Base Comp.** field, enter the relevant quantity.
6. Fill in the **Comparison Unit Code** field, by selecting the comparison unit code you want to compare the base comparison unit to.

The program automatically calculates the comparison price. From now on, when you change the unit price of the item, the program will update the comparison price accordingly. Please note that this is only valid for the item price on item card level which may not be the active sales price.

Example

A comparison price in kilograms for an item sold in 200 g units, at the price of 20, is 100. The kilogram price can then be compared with the kilogram price for other items. When you have calculated the comparison price for a retail item, you can print it on shelf labels.

5.14 Competitors

You can set up competitors and register the competitor price for a specific retail item.

To Set Up competitors:

1. Click **LS Retail – Back Office, Periodic Activities, Retail Competitors**. The **Retail Competitors** window appears.
2. Fill in the Code and Description fields.
3. Fill in other fields as needed.

You can keep track of your competitors' prices of each retail item. You register the prices either from each retail item or from a competitor. You must register a competitor before registering competitor prices

To Register Competitor Prices:

1. Click **LS Retail – Back Office, Periodic Activities, Retail Competitors**. The **Retail Competitors** window appears.
2. Browse to the relevant competitor.
3. With a DrillDown in the **Date of Last Price Check** you can open the **Competitors Ledger Entry** list.
4. Fill in the **Item No.** field by selecting an item number.
5. Fill in the **Date** and **Price** fields.

5.15 Sections and Shelves

To have access to sales information for sections and shelves, you need to assign sections and shelves to retail items or Product Groups. You can assign as many sections and shelves to an item or Product Group as you want. However, you can only get sales information for one section and shelf per item, unless you have a way of knowing at the POS terminals from which section and shelf the item was taken. If this is the case, you need to adapt this method to the LS Retail system.

To Assign Sections and Shelves to Product Groups:

1. Click **LS Retail – Back Office, Setup, Item, Groups, Product Groups**.
2. Click **Product Group, Card**.
3. Browse to the relevant Product Group and click **Prod. Group, Section Location**. The **Product Group Section Locations** window appears.
4. Fill in the **Store No.**, **Section Code** and **Shelf Code** fields.
5. For one, and only one of the section locations, place a check mark in the **Shows Statistics** field. The program will keep information of sales for the relevant Product Group for this section and shelf assignment only.

Repeat step 4 for each section and shelf you want to assign to the Product Group.

Attention

When you assign an Product Group to a retail item, the item will automatically have the same section and shelf location as the Product Group. You can adapt this assignment for each item.

To Assign Sections and Shelves to Items:

1. Click **LS Retail – Back Office, Retail Item Card**, the **Retail Item Card** window appears.
2. Click **Item, Store Information, Section Locations**. The **Item Section Locations** window appears.
3. If the Product Group the selected item belongs to has been assigned section locations the program has already copied the section location of the Product Group to the item. In that case, you can change the **Section Code** and **Shelf Code** fields as needed.
4. If the Product Group has not assigned section location, fill in the **Section Code** and **Shelf Code** fields.
5. For one, and only one of the section locations, place a check mark in the **Shows Statistics** field. The program will keep information of sales for the relevant item for this section and shelf assignment only.

Repeat step 4 and 5 for each section and shelf you want to assign to the Product Group.

5.16 Retail Item Printing

Retail Item Printing is functionality for label printing and extra printing.

Labels are generated by using actions (or preactions if used for replication). The system scans the Action table for any data changes that require new labels to be printed.

The system contains information about all labels needed in the future. Therefore you can order labels for both the beginning date of a periodic offer and at the ending date.

Label orders are specific to each store, item, variant and unit of measure. New labels to print should be created on:

- Price change
- Comp. price change
- Description change (item or variant)
- Barcode change (the one on the retail item card)
- Label report change
- New variant added
- New unit of measure is marked to be printed

The label reports in the system are for reference. If the item price is higher than 100.000 you need to modify the report.

The Extra Print Setup allows defining extra print texts like a warranty card or item care instructions. These texts can be assigned to items for printing on the OPOS POS printer.

5.16.1 Label printing basic definitions

Basic definitions for ordering and printing of labels are found at some places in LS Retail.

- Retail Setup, Labels tab
- Store Card, General tab
- Retail Item Card, General tab
- Item Unit of Measure Card

5.16.2 Item and Shelf Label Reports

In order to print labels, you need to define and specify reports. The label reports in the demo system are for reference. If the item price is higher than 100.000 you need to modify the report. For printing barcodes you need to have a barcode font. LS Retail does not provide you with any barcode fonts.

To Set Up Shelf Labels and Assign Reports

1. Click **LS Retail – BackOffice, Setup, Labels, Shelf Label Reports**
2. Choose the label reports and assign a Label Code to them. This code is the reference used in the system.
3. Specify the Report ID to define which report shall be used in order to print the label.

To Set up Item Labels and Assign Reports

1. Click **LS Retail – BackOffice, Setup, Labels, Item Label Reports**
2. Choose the label reports and assign a Label Code to them. This code is the reference used in the system.
3. Specify the Report ID to define which report should be used in order to print the label.

5.16.3 Shelf Labels

Before printing shelf labels, you must assign shelf labels to retail items. When you assign shelf labels to items, you can set up which shelf label report you want to use to print shelf labels for individual items.

To Assign Shelf Labels to Items:

1. Click **LS Retail – Back Office, Retail Item Card**, the **Retail Item Card** window appears.
2. Browse to the item you want to assign a shelf label report to.
3. Click **Item, Text and Printing Setup, Shelf Label Setup**.
4. Fill in the **Store Group** field by selecting the relevant store group.
5. Fill in the **Label Code** field.
6. If you like to have a different label type for printing promotion labels, then you can select another label code in the field **Red Flag Label Code**.
7. Fill in other fields as needed.

To Print Shelf Labels:

1. Click **LS Retail – Back Office, Labels, Shelf Label Print**. The **Shelf Label Printing** window appears.
2. Select a function to order labels.
3. Select the label code and print the label.

There are 4 functions for ordering labels:

- **Create Needed Labels**. Runs through the Action Table and checks if any data has changed that needs to be updated on a label.
- **Create Shelf Labels by Item**. Creates labels for items according to selected filter.
- **Shelf Labels by Purch.doc**. Creates labels from the lines by Purchase Document.
- **Shelf Labels by Posted Purch.doc**. Creates labels from the lines by posted Purchase Invoice.

Attention

When opening the shelf label printing window, the system will check for labels to be generated.

5.16.4 Item Labels

Before printing item labels, you must assign item labels to retail items. When you assign item labels to items, you can set up which item label report you want to use to print item labels for individual items.

To Assign Item Labels to Items:

1. Click **LS Retail – Back Office, Retail Item Card**, the **Retail Item Card** window appears.
2. Browse to the item you want to assign an item label report to.
3. Click **Item, Text and Printing Setup, Item Label Setup**.
4. Fill in the **Store Group** field by selecting the relevant store group.
5. In the **Label Code** field.
6. Fill in the other fields on the **Item Label Setup** window as needed.

To Print Item Labels:

1. Click **LS Retail – Back Office, Labels, Item Label Print**. The **Item Label Printing** window appears.
2. Select a function to order labels.
3. Select the label code and print the label.

There are 4 functions to order labels:

- **Create Needed Item Labels**. Runs through the Action Table and checks if any data has changed that needs to be updated on a label.
- **Create Item Labels by Item**. Creates labels for items according to selected filter.
- **Item Labels by Purch.doc**. Creates labels from the lines by not posted Purchase Document.
- **Item Labels by Posted Purch.doc**. Creates labels from the lines by posted Purchase Invoice.

Furthermore item labels can be printed directly from:

- A Retail Purchase Order
- A Store Posted Purchase Invoice.

Attention

When opening the item label printing window, the system will check for labels to be generated.

5.16.5 Label Quick Print from the Retail Item Card

Shelf and Item Labels can be printed straight from the Item Card. . In both cases the system opens up a form showing what will be printed after the setup on the item. You can modify the records, change the quantity, delete or add as you wish. To print just click **Print** and all labels on the form will be printed. Note that this can also be done from the Item Search card.

5.16.6 Extra Prints

You can assign extra prints of receipts for given retail items. In order to assign extra prints you first have to set up extra prints. For further reference on extra print setup refer to chapter 2.

To Assign Extra Print Setup to Retail Items:

1. Click **LS Retail – Back Office, Retail Item Card**, the **Retail Item Card** window appears.
2. Click **Item, POS, Extra Print Setup**. The **Extra Print Setup** window appears.
3. Fill in the **Setup ID** field, by selecting an extra printout setup from the **POS Print Setup List** window.

6 Price Management

The pricing of retail items can be effectively controlled from LS Retail. Prices are either determined from the back office or from the POS terminals.

You can sell items at different prices to selected customers or in individual stores. You can set up promotions or periodic offers, meaning periodic price changes or discounts on varied combinations of items and put specific items, product groups, item categories, variants or even all items on sale for a period of time.

You can use additional item prices that act as different sales prices for specific stores, allowing you to price items totally store dependent. To register additional prices for pricing at the point of sale, you use retail price groups and item prices.

LS Retail supports store coupon endorsing. You can use store coupons as a tender type or for triggering Mix & Match offers. You can learn about setting up coupons in Chapter 7 – Barcode Management.

6.1.1 Back Office Determined Prices

- Store Specific Prices

Each store or group of stores can have a specific price for defined items. You use retail price groups and item prices for this purpose. Retail prices can have a starting date and ending date.

- Promotions

Promotions are price changes defined for specific periods like offers of the week, seasonal offers, sale and so on. A Promotion defines the active price and can be store dependent.

- Deals

A Deal is a type of item combination which has one price for the complete combo. The Deal is not an automatic discount but the cashier or waiter has to select it specifically on the POS. A Deal can contain items and PLU Menus for selecting additional items. It is used, for example, in cases of a combo like Hamburger with a selection of French Fries or Potato Wedges and a soft drink. It could be used as well for example to sell a watch where the customer can select which strap he likes but where all the combinations have one set price.

- Discount Offers

Discount offers are working on top of the standard price by giving discounts for special periods. They can be store depended. Similar to Promotions the periods can be defined by date and time which allows happy hour sales.

- Multibuy

You can register store dependent quantity discounts with a specific validation period

- Mix and Match

You can register a store dependent Mix and Match group offers in several way with multiple or the same item, product group or variant. You can either have percentage or amount discounts with a specific validation period.

- Variant Defined Prices

Retail items can have variants like colors, sizes and styles. Each combination of these is represented with a unique barcode. You can set up prices for each variant combination. This allows for example selling a large shirt for a higher price than a small shirt.

- Unit of Measure Defined Prices

Retail Items can have different units of measure. You can have different prices for each unit of measure for the item. This allows for example selling a six pack for a different price than 6 x the single item.

- Infocode Defined Prices

You can set up specific discounts in an Infocode like for staff discounts, which prompts the POS terminal cashier. You can for example let the cashier select one of a number of prices.

6.1.2 POS Terminal Defined Prices and Discounts

These are the item prices determined when running the POS terminals:

- Line Discount

You can give a line discount of an item, either as an amount or as a percentage.

- Total Discount

You can give a discount of a number of items, either as an amount or as a percentage.

- Price Change

You can run a function that overrides the price of an item.

- Keying in Price

If prompted for, you can key in the price of an item. This is set up on the retail item.

6.1.3 Rules of Priority in Price Calculation:

The system can give prices for registered customers and common retail customers. When an item is sold to a registered customer, the system looks for any Sales Price valid for that customer. The system will then compare this price to the Retail Price (which a Retail Customer would get) and activate the lower price.

There are two ways to trigger this comparison:

1. If a customer has been selected at the beginning of the transaction, the system will compare the prices when Total is pressed on the POS.
2. If the customer has not been chosen, the system will do the calculation when the customer has been selected via the Customer tender type.

Attention

Line Discounts are taken into account when calculating Customer Sales Price. Customer Sales Prices can also be based on quantity.

The calculation of the customer specific price works as Microsoft Dynamics NAV Standard. This can result in discounts on the POS which do not look as expected but are correct.

Example:

Retail Price for store 1 is 1,18.

Price on the item card is 1,30.

Customer line discount is 10%.

When selling to this customer the system finds the customer price of 1,30 since the price of 1,18 is a retail price for the store 1. It gives 10% discount on 1,30 = 0,13 or an item amount of 1,17. The POS has a retail price of 1,18 and an item amount of 1,17 so shows 0,85 % discount.

The system looks for the valid retail price of an item in the following order:

1. Periodic discounts, that is; discount offer, mix & match offer, multibuy offer prices are always selected if triggered. The base price for periodic offers is the active price. An item can be in many discount offers with a priority mechanism controlling the prices. The periodic discounts are calculated on top of the active price.
2. Active price, this is the best price coming from promotions, the item price incl. VAT in the retail price table or the item price including VAT from the item table.
3. The cashier has to key in a price.

When the system has selected the price of an item, the cashier can additionally give discounts on the POS terminal.

Attention

When the Base Unit of Measure of an item is not the same as the Sales Unit of Measure it is important to know that the PlusPOS system uses the Base Unit of Measure for pricing an item.

6.2 Price Groups

In order to have additional item prices at the point of sale you need to define price groups. When you register additional item prices for an item, you assign price groups to the retail item. You can assign a number of price groups to an item.

To register additional prices you use price groups and item prices. A price group includes information about the store group in which the price is valid and the VAT Business Posting Group (Price). The link to the store group is used for the distribution of the data.

When you have set up price groups you must assign those to the stores they are valid in, and set up the price group levels to define the priority of the price group in the Store. The Default Priority in the Retail Price Group is used as the default but can be changed in the Store Price Groups.

In the Retail Setup you can define a default price group. If you decide to do so, creating an item will create a retail price for the default price group that has the price from the retail item card. Changing the price on the retail item card will update this retail price and vice versa. Please note that specific settings in the retail price line like start- or end date, unit of measure, variant code etc. will prevent the system from updating the price.

To Set Up Price Groups:

1. Click **LS Retail - BackOffice, Setup, Item, Retail Price Groups**. The **Retail Price Groups** window appears.
2. Fill in the **Code** field.
3. Fill in the **Store Group** to define the group of stores you like the price group to be valid in.
4. Fill in the **VAT Business Posting Group (Price)** and mark the price group as **Retail Price Group**.

5. In the **Default Priority** you can define the priority value that the price group shall have in the store.
6. Fill in other fields as needed.

To use additional item prices at stores, you must assign price groups to the stores. Since you can assign more than one price group to each store, you need to assign priorities to the price groups assigned to the store to define the precedence of the price groups in the store. The program uses the price group levels to find the price group to use at the POS terminals according to rules of priority, where a price group with a *higher* level has *more priority* than a price group with a *lower* level.

If the program does not find a valid item price after checking all valid price groups in level order, it sends the normal unit price, that is, the price shown on the retail item card.

To Assign Price Groups to Stores:

1. Click **LS Retail - BackOffice, Setup, Store Card**. The **Store Card** window appears.
2. Browse to the relevant store and click **Store, Store Price Groups**. The **Price Group** window appears.
3. Fill in the **Price Group** field by selecting a price group.
4. If using more than one price group at the store, check the **Priority** field.

Repeat steps 3 and 4 for each price group you want to assign to the store.

Attention

Price Groups are often called Retail Price Groups which are Customer Price Groups marked with the parameter Retail Price Group. This mark is used for filtering purposes.

6.3 Price Registration

For each retail item you want to give additional prices at the POS terminals you must enter the item prices through use of a price group. Before you register additional item prices, you must create a retail price group (assigned to the relevant store(s)) that the additional price will be assigned to.

To Register Item Prices by Retail Price Groups:

1. Click **LS Retail - BackOffice, Retail Item Card**, the **Retail Item Card** window appears.
2. Browse to the relevant item and select the **Pricing** tab.
3. Fill in the **Sales Code** field by selecting a price group from the **Customer Price Groups** window.
4. Fill in the **Unit Price** incl. **VAT** field.
5. If required, fill in the **Starting Date** and **Ending Date**. Empty **Starting Date** and **Ending Date** make the price valid immediately and without ending.

Repeat steps 3 and 4 for each price group you want to assign to the item.

You can register Item Prices for the same Sales Code with different dates, for example to register future prices.

Attention

Promotions overrule Item Prices by Retail Price Groups when they are for the same settings like date, store group, Unit of Measure and Currency Code. The promotions don't create lines in the Item prices.

Retail items can have different variants e.g. for sizes, colors and styles, each combination represented with a unique barcode. You can set up prices for each variant combination.

To Register Price by Variants:

1. Click **LS Retail - BackOffice, Retail Item Card**, the **Retail Item Card** window appears.
2. Browse to the relevant item and select the **Pricing** tab.
3. In order to have the variant code on the form you need to activate it. For that you select in the menu bar **View, Show Column** and place a checkmark in front of **Variant Code**.
4. Fill in the **Variant Code** field by selecting an item variant.
5. Fill in the **Unit Price** incl. VAT field.

Repeat steps 4 and 5 for each variant of the item you want to register a price for.

6.3.1 Price per Unit of Measure

Retail Items can have different units of measure. You can have different prices for each unit of measure for the item. This can for example be useful when selling one beer and a six-pack of beers at different unit prices.

To Register Price by Unit of Measure:

1. Click **LS Retail - BackOffice, Retail Item Card**, the **Retail Item Card** window appears.
2. Browse to the relevant item and select the **Pricing** tab.
3. Fill in the **Unit of Measure Code** field by selecting a unit of measure.
4. Fill in the **Unit Price** incl. VAT field.

Repeat steps 3 and 4 for each unit of measure of the item you want to register a price for.

Attention

When the Base Unit of Measure of an item is not the same as the Sales Unit of Measure it is important to know that The LS Retail POS system uses the Base Unit of Measure for pricing an item.

6.3.2 Price per Currency

Retail Items can have different prices in different currencies. This is useful when having a head office in one country and stores in different countries.

To Register Price by Currency:

1. Click **LS Retail - BackOffice, Retail Item Card**, the **Retail Item Card** window appears.
2. Browse to the relevant item and select the **Pricing** tab.
3. In order to have the currency code on the form you need to activate it. For that you select in the menu bar **View, Show Column** and place a checkmark in front of **Currency Code**.
4. Fill in the **Currency Code** field by selecting a currency.
5. Fill in the **Unit Price** incl. VAT field.

Repeat steps 4 and 5 for each unit of measure of the item you want to register a price for.

Attention

Defining a currency is not necessary and should not be done when the store is in the same country as the system where you set up the prices is working in. The local currency in Microsoft Dynamics NAV is Code 'Empty'. The currency of a store is defined on its store card. The price mechanism filters on the currency code. Please note as well that the VAT settings in the country of the headoffice are most likely different from the ones in the country where the store is. Therefore you should create special price groups with the country specific VAT Business Posting Group (Price) in it.

6.4 Promotions

Promotions are periodic prices which are considered as building the active price. A price group defines the stores in which the promotions are valid. By selecting a price group, the promotion can be valid in specific stores.

You can set up promotions for items, product groups, item categories and all items. For single items you can select specific item variants.

Before you set up periodic offers, you must set up periods when the offers are valid. Then you can assign validation periods to periodic offers. For more information please refer to the Periodic Offers.

To Create Promotions:

1. Click **LS Retail - BackOffice, Offers, Promotion**. The **Promotion** window appears.
2. Press F3 to create a promotion.
3. Fill in the **Description**, and **Price Group** fields.
4. In the **Disc. % from Std. Price** field, insert the discount % given by default. If you want to set limits on the validation period for the offer; On the **Validation Period** tab fill in the **Disc. Validation Period** field to determine the validation period for the offer.
5. On the **Store Group** tab you select the store groups where the promotion shall be distributed to.
6. In the offer lines, fill in the **Type** field to determine if the offer is valid for an item, a product group, a item category or all items
7. In the **No.** field, select the required number according to the **Type**.
8. If needed, change the default value in the Disc.% field.
9. The standard use of a promotion is to define an **Offer Price Including VAT**.
10. If you want to activate the promotion now, press **Enable** button.

Repeat steps 6 to 9 for item or item group you want to include in the discount offer.

There are 4 different options to get items into a promotion from a promotion card:

- Filling in the promotion lines manually
- Getting items into a promotion by **Promotion, Get Items, Get Items**. This will open a report request form in which you can set filters on the items and some options.
- Getting items into a promotion by **Promotion, Get Items, Get Items (Event Links)**. This will open a report request form in which you can set filters on the event/items and some options.
- Getting items into a promotion by **Promotion, Get Items, Get Items (Special Groups)**. This will open a report request form in which you can set filters on the special groups/items and some options.

Attention

The Price Group on a promotion defines in which stores the promotion shall be valid. The Store Groups define to which stores the promotion shall be distributed. In order to get the correct result you should make sure that the groups contain the correct stores.

6.5 Deals

The Deal is not an automatic discount but the cashier or waiter has to select it specifically on the POS. A Deal can contain items and PLU Menus for selecting additional items. It is used in for example in cases of a combo like Hamburger with a selection of French Fries or Potato Wedges and a soft drink. It could be used as well for example to sell a watch where the customer can select which strap he likes but where all the combinations have one set price.

To Create Deals:

1. Click **LS Retail - BackOffice, Offers, Deals**. The **Deal** window appears.
2. Press F3 to create a deal.
3. Fill in the **Description**, and **Price Group** fields.
4. In the field **Deal Price** fill in the price for the Deal
5. In the deal lines, fill in the **Type** field to determine if the offer is valid for an item or a PLU Menu.
6. In the **No.** field, select the required number according to the **Type**.
7. The PLU Menu shall contain the items that can be selected by the customer
8. If you want to activate the deal now, press **Enable** button.

6.6 Periodic Offers

You can set up three types of periodic offers in LS Retail:

- Discount Offer
- Multibuy Discount
- Mix & Match

Besides this you can trigger specific prices by inserting coupons into mix and match offers.

Before you set up periodic offers, you must set up periods when the offers are valid. Then you can assign validation periods to periodic offers.

You can limit the validation period from a date to a date, to specific days of the week, to times of the day, or to a combination of these limiting factors.

If you do not set up a discount validation period and assign it to discount offers, the discount offers are always valid.

To Set Up Discount Validation Periods:

1. Click **LS Retail - BackOffice, Setup, General, Discount Period Setup**. The **Discount Period Setup Card** window appears.
2. Fill in the **ID** and **Description** fields.
3. If you are setting up a validation period, valid at all times, you should not fill in more fields
4. If you want to set limit on the start and ending date of the periodic offers, fill in the **Starting Date** and **Ending Date** fields. Notice that if you take out the checkmark in the **Date within Bonds** field, the offers are valid not within but without the starting and ending date and time.
5. If you want to set limit on the weekdays the offer is valid, fill in the relevant fields for each tab with a name of a weekday.
6. For something like happy hour you can define **Starting Time** and **Ending Time**. In case the Ending Time is after midnight, set the parameter **Ending Time After Midnight**.

6.6.1 Discount Offers

You can sell retail items at a discount price for periods of time by including them in discount offers. You can also sell all retail items in selected product groups, item categories or all items with a percentage discount by including them in discount offers. In the discount offer lines you can select different item variants and unit of measures.

To Create Discount Offers:

1. Click **LS Retail - BackOffice, Offers, Periodic Discounts, Discount Offer**. The **Discount Offer** window appears.
2. Press F3 to create a new discount offer.
3. Fill in the **Description**, and **Price Group** fields.
4. In the **Disc. % from Std. Price** field, insert the discount % given by default to the items and/or item groups in the offer.
5. On the **Store Group** tab you select the store groups where the promotion shall be distributed to.
6. If you want to set limits on the validation period for the offer; On the **Validation Period** tab fill in the **Disc. Validation Period** field to determine the validation period for the offer.
7. In the **Priority** field you define the priority of the discount offer against other periodic offers with one or more of the same items.
8. In the offer lines, fill in the **Type** field to determine what the offer line is valid for.
9. In the **No. field**, select the required number according to the **Type**.
10. If needed, change the default value in the **Disc.%** field.
11. If you want to activate the offer now, press **Enable** button.

Repeat steps 7 to 9 for item or item group you want to include in the discount offer.

There are 4 different options to get items into a discount offer from a discount offer card:

- Filling in the discount offer lines manually
- Getting items into a discount offer by **Disc.Offer, Get Items, Get Items**. This will open a report request form in which you can set filters on the items and some options.
- Getting items into a discount offer by **Disc.Offer, Get Items, Get Items (Event Links)**. This will open a report request form in which you can set filters on the event/items and some options.
- Getting items into a discount offer by **Disc.Offer, Get Items, Get Items (Special Groups)**. This will open a report request form in which you can set filters on the special groups/items and some options.

Attention

Once you have set up a periodic offer, you need to change its status from disabled to enabled in order for it to be valid at the POS terminals. If the POS terminals are online the items belonging to this group will have the offer active as soon as the offer has been enabled. If the POS terminals are not online the new unit prices will be valid as soon as replication of the enabled offer has taken place. You can change the status from disabled to enabled, and back to disabled as many times as needed.

A periodic offer can not be changed while its status is enabled. You can delete a disabled discount offer, but you must be aware of the consequent loss of statistical information.

The Price Group on a periodic offer defines in which stores the promotion shall be valid. The Store Groups define to which stores the periodic offer shall be distributed. In order to get the correct result you should make sure that the groups contain the correct stores.

An item can be only part of many different periodic offers. The Priority on the periodic offer defines the priority level in case the POS finds more than one active offers for an item.

6.6.2 Multibuy Discount Offers

Multibuy discounts function like quantity discounts in LS Retail. You can either define a new unit price or a percentage discount when a certain number of items have been sold, and set a further discount with an increasing number of items.

When you set up multibuy discounts, you can assign multibuy discount groups to retail items.

To Create Multibuy Discounts:

1. Click **LS Retail - BackOffice, Offers, Periodic Discounts, Multibuy Discount**.
2. Press **F3** to create a new multibuy offer.
3. Fill in the **Description** and **Price Group** fields.
4. On the **Store Group** tab you select the store groups where the promotion shall be distributed to.
5. In the **Discount Type** field select if the offer triggers a new unit price, or a discount.
6. If you want to set limits on the validation period for the offer; On the **Validation Period** tab fill in the **Disc. Validation Period** field to determine the validation period for the offer.
7. In the **Configuration** tab, fill in the **Min. Quantity** to determine the minimal quantity needed to trigger the multibuy offer.
8. Fill in the **Unit Price/Disc.%** field with either the new *unit price* or the *discount* given, according to the option selected in the **Discount Type** field on the **General** tab.
9. In the item list fill in the **No.** of the item which shall be in the Multibuy.
10. If you want to activate the offer now, press **Enable** button.

Repeat steps 6 and 7 for each range of minimal quantity you want to add to the multibuy offer.
Repeat step 9 for each item that you want to add to the multibuy offer.

6.6.3 Mix and Match Offers

Retail items, product groups and variants, can be included in mix & match offers to allow discounts when buying a specific quantity and/or combination of goods.

An example of a mix & match is a group of four items, two different types of soda, a bag of potato chips and one candy bar, where the customer gets the candy bar for free if he buys one of either types of soda and the bag of chips.

When you set up a mix & match group, you need to define how the discount should be configured and choose the items, item groups or variants, which are included. This involves setting the price or percentage discount, finding a descriptive name and setting up how many items are needed for the discount to take effect.

6.6.4 Types of Mix & Match Offers

There are three types of Mix and Match Offers:

- A certain number of items in the mix & match offer are sold for the *price* or *discount* defined by the group as a whole, the total price or discount is always the same.
- Each item in the mix & match group has an *individual discount* or a *deal price* applied if a certain number of the item is sold, the total price varies depending on which item is sold.
- The least expensive constituent line of the mix & match group is free, enabling you for example to give a *two for the price of one* discount. Other percentage values are possible as well.

To Create Mix & Match Discounts:

1. Click **LS Retail - BackOffice, Offers, Periodic Offers, Mix & Match**. The **Mix & Match** window appears.
2. Press **F3** to create a new mix & match offer.
3. Fill in the **Description** and **Price Group** fields.
4. On the **Store Group** tab you select the store groups where the promotion shall be distributed to.
5. On the **Configuration** tab, select the Discount Type by setting one of the RadioButtons to determine the discount type.
6. If you want to set limits on the validation period for the offer; On the **Validation Period** tab fill in the **Disc. Validation Period** field to determine the validation period for the offer.
7. In the offer lines, in the **Type** field, select the **Item** or **Product Group** you want to include in the offer.
8. Fill in the **No.** field.
9. In the field **Variant Code** you can select a specific variant for an item.
10. Enter the necessary information in each line, for example determining, in the **Line Group** field. You can set up different line groups by doing a Lookup on the **Line Group** field. For a better overview you can assign colors to the line groups.
11. In the **No. of Items Needed** field you define how many items are needed to fulfil the Mix&Match.
12. If you have selected the discount type **Line spec.** for the Mix&Match, you can set the discounts or prices per line.
13. If you want to activate the offer now, select the *Enable* option in the **Status** field on the **General** tab.
14. If you want to activate the offer now, press **Enable** button.

Repeat steps 7 to 12 for each variant, item or product group you want to include in the mix & match offer.

6.7 Testing Offers

It is possible to test Promotions, Discount offers, Multibuy and Mix&Match within the Back Office. This allows checking whether the offer gives the expected result without running a POS. The offer testing runs a 'virtual POS' from the Back Office that follows the price mechanism at the real POS.

To Test the Offer from the Promotion Card:

1. Click **LS Retail - BackOffice, Offers, Promotion**. The **Promotion** window appears.
2. The testing works on any promotion, you do not need to select a specific one and the testing check the full price mechanism.
3. Click **Promotion, Test Offer**.
4. In the **Price Check Card** you can select customer, item and quantity as well as store number, POS terminal number and staff.
5. Press **Submit**.

The testing of offers works similar from the discount offer, the multibuy and mix&match card.

6.8 Retail Campaigns

By using Retail Campaigns the retailer can define a set of offers – Deals, Promotions, Discount Offers, Multibuy and Mix & Matches - that are valid within the same validation period frame.

To Create a Retail Campaign:

1. Click **LS Retail - BackOffice, Offers, Campaign**. The **Campaign** window appears.
2. Press **F3** to create a new Retail Campaign.
3. Fill in the **Description** of the **Retail Campaign**
4. On the **Validation Period** tab choose the **Validation Period** for the set of offers that you like to have included in the **Retail Campaign**. The system then checks the validation periods of the related set of offers against the validation period of the retail campaign.
5. In the retail campaign lines you can select the different offers now by the **Offer Type** which can be Deal, Promotion, Discount Offer, Multibuy or Mix&Match. Then select the **Offer Number**.
6. As an alternative you can 'import' offers to the lines by click **Function, Get Valid Offers**.
7. On the tab **Pages** you can insert the different pages according to an advertisement.
8. Then you assign the pages to the offers on the **Offer** tab.

6.9 Infocode Discounts

An **Infocode Discount** is a type of discount that is triggered by an Infocode. The most common use of the Infocode Discounts is to give staff or employee discounts. The Infocode discount is based on **Microsoft Dynamics NAV Customer Discount Groups** and therefore needs a known customer on the POS. For staff/employee discount each staff member needs to be a customer in Microsoft Dynamics NAV or you would define a general customer 'Employee'.

To define a Customer Discount Groups to be an Infocode Discount Group

1. Click **Administration, Application Setup, Sales&Marketing, Customer Disc. Groups**
2. In the list with the customer discount groups select an existing one or create a new one. Mark it with **Infocode Discount Group**.
3. Setup a Standard Sales Line Discount.
4. Link the Sales Line Discount to the required items.

To link the Infocode Discount Group to an Infocode

1. Click **LS Retail – POS, Infocodes**, the **Infocode Card** appears.
2. Create an **Infocode** for your **Infocode Discount**.
3. Set **Type Of Input** to be **SubCode**.
4. Click **Infocode, Subcodes**.
5. Define a Subcode and set **Trigger Function** to be **Discount Gr.**
6. On the **Trigger Code** select the **Infocode Discount Group** which you have configured before.
7. Link the Infocode to the required customer.

Attention

You may have Periodic Discount Offers such as Discount Offers, Multibuy or Mix&Match that might have the lowest price so you do not want to give additional staff or other Infocode Discount.

In this case you can disable the Infocode Discount to come on top of the Offer by setting the parameter Disable Infocode Discount within the Offer. This option is not available for Promotions or Deals.

6.10 Coupon handling

LS Retail supports two types of coupons, Manufacturer Coupons and Return Coupons.

Manufacturer coupons are issued by the manufacturer of a product in order to increase sales and product awareness. These coupons are commonly printed on container boxes for the products or in newspapers and magazines. Once accepted the manufacturer owes the store the coupon amount.

A return coupon is a coupon that is issued at the POS in order to encourage the customer to return to the store. The coupon is usually in the form of some sort of discount or payment. These coupons can be triggered at the end of sale.

6.9.2 Coupon Issuer

The Coupon Issuer is either a manufacturer or the retailer.

To Create a Coupon Issuer:

1. Click **LS Retail – Back Office, Coupons, Coupon Issuer**, the **Coupon Issuer Card** appears.
2. Create a Coupon Issuer by pressing **F3** and entering the **Coupon Issuer Code**.
3. If the **Coupon Issuer** is a manufacturer, select the vendor in the field **Vendor Number**.
4. Select the **Default Type** as **Manufacturer Coupon** and fill in the other header fields as needed.
5. In the Coupon Issuer Lines you can define the relation of a **Coupon Header** to Items, Product Groups, Item Categories or all items. On item level you can select a variant code and an UOM as well.
6. If the **Coupon Issuer** is the retailer, you leave the field **Vendor Number** blank. Select the **Default Type** as **Return Coupon** and fill in the other header fields as needed.

6.9.3 Coupon Header

1. Click **LS Retail – Back Office, Coupons, Coupon**, the **Coupon Header Card** appears.
2. Create a new Coupon by pressing **F3**.
3. Select the **Coupon Issuer** and define the **Coupon Reference No**.
4. On the **Validation Period** tab you can select the period for which the coupon is valid.
5. For **Return Coupons** you can define the rules for issuing the coupon on the **Issuing** tab.
6. For **Manufacturer Coupons** you can select the item, product group, item category or all items for which the coupon applies.

6.9.4 Coupon Tender Type

Payment with Coupons is done by using a tender type of the function 'Coupon'. For setting up tender types please refer to chapter 3.9, Tender Types.

6.11 Price Reduction on Items by Using Barcodes

For some retailers it is necessary to be able to reduce the price of an item based on specific reasons such as the approaching expiry date of the item, new package for the same item, minor defects of the item etc.

In these cases some pieces of the same items have a reduced price while others have the normal price.

In order to identify items with a reduced price, a new barcode must be printed.

6.11.1 Different price by Barcode

It is not possible to assign a price directly to a barcode. A link between the retail price and the barcode is the **Item Unit of Measure**. It can be assigned to both sides and therefore give a different price per barcode. This is the same procedure for having a different price of 6 single items or an item 'sixpack'. The major difference is that the item unit of measure quantity per unit of measure for a 'sixpack' is six while for a different price per barcode the quantity is one.

6.11.2 Discount by Barcode

In order to give a discount based on a barcode, it is necessary to define a barcode mask for a barcode with 'price in barcode' and create a barcode accordingly. Details about this procedure can be found in chapter 7, Barcode/PLU Management.

When the barcode has been created you can open the barcode list for the item and define a **Discount %** on the barcode.

7 Barcode Management

LS Retail supports barcodes/PLUs for several features. You can use barcodes for purchasing and selling items, and variants, for registering staff, for issuing and endorsing gift cards and vouchers.

You may need to register retail items, either by using standard barcodes or by using inhouse barcodes. The LS Retail system supports both. It also provides support for:

- Barcode creation
- Barcode checking

Creating barcodes manually can be a lot of work and can cause errors. In many cases, the program can make the task of entering barcodes for items easy and faultless.

The steps you must carry out when setting up barcodes are as follows:

Order	Task	Mandatory
1	Setting Up Barcode Mask Characters	If used
2	Setting up Barcode Masks for Inhouse Barcodes	If using inhouse barcodes
3	Define Barcode Checking	If barcode checking is used
4	Entering Barcodes/PLUs for Retail Items	Yes
5	Entering Barcodes for Retail Variants	If using barcodes for variants

7.1.1 Standard Barcode Support

Barcodes often have a fixed structure, like the EAN standard barcodes. If you set up barcode check for a product group, the program can detect errors in the input, and also simplify the task of creating barcodes for each item in the product group. For example, if you are using EAN standard barcodes, with modulus check digit as the last digit, the system can automatically check the validity of the barcode input, and if necessary calculate and correct the check digit.

The LS Retail system supports four standards of barcode checking:

- EAN 13
- EAN 8
- UPC-A
- UPC-E

If you are using your own EAN license number for creating barcodes, you can register the license number in the **EAN License No.** field in the **Retail Setup** window.

7.1.2 Inhouse Barcodes

You can set up barcode checking for inhouse barcodes; that is, barcodes created and used in one company only. It is recommended to use a fixed structure for inhouse barcodes, using a specific barcode mask and a check digit. Whether a fixed structure is needed for inhouse barcodes depends on the settings of the scanners on the POS terminals. Some scanners only validate barcodes with a specific format and check digits. The LS Retail POS system supports input from scanners that read in the whole barcode number and check the barcode's check digit. When setting up barcodes and barcode masks you should be aware of the settings of the scanners the system will be using.

7.2 Barcode Masks

To be able to create barcode masks for items and product groups, you must set up barcode mask characters. Barcode mask characters are alphabetical letters that make up a barcode mask. When the program generates a barcode from the input typed in as barcode and uses its barcode mask as guide, it replaces the characters in the mask with the appropriate numbers or checks that the input corresponds to the type of mask character.

If an item barcode mask contains a number series, the program can automatically generate barcodes for the item to represent all combinations of variants.

To Set Up Barcode Mask Characters:

1. Click **LS Retail – Back Office, Setup, Item, Barcode, Barcode Mask Characters**.
2. In the **Character Type** field, select what the character should signify.
3. In the **Character** field, enter the character you want to use.
4. In the **Comment** field, you can enter an instructive comment on the use of the particular barcode mask character.
5. The barcode mask characters are fixed values.

Repeat steps 2 to 4 for each barcode mask character you want to set up.

You can also set up barcode mask characters by using default data creation.

Attention

There are eleven types of barcode mask characters you can set up for item barcodes:

Item No.; representing the item number

Any No.; representing any digit in the barcode created

Check Digit; representing the check digit in a fixed format barcode mask

Coupon Reference; a reference number to a coupon

EAN License No.; representing an EAN license number in a barcode mask

Price; representing price in barcode

Quantity; representing quantity and weight in barcode

Employee; to specify employee numbers

Customer; to specify customer number

Data Entry; representing data entry numbers

Number Series; to specify a number series for creating barcodes

To Set Up Barcode Masks:

1. Click **LS Retail – Back Office, Setup, Item, Barcode, Barcode Mask Setup**. The **Barcode Mask Setup** window appears.
2. Press **F3** to create a new barcode mask.
3. In the **Type** field, select a type representing the barcodes created by the mask, for example, the *Item* option.
4. Lookup in the **Mask** field to define the barcode mask, the **Barcode Mask Setup Card** window appears.
5. Fill in the **Description** field.
6. Fill in the **Type** field. If you are setting up a barcode mask for retail items, you select the *Item* option.
7. Fill in the **Prefix** field, with any value according to EAN standard.
8. Now you must fill in the lines, which are split up in segments. Fill in the **Segment No.** field, the first line should have segment number 1, the second, segment number 2 and so on.
9. Fill in the **Segment No.** field, the first line should have segment number 1, the second, segment number 2 and so on.
10. In the **Type** field select the type of the segment you want to include in the Barcode Mask.
11. In the **Length** field insert the number of characters you want to have in the segment.
12. For special types like **Price** or **Quantity** define the number of decimals.

Repeat steps 8 to 11 for each segment you want to set up. Remember to keep the latest segment free for a check digit, with the type *Check Digit* and the length 1.

7.2.1 Inhouse Barcodes

You can set up barcode creation and checking inhouse barcodes, that is, barcodes created and used in your company only, for example for registration of items, customers barcode numbers, and coupon numbers.

It is recommended to use a fixed structure for inhouse barcode, using a specific barcode mask and a check digit.

Whether a fixed structure is needed for inhouse barcodes depends on the settings of the scanners on the POS terminals. Some scanners only validate barcodes with a specific format and check digits. The LS Retail POS system supports input from scanners that read in the whole barcode number and check the barcode's check digit. When setting up barcodes and barcode masks you should be aware of the settings of the scanners the system will be using.

If you choose to use a barcode mask for items with variants, you can let the program generate the barcodes by using a number series. If you do not use barcode masks for item variants, you need to type in the barcode for each variant combination; that is for all possible variant combinations, for example size, color and style. It is therefore recommended to use barcode masks for item variant barcodes.

To Set up Barcode Masks for Inhouse Barcodes:

1. Click **LS Retail – Back Office, Setup, Item, Barcode, Barcode Mask Setup**. The **Barcode Mask Setup** window appears.
2. Press **F3** to create a new barcode mask.
3. In the **Type** field, select a type representing the barcodes created by the mask, for example, the *Item* option.
4. Lookup in the **Mask** field to define the barcode mask, the **Barcode Mask Setup Card** window appears.
5. Fill in the **Description** field.
6. Fill in the **Type** field. If you are setting up a barcode mask for retail items, you select the *Item* option.
7. Fill in the **Prefix** field. All inhouse barcodes should have the prefix 02 or 99 to comply with the EAN13 standard. Inhouse Barcodes with price or quantity/weight are usually EAN13 barcodes with prefix 20-29.
8. Now you must fill in the lines, which are split up in segments. Fill in the **Segment No.** field, the first line should have segment number 1, the second, segment number 2 and so on.
9. In the **Type** field select the type of the segment you want to include in the Barcode Mask.
10. In the **Length** field insert the number of characters you want to have in the segment.

Repeat steps 8 to 10 for each segment you want to set up. Remember to keep the latest segment free for a check digit, with the type *Check Digit* and the length 1.

Example

Here are some examples of how to set up inhouse barcode masks. Before reading the examples you might want to get familiar with the possible barcode mask characters.

02NNNNNNNNNNNM

This is an EAN 13 barcode mask to take a number from a number series, including the check digit.

27IIIIIPPPPM

This is an EAN 13 barcode mask with the price included in the barcode.

28IIIIQQQQM

This is an EAN 13 barcode mask with the price included in the barcode.

20NNNNPPPPPM

This is an EAN 13 barcode mask to take the number from a number series and the price included in the barcode. It can be used to define barcodes for price reduction.

99LLLLRRRPPM

This could be a barcode mask for a coupon including the coupon reference and the price.

Attention

The barcode mask characters for price and quantity are not used in the barcode creation functionality. For barcodes that contain price or quantity/weight please follow the instructions given under 7.4.

7.2.2 Standard Barcodes

Barcodes usually follow standards, like the EAN standard barcodes. The LS Retail system supports four standards of barcode creation and checking:

- EAN 13
- EAN 8
- UPC-A
- UPC-E

If you have your own EAN license number and are creating barcodes in your business, you must register the license number in the **EAN License No.** field in the **Retail Setup** window.

To Set up Barcode Masks for Standard Barcodes:

1. Click **LS Retail, Setup, General, Barcode Masks**. The **Barcode Mask Setup** window appears.
2. Press **F3** to create a new barcode mask.
3. In the **Type** field, select the *Item* option.
4. Define the barcode mask in the **Mask** field. The **Barcode Mask Setup Card** window appears.
5. Fill in the **Description** field.
6. Fill in the **Type** field. If setting up a barcode mask for retail items, select the *Item* option.
7. Fill in the **Prefix** field. You must set up the prefix according to the standards you are using.
8. Now you must fill in the lines, which are split up in segments. Fill in the **Segment No.** field, the first line should have segment number 1, the second, segment number 2 and so on.
9. In the **Type** field select the type of the segment you want to include in the Barcode Mask.
10. In the **Length** field insert the number of characters you want to have in the segment.

Repeat steps 8 to 10 for each segment you want to set up. Remember to keep the latest segment free for a check digit, with the type *Check Digit* and the length 1.

Attention

These are some standards for the **Prefix** field when setting up EAN 13 barcodes:

- 20: for inhouse barcodes with individual number like item number and check digit
- 21-24: for barcodes including price (individual item no.)
- 25+26: for barcodes including item number and number of units (pieces)
- 27: for barcodes including price (item no. from the GS1 organization)
- 28: for barcodes including weight (individual item no.)
- 29: for barcodes including weight (item no. from the GS1 organization)
- 99: for coupon barcodes

For further information about barcode standards: <http://www.gs1.org>

7.3 Barcode Checking

If you want to use barcode checking, for example for checking inhouse barcodes, created and used in your company only, then you must place a checkmark in the **Use EAN Standard Barc.** field for each product group you want to check barcodes for.

If you are using standard barcodes EAN 8, EAN 13, UPC-A and UPC-E, or inhouse barcode mask with the prefix 02 and the length 13, the system can automatically check the validity of the barcode input, and if necessary, calculate the check digit and convert the input into a standard EAN barcode. You can set barcode checking up for up for retail product groups. It is important to set up the barcode checking for the product group before you assign to it the appropriate retail items. You can also change or add a barcode mask at retail item level

To Set Up Barcode Checking:

1. Click **LS Retail – Back Office, Setup, Item, Groups, Product Groups**, the **Product groups** window appears.
2. Browse to the product group, for which you want to activate barcode checking.
3. Click **Product Groups, Card**.
4. Place a checkmark in the **Use EAN Standard Barc.** field if the barcodes for the items that belong to the product group should generally follow the EAN standard for barcodes. The program will copy this field into the **Use EAN Standard Barc.** field for the items you assign to this product group.

7.4 Barcode/PLU Registration

You can register a barcode/PLU for a retail item, which will represent the item at the POS terminals. If you are using variants and a barcode mask has been set up for the item or the product group, you can let the system create barcodes automatically.

To Enter Barcodes/PLUs for Retail Items:

1. Click **LS Retail – Back Office, Retail Item Card**. The **Retail Item Card** window appears.
2. Browse to the desired item.
3. Click **Item, Barcodes, Barcode List**.
4. Press **F3** to enter a new barcode for the item.
5. In the **Barcode No.** field, enter the item barcode.
6. If you want this Barcode/PLU number to be shown in the **Barcode No.** field in the **Retail Item Card** window and the **Retail Item List** window, place a checkmark in the **Show for Item** field. If no barcode number has this field check marked, the program automatically shows the item barcode with the lowest number on the retail item card and retail item list for the item.

Repeat steps 4 to 6 for each barcode you want to assign to the item.

For barcodes that contain the price or weight you must set up a barcode mask as described above. Then you have to enter the known part of the barcode which is prefix and item number followed by zeros up to 13 digits. The system will detect that you insert a barcode that contains the price or weight and will allow the check digit 0.

To Enter Barcodes Including Price or Weight:

1. Click **LS Retail – Back Office, Retail Item Card**. The **Retail Item Card** window appears.
2. Browse to the desired item.
3. Fill in the **Product Group Code** field by selecting a product group that has a checkmark in the **Use EAN Standard Barc.** field.
4. Click **Item, Barcodes, Barcode List**, the **Item Barcodes** window appears.
5. Fill in the **Barcode No.** field with a barcode number, 13 digits long,
6. In the following confirmation window, click **Yes** to confirm that you want to have the barcode checked against the EAN standard.

Attention

Since Microsoft Dynamics NAV allows item numbers of type code but EAN 13 barcodes can only contain numbers, the item number in the barcode does not need to match the item number of the item. The system will detect the item by the link of the barcode.

7.4.1 Registering Items with Different Units of Measure

In the LS Retail NAV POS you have the option to select a unit of measure for an item. This way is very flexible but not the most convenient option. Using barcodes give you the option to assign a unit of measure to a barcode so the registration of that barcode points to the unit of measure.

Example:

An item is sold as a single bottle and as a six pack. With barcode 1 for a bottle and barcode 2 for a six pack, registering a barcode automatically gives the required unit of measure.

For different prices per unit of measure – and therefore per barcode – please refer to chapter 6, price management.

Attention

The combination of item with different item unit of measure by quantity 1, price with unit of measure and barcode with unit of measure is used for price reduction of specific items.

7.4.2 Variant Barcodes

If you choose to use a barcode mask for items with variants, you can let the program generate the barcodes necessary to represent the different variants. If you do not use barcode masks for item variants, you need to type in the barcode for each variant combination; that is for all possible combinations. It is therefore recommended to use barcode masks for item variant barcodes.

To Enter Barcodes for Variants:

1. Click **LS Retail – Back Office, Retail Item Card**. The **Retail Item Card** window appears.
2. Browse to the item, for which you want to enter barcodes. Make sure that the item has variant framework code, otherwise it will not have any variants automatically.
3. **Assign the Variant Framework Code** to the item.
4. The system will assign the barcode mask linked to the **Variant Framework Code** to the item automatically.
5. The system will create variants and barcodes.

When not using barcode masks for variant barcodes it is possible to type in the barcode for each item variant combination and assign variants to it.

To Enter Barcodes for Variants not Using Barcode Masks:

1. Click **LS Retail – Back Office, Retail Item Card**. The **Retail Item Card** window appears.
2. Browse to the relevant item.
3. Click **Item, Barcodes, Barcode List**.
4. Press **F3** to enter a new barcode for the item.
5. In the **Barcode No.** field, enter the item barcode.
6. In the **Variant Code** field, select the required variant code

8 Store Management

At some point, all transactions from the POSs must be calculated and posted into General Ledger, whether the posting takes place in each store, or the head office.

Depending on whether the closing method of the store is *Date and Time* or *Shift* you define the intervals between calculating and posting statements. You must either create and post one statement per shift if the closing method is *Shift* or you can post a statement at user defined intervals, for example one statement a day, if the closing method is *Date and Time*.

8.1 Summary of the End of Day Procedures

Following is a summary of the end of the day procedures in a typical supermarket.

8.1.1 Close POS Terminals

If declaring tender on the terminal, perform a tender declaration on each POS terminal before closing.

Attention

There is no functionality to close the POS Terminals since there is no technical need for it. The tender declaration on the POS can be done more than one time a day. The POS Z-Report is not necessary to close the POS.

8.1.2 Create Statement

You can either create a new statement for the store, or use an existing statement that has not been posted.

8.1.3 Calculate Statement

The program calculates the turnover per tender type according to the statement method. If declaring tender on the POS terminals the program uses tender declarations from the POS terminals as counted amount, and calculates the difference between the transaction sales amount and actual counted amount in each tender type.

When you calculate a statement, the program does the following:

1. It deletes all existing statement lines for the statement.
 2. It marks all unmarked transactions included in the time frame or work shift of the statement with the statement number.
 3. It calculates the total tendered amounts from the transactions and inserts the results into the statement lines.
- If the **Statement Method** is *Total*, it creates a line for each tender type in the transactions.
 - If the **Statement Method** is *Staff*, for each staff member it creates a line for each tender type in transactions performed by the staff member.
 - If the **Statement Method** is *POS Terminal*, for each POS terminal it creates a line for each tender type in transactions performed on the POS terminal.

There is no limit on the amount of times an unposted statement can be calculated. Thus you can create a statement at any time and calculate it repeatedly to have an overview of the total sales at all times. If you are using the closing method *Date and Time*, you can change the time limit to include transactions over a longer period.

8.1.4 Clear Statement

If you have already calculated a statement and either want to delete the statement or change the time period for it, you first have to clear the statement. Clearing a statement results in taking the statements marking of the transactions included, so the transactions can be calculated again in the same or other statements. If not declaring tender on the POS terminals, enter counted amounts where necessary. Post the store statement or leave it for posting later. The posting setup must be correct and counted amounts filled in for posting to take place successfully.

8.1.5 Post Statement

When you have created and calculated the statement, you need to fill in the calculated amount for each tender type that needs calculation and has not been declared on the POS terminals. Then you can post the statement.

8.2 Statements

You use a statement to calculate the amounts in all transactions that have been created since the last store statement and register the counted tender types. The statement includes transaction for the period in the statement or for the currently open work shift. When all the necessary information is there, all counted amounts have been registered, the statement is ready to be posted.

To Create Statements:

1. Click **LS Retail – BackOffice, Statements, Open Statement**.
2. Press **F3** to create a new statement.
3. In the **Store No.** field, enter the relevant store number.
4. If needed, fill in the **Trans. Starting Date** and **Trans. Ending Date** fields.
5. Fill in other fields as needed.

8.2.1 Calculating Statements

When you have created a statement you need to calculate it. Then you can calculate the tender types needed or recalculate the tender declared on the POS terminals.

Depending on the *Statement Method* set up in each store, the calculation creates statement lines, either for each staff member, POS terminal or for all POS terminals and staff members.

There is no limit on the amount of times an unposted statement can be calculated. If you are using the closing method Date and Time, you can change the time limit to include transactions over a longer period.

If you have already calculated a statement and either want to delete the statement or change the time period for it, you first have to clear the statement.

To Calculate Statements:

1. Click **LS Retail – BackOffice, Statements, Open Statement**.
2. Browse to the relevant statement.
3. Click **Functions, Calculate Statement**.
4. When prompted with a message, click **Yes**.

After you have calculated the statement you can see the number of posted or unposted sales entries. Whether a sales entry is already posted or not depends on the setting in the POS

Functionality Profile. When the POS is set to **Automatic Stock Update**, the sales entries are already posted and only the financials entries are still unposted.

8.2.2 Re-declaring Tender in Store

When you have declared tender on the POS terminals you might want to change the tender declaration in the store.

To Re-declare Tender in Store:

1. Click **LS Retail-BackOffice, Statements, Open Statement**. The **Open Statement** window appears.
2. Browse to the relevant statement.
3. For the statement line you want to change the tender declaration for, click the **Counted Amount** field. The **Cash Declaration** window appears.
4. Fill in the new tender declaration for the statement lines, for the relevant coins and notes. For each combination of a coin/note and a default amount select the quantity of the coins/notes in the **Qty.** field.
5. You can see the results of the re-declaration in the bottom line marked as Total.
6. When you have re-declared, click **OK**.

8.2.3 Accepting Statements

The posting of Statements can be done either in the Store or at the Head Office. The decision where to post the statements depends on several factors.

Among those factors are:

- Whether the store has its own store database or the store user works online in the Head Office database.
- Whether the store user should post the statement or a Head Office user should do so.
- The cost calculation method.
- The number of concurrent users working at the Head Office.
- Accounting rules and requirements

The most common way of posting the statement is to do it in the Head Office database. To reduce the workload in this place, the statement can be created and calculated in the store. When the store staff, for example the store manager, has finished filling the statement with the counted amount he can accept the statement.

This acceptance is a function which is available on the open statement when running it from the **LS Retail - Store Menu**. The parameter '**Only accept Statements**' on the **Store Card, Statement/Closing** tab defines whether the statement can be accepted only or posted.

This does not influence the statement when opening it from the **LS Retail - Back Office** menu.

8.2.4 Posting Statements

In order to post calculated statements into the G/L ledgers, item ledgers, customer ledgers, VAT ledgers and other related tables, posting groups and G/L account links must be properly set up for items, accounts, stores and tender types. Before posting a statement, the **Counted Amount** field must be filled in for all statement lines.

To Post Statements:

1. Click **LS Retail - BackOffice, Statement, Open Statement**.
2. Browse to the relevant statement.
3. In the statement lines, fill in the **Counted Amount** field, in the statement lines where the field is empty.
4. If tender has been declared on the POS terminals and you want to re-declare tender, you can click the **Counted Amount** field to Re-declaring Tender in Store.
5. On the **Transaction Status** tab, check if any errors have been reported in the relevant transactions and fix those errors if needed. You must respond to transaction in the **Items/Barc. Not on File** and **Trans. on Wrong Shift** fields.
6. Click **Functions, Post Statement, Yes**.
7. In case you prefer to post only sales entries you can click **Functions, Post Sales Entries, Yes**. In this case only the sales entries will be posted and you can post the rest of the statement later.

Attention

When posting statements you might get a message of not enough stock for an item(s). This happens when:

1. An item you are posting inventory entries for has a Bill of Material and a checkmark has been placed in the Explode BOM in Statem. Posting field for that item.
 2. The number of items on inventory for the item registered in BOM has reached zero in the store.
- In this case you might want to increase the number of relevant items on inventory.*

Attention

When you block a customer or an item, it will not be in effect on the POS terminals until after the next time this information is replicated into the POS terminal databases. The blocked items and customers can be viewed from the Open Statement window. When you post, the program will temporarily unblock the item or customer while the posting takes place, therefore, you do not need to act upon blocked items or customers before posting.

Attention

When you use serial numbers on the POS, the POS has the option to sell on a non-existing serial number. This is necessary to be able to sell items that have been shipped but the receiving is not posted yet or items that just have an incorrect serial number. Posting in Microsoft Dynamics NAV is not possible if the item is with serial number and the serial number does not exist. Therefore you need to check and correct serial numbers before you can post the statement. In the Statement Form, Button Statement, you have a function to correct serial numbers.

8.3 Receipts

You can reprint all receipts printed on the POS terminals in your store.

To Reprint Receipts in Store:

1. Click **LS Retail - POS, Transaction Register**. The **Transaction Register** window appears.
2. Browse to the relevant transaction and click **Print, Print Copy**.
3. For the **Detailed Receipt** report, select either **Print** or **Review**.

8.4 Dashboards

A store dashboard is the tool of choice for a store manager for a single-screen overview of what is going on in his store. At the head office it is possible to see the dashboards of all the stores as far as the information is available. The store dashboard can be found under **LS Retail - Store Menu, Store Dashboard**. The list of store dashboards at the head office can be found under **LS Retail - Back Office, Dashboard, Store Overview Dashboard**.

Information given in the store dashboard is grouped into the following groups:

- **Outbound**
- **Inbound**
- **Other**

The groups provide information about:

- Item information.
- Sales
- Statements
- Transactions
- POS
- Picking Documents
- Purchase Orders
- Transfer Orders
- Stock Requests
- Receiving Documents
- Label Printing
- Worksheets

Within the groups, further details show for example documents that needs the attention of the store manager.

Examples:

Under 'Statements' the store dashboard shows the number of open statements for the store and the date of the oldest open statement.
Under 'Receiving Documents' the information shows unposted receiving documents.

When you drill down on the field that shows the number of open documents, you can get a list of those document and from there process them.

A colour code alarm shows how important it is to work on the documents.
*The colours used are green, yellow and red. The level can be defined under the **Dashboard Alarms**.*

To Define Dashboard Alarms:

1. Select **LS Retail - BackOffice, Setup, Dashboard, Dashboard Store Alarms**.
2. Select your store and the dashboard alarm code. By a lookup on the field **Code** you can find the description for the alarm.
3. Whether the alarm is for the store dashboard or the store overview, can be selected in the field **Type**.
4. The colour is specified under **Severity**.
5. The trigger for the alarm is defined in the field **Value**. Depending of the type of information this can be number of records/documents or a date parameter.
6. It is possible to define different levels of alarm for the same code

Example:

If the number of labels that need printing is higher than 20 the alarm would show in yellow but if the number is higher than 50 the alarm would come in red.

It is possible to make the store dashboard the main form for a store manager. You can assign it to the retail user.

To Set the Store Dashboard as Start Menu for a Retail User:

1. Select **LS Retail - BackOffice, Setup, Retail Users**.
2. For the retail user that is a store manager select the form *99001737, Store Dashboard* as the Main Menu ID.

9 POS Management

In the first section you will be introduced to some terms used to describe the POS terminal. It is assumed, that on the POS you are running while following this document, the DEMO hardware profile, the interface profile PPOS and the TOUCHDEMO visual profile from the demonstration database is selected for the POS terminal you are running. Also you should be using the DEMO functionality profile in your local store. Therefore, all screen shots and terms on POS terminal keys are similar to these profiles.

Attention:

Please note that the way the POS commands are configured and placed on the menu in the Demo profiles, are just examples to help you to understand how the LS POS works. You can set up and configure the POS menus in different ways to fulfill the customers' needs.

9.1 Terminology

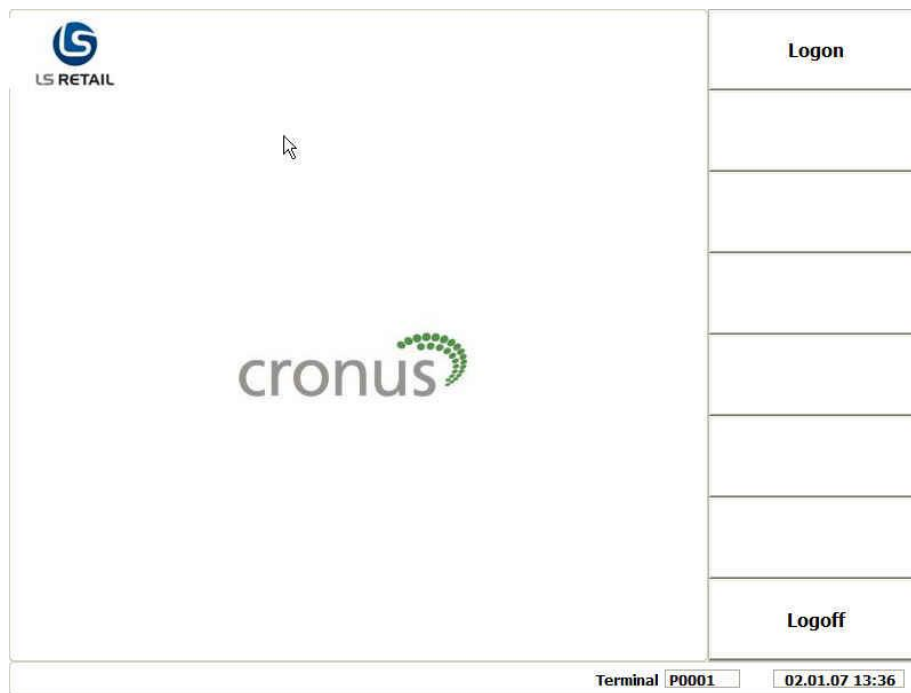


Fig. 1 Logon Menu

Logon Menu

The Logon menu is the one that comes up when you start the so called 'POS Client'. It is used to log on the cashier and can be used to log off from the 'POS Client'. When you press the 'LS Retail' Logo you will get some POS system information.

Main Menu

In this chapter an example of a touch screen menu with menu keys is used for demonstrating. On all menus the menu part that holds the buttons is called **POS Main Menu**. When referring to certain setup of buttons on the POS main menu, the terms are written in bold, capital characters, for example **TOTAL**.

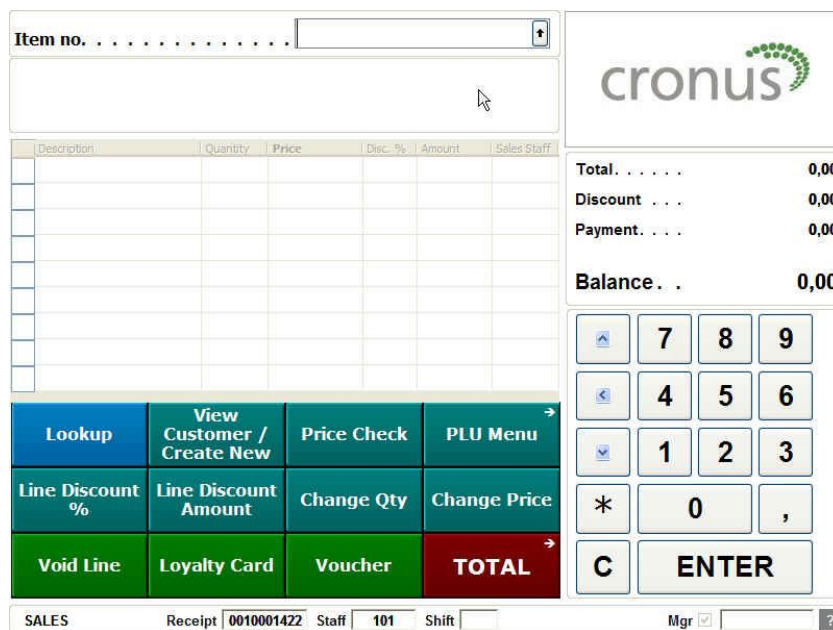


The Start Menu interface includes a top section with an 'Item no.' input field and a 'Select function ..' dropdown menu. Below this is a 'New transaction' button. The main area features a table with columns: Description, Quantity, Price, Disc. %, Amount, and Sales Staff. To the right of the table is a summary section with the 'cronus' logo and fields for Total, Discount, Payment, and Balance, all showing 0,00. A numeric keypad is located on the right side. At the bottom, there is a status bar with fields for Receipt (0010001419), Staff (101), Shift, and Manager (Mgrr).

Fig. 2 Start Menu

Start Menu

The Start menu window appears when you have logged on the POS terminal. On the Start menu you choose the mode of the transaction; that is if you want to carry out a sale, refund, training, various tender operations or other functionality. By pressing **START SALES** or registering the first item via item number or scanning of a barcode, the POS terminal goes into in sales mode. On all POS menus there are two lines with messages and information from POS to the user called **POS Information Lines**. In the Start menu you can see that the information line contains the message *New Transaction*. In the image, you can also see the **POS Input Line**, where you for example insert the number of the item you are selling.



The Sales Menu interface is similar to the Start Menu but with a different set of function buttons. It includes the same 'Item no.' input field, 'Select function ..' dropdown, and 'New transaction' button. The table below the dropdown has columns: Description, Quantity, Price, Disc. %, Amount, and Sales Staff. The summary section on the right shows Total, Discount, Payment, and Balance, all at 0,00. The numeric keypad is also present. The status bar at the bottom shows Receipt (0010001422), Staff (101), Shift, and Manager (Mgrr).

Fig. 3 Sales Menu

Sales Menu

On this menu you insert all sales on the POS terminals and select sales actions. The window appears when you have pressed **START SALES** or when you have inserted an item number.

In the so called **Journal** you can see the sold items.

Item no.

60000 VCR, Stereo, PAL

Description	Quantity	Price	Disc. %	Amount	Sales Staff
Briefcase, Leather	1	112,50		112,50	
▶ VCR, Stereo, PAL	1	399,00		399,00	

Lookup

View Customer / Create New

Price Check

PLU Menu

Line Discount %

Line Discount Amount

Change Qty


Change Price

Void Line

Loyalty Card

Voucher

TOTAL



Total. 511,50

Discount 0,00

Payment. 0,00

Balance. 511,50

7

8

9

4

5

6

1

2

3

*

0

,

C

ENTER

SALES Receipt 0010001422 Staff 101 Shift Mgr ☒ ?

Fig. 4 Sales Menu with Items inserted

Item no.

50000 Briefcase, Leather

Description	Quantity	Price	Disc. %	Amount	Sales Staff
▶ Briefcase, Leather	1	112,50		112,50	

Lookup

View Customer / Create New

Price Check

PLU Menu

Line Discount %

Line Discount Amount

Change Qty


Change Price

Void Line

Loyalty Card

Voucher

TOTAL



Total. 112,50

Discount 0,00

Payment. 0,00

Balance. 112,50

7

8

9

4

5

6

1

2

3

*

0

,

C

ENTER

REFUND Receipt 0010001420 Staff 101 Shift Mgr ☒ ?

Fig. 5 Refund Menu

Refund Menu

On this menu you can select items a customer wants to refund. The window appears by pressing **REFUND** on the Start menu. The complete transaction is regarded as a refund. The balance (in red) shows that the customer will get money back, a kind of change.

Payment Menu

Search String

No.	Item Disc. Group	Description	Vendor No.	Vendor Item No.
▶	1000 A	Bicycle		
	1001 FINISHED	Touring Bicycle		
	1100 FINISHED	Front Wheel	20000	
	1110 FINISHED	Rim	01587796	266666
	1120 RAW MAT	Spokes	01587796	45455
	1150 FINISHED	Front Hub		
	1151 RAW MAT	Axle Front Wheel	32456123	11111
	1155 RAW MAT	Socket Front	32456123	A-12122
	1160 RAW MAT	Tire	01587796	ADG-4577
	1170 RAW MAT	Tube	01587796	GG-78827
	1200 FINISHED	Back Wheel		
	1250 FINISHED	Back Hub		
	1251 RAW MAT	Axle Back Wheel	01587796	4577-4555
	1255 RAW MAT	Socket Back	01587796	WW-4577
	1300 FINISHED	Chain Assy		
	1310 FINISHED	Chain	32456123	HH-45888
	1320 RAW MAT	Chain Wheel Front	32456123	PP-45656
	1330 RAW MAT	Chain Wheel Back	32456123	PP-7397
	1400 RAW MAT	Mudguard front	32456123	45888
	1450 RAW MAT	Mudguard back	32456123	45889
	1500 RAW MAT	Lamp	45774477	A-4577
	1600 RAW MAT	Bell	32456123	2777775
	1700 FINISHED	Brake		
	1710 FINISHED	Hand rear wheel Brake	32456123	88-45888

OK

Find No

Find Name

↑

↓

Keyboard

Page Up

Page Down

A..M

N..Z

Inventory

Cancel

Lookup Menu

Chapter 9 – POS Management

9.2 Various Operations

The functionality of the different operation can be different depending on setup and configuration. POS commands must be assigned to buttons in order to be used.

9.2.1 Training Mode

When you are learning how to use the POS terminal it can be of use to turn the POS into training mode. Then, all transactions created on the POS terminal will have the entry status *Training* and will not be included in statements.

Turning POS to Training Mode:

1. On the **Start** menu, press **TRAINING**.
2. You must press **TRAINING** again to be able to create valid transactions on the POS terminal.

9.2.2 Logon & Logoff

Before you can use the POS, whether you are a cashier or manager, you must log on. When you leave the POS you must log off.

To Log on and - off POS Terminals:

1. On the Logon menu, press **LOGON**.
2. In the **POS Logon** window, enter your username and password. You can also use the scanner or the MSR to identify the cashier. If your store uses work shifts, you also have to fill out the identity of the work shift you are logging into.
3. To log out of POS, press **LOGOFF** on the Start menu. The program will log you off without closing the POS terminal.
4. This logoff only logs off the cashier but not the user. It goes back into the **Logon** menu.

Attention

*If the program is set to automatic logging off, the user is automatically logged off a user after a specified time during which there has been no till activity.
The program may be set up to log off immediately after each transaction or after a specified time of inactivity.*

In order to leave the POS form the **LOGOFF** in the Logon Menu can be used. Depending on the setup there are some options on the effect:

- Close Form
- Close Application
- Logoff Windows
- Shutdown Windows
- Shutdown and Poweroff
- None

Attention

*Close Form, Close Application, and Logoff Windows are not recommended since they might 'open' the system for the user. Logoff Windows, Shutdown Windows and Shutdown and Poweroff are not recommended since it is not possible to replicate data into and from the POS terminal in that case.
In case you are using a checkout scale, the LOGOFF button is not available.*

9.2.3 Lookup Menus

On the Lookup menus, you have several ways of searching for an item, customer, tender type, variant, infocode, sale or a suspended sale. Depending on if you have a keyboard or what you know of the line you are searching for, you choose the optimal way of searching.

To Search in Lookup Menus:

1. In a **Sales** or **Refund** menu, press **LOOKUP**.
2. In the **Lookup** menu you can choose to view the first or last lines, one page up or down by pressing relevant keys on the POS menu bar. However, if you know more of what you are searching for, press **SEARCH...**
3. In the **POS Input** line, insert the criteria you want to look for by.
4. If you want to look for the line by number, select **BY NUMBER** on the On the POS menu bar. If you want to look for the line by description, select **BY NAME**.
5. If you do not have a keyboard on the POS terminal you can run the soft keyboard by pressing **KEYBOARD**.

The program will mark the line closest to the search criteria. To select the line, press **OK**.

9.2.4 Run Objects

The POS might be set up to run objects, for example forms or reports, that do not appear as menus. To Use a Run Object you activate it by pressing a single menu key or a fixed key with the relevant term.

9.2.5 Printing

On POS you can print an invoice (invoice document style) for any sale on a particular POS terminal that has not been purged.

To Print Invoices:

1. On the Start menu press **TRANSACTIONS**.
2. On the Transactions lookup menu, search for the relevant transaction.
3. Insert the invoice into the printer.
4. Press **PRINT INVOICE**.

The program will print out an invoice which is a POS transaction printed on the document station of the POS printer.

You can reprint receipts for any sale on a particular POS terminal that has not been purged.

To Reprint Receipts:

1. On the Start menu press **TRANSACTIONS**.
2. On the Transactions lookup menu, search for the relevant transaction.
3. Press **PRINT COPY**.
4. The program will print a copy of the receipt.

Attention

In order to print the invoice you need a POS printer that supports this feature.

9.2.6 Infocodes

For some POS terminal prompts that appear in the POS message lines you may have to select a response from a list of predefined inputs.

To Respond to Infocodes with Predefined Inputs:

1. When the system prompts you with a predefined input by the message *Input required* in a POS message line, you can press **LOOKUP**.
2. Select an input.
3. Press **OK**.

Selection of the predefined input might have some effects on the sale, for example by changing the price of the selected item.

9.3 Sales Actions

9.3.1 Selecting Items by Preset Keys

The POS terminal can be set up to have preset keys for selecting a particular item. To sell an item by a preset key, simply press the key with the item description.

9.3.2 Variants

If you do not scan in the barcode for items with variants you will be asked to select a variant manually by a message in the POS message lines.

To Select Variants Manually:

1. Select an item.
2. When prompted by *Key in variant code* in the POS Message lines either search the item on the Variant Lookup menu or insert the variant number.

9.3.3 Quantity Items

Entering quantity of items can be used for selling a number of identical items as well as for inserting weight of weighted items manually if you are not using a scale or the weight is not included in the barcode.

To Select the Quantity of Items:

1. In the **POS Input Line**, insert the number of items. It is possible to sell fractions of items by entering a decimal point when keying in the quantity figure.
2. Press the **QUANTITY** key.
3. Select an item.
4. Optionally, you can press the **QUANTITY** key first. A number pad window comes up. You can insert the quantity and press **ENTER**. This is not recommended in case you use a POS keyboard.

9.3.4 Keying in Price

For certain items you might have to key in the price.

To Select Items with Keying in Price:

1. Select the item. The program prompts you with the message *Key in Price* in the POS message line.
2. Insert the amount in the **POS Input** line and press **ENTER**.

9.3.5 Periodic Offers

On the POS terminals you can sell periodic discount offers, that is: Mix & Match, Discount or Multibuy Offers.

To sell periodic offers, select the items and number of items as usual. When the number of selected items adds up to a discount offer you will see an extra sales line with information of the offer being triggered. If colors have been set up for discount offers the relevant lines will have a distinguishable color.

9.3.6 Income & Expense Accounts

On the POS terminal you can post entries into accounts without selling an item. This way you might for example be paying for maintenance from the POS terminal.

To Invoice into Income or Expense Accounts:

1. In the **Sales** menu, insert the amount to be paid into the **POS Input Line**.
2. On the **POS Menu Bar**, press the relevant key representing the income/expense account.
3. The program will insert a sales line with the relevant description and amount.

9.4 Voiding, Suspending and Refunding

9.4.1 Voiding

You can void a sales line and cancel a whole transaction on the POS terminals. Any sales line can be voided.

To cancel a Transaction:

1. On the Payment menu, press **VOID ALL**.

To Void a Sales Line:

1. On the Sales menu, press **VOID**.

9.4.2 Suspending

You can suspend and retrieve a sale on the POS terminals. This feature is often called receipt parking.

To Suspend a Sale:

1. In the **Sales** menu, press **TOTAL**.
2. In the **Payment** menu, press **SUSPEND**.
3. The POS prints a stub with the suspended transaction number on it.

To Retrieve a Suspended Sale:

1. In the **Start** menu press **SUSP**.
2. In the **Transactions lookup** menu select the suspended transaction you want to retrieve and press **RETRIEVE**.
3. Finish the sale as normal.

9.4.3 Refunding

You can refund a sale or item(s) on the POS terminals.

To Refund an existing Sale:

1. In the **Start** menu press **TRANSACTIONS**.
2. In the **Transactions lookup** menu, search for the relevant transaction (See: Using Lookup menus).
3. Press **VOID**. The program will insert the refunded sale into the sales lines and turn to refund mode.
4. In the **Refund** menu, press **TOTAL**, then finish the refunded sale as normal.

To Refund Items(s):

1. On the **Start** menu, press **REFUND**. The POS terminal turns to refund mode.
2. Insert the number of the item(s) you want to refund in the POS input lines.
3. On the **Refund** menu, press **TOTAL**, then finish the refunded sale as normal.

Attention

When refunding, the system is in refund mode, you cannot refund an item within a sale. You can refund a given amount of weighed items, by weighing the items again when refunding.

9.5 Price Checks and Changes

9.5.1 Checking Item Prices

You can check the price of an item.

To Check Item Price:

1. In the Sales menu press **PRICES & DISCOUNTS** (when that has been set up).
2. Press **CHECK**
3. Select the item and press **ENTER**
4. The program will show the price of the item in the POS message lines.

9.5.2 Discounts

If you have the privileges, you can give a line discount on all sales lines.

To Give Discount of Sales Lines:

1. Mark the line you want to give line discount for.
2. In the POS input line, insert the amount or discount % you want to give.
3. Press either **DISCOUNT%** or **DISCOUNT AMT**.
4. The program will insert the line discount for the relevant sales line.

If you have the privileges, you can give a total discount on a sale.

To Give Total Discounts:

1. Press **TOTAL** on the Sales menu to enter the payment menu.
2. In the POS input line, insert the amount or discount % you want to give
3. Press either **TOTAL DISC.%** or **TOTAL DISC.AMT**.
4. The program will insert a line for the total discount given.

9.5.3 Price Changes

If you have the privileges, you can sell an item at a price different to the price set up for the item.

To Change Prices:

1. Select the line for the item you want to change price for
2. In the POS input line, insert the new price.
3. Press **CHANGE PRICE**.

9.6 Payment Actions

To Pay with Cash:

1. In the **Payment** menu, for an exact payment; press **CASH**.
2. For a part-payment or overtendering insert the amount and press **CASH**.

To Pay with Checks:

1. In the **Payment** menu, for an exact payment; press **CHECK**.
2. For a part-payment; type in the amount tendered and press **CHECK**. The check validation number is prompted for.
3. Either swipe the check card or type in the card validation number and press **ENTER**.
4. If prompted, type in the expiry date (mmyy) and press **ENTER**. You are prompted to insert the check.
5. In case you have check printing defined, first insert the check (face upwards) into the slip printer, then turn over the check and re-insert into the printer.

To Pay with Cards:

1. For an exact payment; press **CARD**.
2. For a part-payment; type in the amount tendered and press **CARD**. The card number is prompted for.
3. Either swipe the card or type in the card number and press **ENTER**.
4. If prompted, type in the expiry date (mmyy) or **ISSUE NUMBER, START DATE AND EXPIRY DATE**, and press **ENTER**.
5. If an EFT server is present the till displays 'Seeking authority'.
6. If the signature is confirmed, the POS produces a goods receipt and a slip that is the customer copy.

Attention

<i>LS POS standard does not contain real card authorization but is only for demo.</i>

To Pay with Currency:

1. In the Payment menu, press **CURRENCY**.
2. For checking the price in currency; select the currency and press, for example **US DOLLARS**.
3. Type in the amount tendered, select the currency and press, for example **US DOLLARS**.
4. If overtendered, the system will give you information about the change to be given in local currency.

9.6.1 Invoicing into Customer Accounts

Goods can be charged to a customer's account. You can select paying into a customer's account either before or after a sale

To Pay by Customer Accounts:

1. In the **Payment** menu, press **CUSTOMER** and insert the customer's account number when prompted for.
2. Confirm the customer's account.

In order to registering customer sale and acquiring customer/item discount, without posting into the customer's account you can register the sale, and have the goods paid by another tender type.

To Register Customer Sale without Invoicing:

1. In the **Payment** menu, insert 0/zero and press **CUSTOMER**.
2. Insert the customer's account number when prompted for.
3. Finish the sale by selecting another tender type.

Customers can pay into their accounts at the POS terminals.

To Pay into Customer Account:

1. In the **Start** menu, press **PAYMENT INTO ACCOUNT**.
2. On the number pad insert the amount and press **ENTER**.
3. Insert the customer's account number when prompted for.
4. Select the tender type you want to pay by and finish the sale as normal.

9.7 Manager Operations

Manager functions are only available to staff with manager privileges, as set up for each staff member on the Staff Card.

9.7.1 Logging on & off as Manager

While in a sale, a manager can log on the POS terminal and off again. The cashier already logged on the POS terminal will be the one registered for the transaction.

To Log On/Off as Manager:

1. On the Start menu, press **SUPERVISOR**
2. Press **MANAGER LOGON** and fill out the information needed in the **Logon** window.
3. Perform the actions available for store managers.
4. When logging off, press **MANAGER LOGON** again.
5. A message box appears in which you must click **OK** to confirm.

9.7.2 Tender Remove

Whenever needed, you can remove tender from the POS terminal drawer.

To Remove Tender:

1. On the Start menu press **TENDER OPERATIONS**.
2. Press **REMOVE TENDER**.
3. Insert the amount and select the relevant tender type.
4. Repeat for each tender type you want to remove.
5. Press **POST**.

9.7.3 Inserting Float

Whenever needed, you can add a float to the POS terminal.

To Insert Float/ Float Entry:

1. On the Start menu press **TENDER OPERATIONS**.
2. Press **FLOAT**.
3. Insert the amount and select the relevant tender type.
4. Repeat for each tender type you want to insert.
5. Press **POST**.

Declaring Tender

If you want to count the amount in each tender type on each POS terminal, you can perform a tender declaration on the terminals. It is necessary to perform a tender declaration if you are closing the stores by work shifts. Then, the counted amounts in the statement lines per tender type will be automatically filled in by the system in the statement calculation process.

To Perform Tender Declaration:

1. On the Start menu press **TENDER OPERATIONS**.
2. Press **DECLARE TENDER**.
3. Insert the amount and select the relevant tender type.
4. Repeat for each tender type you want to declare.
5. Press **POST**.

Attention

*You can only perform a tender declaration for the tender types that have a checkmark in the **Counting Required** field in the **Tender Type Card** window.*

9.7.4 Purging Transactions

If the POS terminal is used offline, you can purge all transactions older than set up in the **Days Transactions Exists** field in the POS functionality profile selected for the POS terminal.

To Purge Old Transactions:

1. On the Start menu, press **SUPERVISOR**
2. Press **PURGE OLD TRANS**.

9.7.5 X-Reports

The X report is printed out on the slip printer. It gives information such as the Gross sale, discounts and sale in each tender type, as well as information about tender operation amounts since last Z-report

To Create X-Reports:

1. On the Start menu, press **SUPERVISOR**.
2. Press **X-REPORT**.
3. An X-Report is printed.

9.7.6 Z-Reports

In addition to the information of sale on a particular POS terminal that the X-report gives, the Z-report zeros down the totals on the POS terminal. The Z-report printing might be a part of the end of day activities on each POS terminal.

To Create Z-Report:

1. On the Start menu, press **SUPERVISOR**.
2. Press **Z-REPORT**.
3. A Z-Report is printed.

10 Cash Management

Cash Management in LS Retail handles the flow of **Cash** and other tender types between the POS terminals and the safe. It is possible as well to assign a bank bag number to a pick up.

A standard procedure on the POS could look like this:

1. At the beginning of the day or shift, the cashier inserts money in the drawer to be able to give change to the first customers. This procedure is called **Float Entry**.
2. The cashier registers the sales and puts the payment tender types into the drawer.
3. If necessary – for example when there is too much of a tender type in the drawer – the cashier can perform a so called **Pick Up** in order to take tender out of the drawer. In LS Retail this function is called **Remove Tender**.
4. If there is a need for placing additional tender into the drawer, the cashier can do that by another **Float Entry**.
5. At the end of the day or shift, the cashier needs to declare how much tender is in the drawer. This procedure called **Tender Declaration** depends on whether a tender type can be counted or not, for example cash can be counted but customer account payments cannot be counted.

The POS Cash Management contains enhanced functionality for those procedures like working with a **Fixed Start Amount** or making use of the **Store Cash Declaration Setup**.

To Activate POS Cash Management:

10. Click **LS Retail-POS, Profile, Functionality**. The **Functionality Profile Card** window appears.
11. On the relevant profile, **General Tab**, set **POS Cash Management**.

Terminology:

- Float Amount = Amount added to the Drawer
- Start Float = Initial amount in the Cash Drawer
- Remove Tender = Amount taken from the Drawer
- Safe Amount = Amount taken from drawer to safe
- End of Day Tender Declaration = Counting of cash at the end of day
- Pick Up or Remove Tender = Amount taken from Cash Drawer.

10.1 In-Store Safe

LS Retail contains functionality for in-store safes. The safe keeps track of the amount of money stored in it, taken out of the safe and put in a cash drawer or taken out of a cash drawer and placed in the safe. Cash management covers two types of float handling:

- Cash that is placed in the drawer for example as change, a function which is called float entry.
- Cash that is removed from the drawer, a function which is called remove tender or pick up.

Payment media is taken out of the safe and placed in the drawer or taken out of the drawer and placed in the safe.

- For working with the In-Store Safe click on **LS Retail – POS, Cash Management**.
- Under the Remove Tender Transactions tab you find the pick up from the POS.
- Under the Float Transactions tab you find the float entry into the POS.

In order to post the entries, place a check mark in the field **Selected** in the transaction lines and then press F11 to post the selected lines.

Note that the In-Store Safe does not replace the tender declaration and is independent from the Statements.

It is possible to add or remove Cash from the safe without performing a float entry or pick up at the POS. Note that this method does not create POS transactions and therefore does not update the tender amounts in LS POS. Therefore it should only be used to add or remove tender to/from the safe which comes/goes outside like money that is brought to the bank. Note that since the Cash Management is independent of the Statements, adding or removing money from the safe does not update the G/L accounts.

To Add Money to a Safe:

1. Click **LS Retail – POS, Cash Management**.
2. On the **Cash Management** form click **Functions, Add to Safe**.
3. Select the staff member who adds the money to the safe and the amount that is added.
4. You can select a **Reason Code**.
5. Press **Post**.

To Remove Money from a Safe:

1. Click **LS Retail – POS, Cash Management**.
2. On the **Cash Management** form click **Functions, Remove from Safe**.
3. Select the staff member who removes the money to the safe and the amount that is removed.
4. You can select a **Reason Code**.
5. Press **Post**.

10.2 Using a Fixed Start Amount

At the beginning of the day or shift there is usually a need for a float entry in order to have the necessary change for the first customers in the drawer. Using the POS Cash Management, it is possible to work with **Fixed Start Amount**.

If you define to work with fixed start amount, the POS will request the start amount entry at the first login of the cashier.

To Define a Fixed Start Amount:

8. Click **LS Retail – BackOffice, Setup, Store Card**.
9. Browse to the relevant store.
10. Click **Store, Fixed Start Amount**.
11. In the field **ID** select either the staff ID or the POS terminal ID depending on the statement method of the store.
12. Select the **Tender Type** and the **Amount in Currency**. For Cash do not specify a currency.
13. On the **Store Card, Statement/Closing** tab, in the field **POS Start Amount Method**, select **Fixed Amount**.

At the **End of Day Declaration** the POS system will calculate the **Bank Amount** out of the declared amount and the fixed start amount. The fixed start amount will remain in the drawer/safe and when the cashier logs in at the POS the next time, the system will suggest the fixed amount as the new start amount.

If the cashier overrules the bank amount at the end of day declaration, the start amount for the next login will be adjusted accordingly.

10.3 Using a Flexible Start Amount

If the **POS Start Amount Method** is **Flexible**, the user defines the start amount the first time when logging on to the POS. When counting end of day declaration then the system does not calculate the bank amount. The counted amount gives the start amount for the next day. Before the end of day declaration a Pick Up is necessary for the amount that is not supposed to remain in the drawer.

To Activate Using a Flexible Start Amount

1. Click **LS Retail – BackOffice, Setup, Store Card**.
2. Browse to the relevant store.
3. On the **Store Card, Statement/Closing** tab, in the field **POS Start Amount Method**, select **Flexible Amount**.

10.4 Working with Pick Up Warning

From time to time it might be necessary for the cashier to remove tender from the drawer. Usually this is done for security reasons. The procedure to remove tender is often called 'Pick Up'. It is possible to define a warning for the cashier in order to give information about pick up.

To Define Pick Up Warning Amount

1. Click **LS Retail-POS, Profile, Functionality**. The **Functionality Profile Card** window appears.
2. On the relevant profile, **General Tab**, set **POS Pickup Warning**.
3. Click **LS Retail – BackOffice, Setup, Store Card**.
4. Browse to the relevant store.
5. Click **Store, Tender Types**.
6. On the required tender type select the **Amount** tab.
7. Define the amount in the field **POS Pickup Warning Amount**.

10.5 POS Tender Declaration Difference Handling

When doing the 'end of day' tender declaration on the POS, this is as standard procedure a so called 'blind counting'. The method defines that the cashier does the tender counting and tender declaration without knowing how much should be in the drawer. The reason for this method is to avoid fraud. If there is a counting difference which is above the predefined limit to allow statement accepting or posting, this can be corrected later within the statement. It is by different parameter setting possible as well to inform the cashier about the transaction amount or the counting difference on the POS.

To define how to handle differences in tender declaration on the POS:

1. Click **LS Retail-POS, Setup, Staff, Staff Card**.
2. On the **Staff Card** select the required staff.
3. To show a difference warning select the **Privileges Tab** and select the allowed difference in **Max. Tender Decl. Difference**.
4. In the field **Warning Count** define the 'number of tries' for the counting.
5. In the field **Action After Diff. Warning** select who can confirm the counting if it is still not correct within the limit after the number of tries in the **Warning Count**.
6. You can select whether the cashier can see the difference in the warning or even see the transaction amount – which is actually not 'blind counting' anymore.

11 Infocodes

Infocodes are used to register additional information about transactions made at the POS terminals. When you assign an infocode to a certain action, for example when returning goods, voiding a transaction or selling a specific item, the POS terminal system prompts the cashier for an input.

Infocodes can also be used automatically by the system without prompting the cashier, for example when assigning application entries to vouchers and gift cards. In all instances, you must assign infocodes to objects, such as customers or tender types, in order to use them. You can assign a specific type of input to the infocode, such as numeric, an item number, a date, a customer number, staff ID or some predefined information subcode like a flight number or a reason code.

11.1.1 Information Subcodes

You can set up infocodes with a number of predefined inputs called information subcodes. By using information subcodes, the POS terminal system will only accept an input of the type defined by the information subcode. This way the infocode is already predefined for the cashier, which reduces the possibility of an incorrect input.

11.2 Infocode Linking

You can link an infocode to another infocode. This allows having more than one infocode assigned to predefined POS activities like voiding and returns. You can define if and which information is printed on the customer receipts and how often the system should prompt for an input. When you have set up infocodes, you can assign these to:

- Retail Items
- Tender Types
- Customer Accounts
- Income/Expense Accounts
- POS Activities (so-called Actions)

11.3 Setting Up Infocodes

Before you can assign infocodes to objects such as customers and retail items you must set up the infocodes.

To Set up Infocodes:

1. Click **LS Retail - POS, Setup, Infocodes**. The **Infocodes** window appears:
2. Press **F3** to create a new infocode or click **Infocode, Card** to see the **Infocode Card** window and then press **F3** to create a new infocode.
3. Fill in the **Code**, **Description** and **Type of Input** fields.
4. If the infocode will prompt the cashier, fill in the prompting message in the **Prompt** field.
5. If input from cashier is required, fill in the **Input Required** field.
6. Fill in the other fields as needed.

11.3.1 Information Subcodes

You can set up infocodes with a number of predefined inputs called information subcodes. By using information subcodes, the POS terminal system will only accept an input of the type defined by the information subcode.

You can use information subcodes for running objects such as forms or reports. You can also use subcodes for selecting a price, for example when issuing warranties of items. Then you can select a warranty period at the POS terminal, and pay for the warranty with a percentage of the item price according to the warranty period selected.

To Set up Information Subcodes:

1. Click **LS Retail - POS, Infocodes**. The **Infocodes** window appears.
2. Select or set up the infocode you want to set up information subcode for. The option in the **Type of Input** field must be *SubCode*.
3. Click **Infocode, Subcodes**. The **Information Subcodes** window appears.
4. Fill in the **Subcode** and **Description** fields.
5. If you want the subcode to run a Microsoft Dynamics NAV Object, select the *Run Object* option in the **Trigger Function** field. If you want to register a price of an item, select the *Item* option, if you want to run a customer discount group, select the *Discount Gr.* option.
6. Fill in the **Trigger Code** field according to the option selected in step 5.
7. Fill in the other fields as needed.

Repeat steps 4 to 7 for each information subcode you want to set up for the infocode.

11.4 Infocode Assignment

You can assign infocodes to POS activities using the POS Actions. When you have assigned a POS functionality profile to a store, all POS terminals in the store have the same infocodes assigned.

When setting up infocodes you can also link an infocode to another one, enabling you to have more than one infocode assigned to individual POS activities, such as voiding and returns.

11.4.1 POS Terminal Activities

Before you can assign infocodes to POS terminal activities you must set up the infocodes.

To Assign Infocodes to POS Terminal Activities:

1. Click **LS Retail - POS, Profiles, Functionality**. The **POS Functionality Profile Card** window appears.
2. Click **Profile, POS Actions**.
3. On the **Action Trigger** select the POS Activity which shall trigger the infocode.
4. On the **Do Action** select Infocode.
5. On the **Action ID** select the required infocode.

Attention

Some of the Action Triggers do not allow the usage of an Infocode. If this is the case, the system will warn you that the Infocode cannot be used.

11.4.2 Tender Types

You can assign infocodes to tender types. Before you can assign infocodes to tender types you must set up the infocodes.

To Assign Infocodes to Tender Types:

1. Click **LS Retail – Back Office, Setup, Store Card**.
2. Browse to the relevant store.
3. Click **Store, Tender Types**.
4. Browse to the tender types, to which you want to assign infocode(s).
5. Click **Tend. Type, Infocodes**.
6. Fill in the **Infocode Code** field by selecting the relevant infocode.

Repeat step 6 for each infocode you want to assign to the tender type.

Attention

*If you want to assign an infocode to a card you must carry out the first three steps. Then in step four, browse to the tender type representing cards and then click **Tend. Type, Card Setup**. From the **Tender Type Card Setup** window click **Card Setup, Infocodes** and assign infocodes to the card from there.*

11.4.3 Income/Expense Accounts

You can assign infocodes to income and expense accounts. Before you assign infocodes to income or expense accounts you must set up the infocodes.

To Assign Infocodes to Income/Expense Accounts:

1. Click **LS Retail – Back Office, Setup, Store Card**.
2. Browse to the store, for which you want to assign infocodes to income/expense accounts.
3. Click **Store, Income/Expense Accounts**.
4. Browse to the account, to which you want to assign infocodes.
5. Click **Account, Infocodes**.
6. Fill in the **Infocode Code** field, by selecting the relevant infocode.

Repeat step 6 for each infocode you want to assign to the selected account. Repeat steps 4 to 6 for each account, to which you want to assign infocodes.

11.4.4 Customers

You can assign infocodes to specific customers. Before you can assign infocodes to customers you must set up the infocodes.

To Assign Infocodes to Customers:

1. Click **LS Retail – Back Office, Retail Customer Card**. The **Customer Card** window appears.
2. Browse to the relevant customer and click **Customer, Infocodes**.
3. In the **Customer Infocodes** form select the Infocode you like to use for that customer.

Repeat step 3 for each infocode you want to assign to the customer.

11.4.5 Retail Items

You can assign infocodes to retail items. This can for example be useful if you want the system to prompt for a serial number, or if you want to sell a warranty with the item. Before you can assign infocodes to retail items you must set up the infocodes.

To Assign Infocodes to Retail Items:

1. Click **LS Retail – Back Office, Retail Item Card**.
2. Browse to an item, to which you want to assign infocodes.
3. Click **Item, POS, Infocodes**.
4. Press **F3** to enter a new infocode.
5. Fill in the **Infocode Code** field by selecting the relevant infocode.
6. Fill in other fields as needed.

Repeat steps 5 and 6 for each infocode you want to assign to the item.

11.5 Data Entries

Data entry types are used for creating data entries with unique entry codes. This is for example, useful when issuing gift cards. Each gift card then has its own unique entry code, and might even be assigned a barcode. Then the system can check the amount of the gift card and see whether the gift card has already been used. Another example of use of data entries in LS Retail is when issuing vouchers.

To Create Data Entries

1. Set up two infocodes, one to create data entries and one to check existing data entries.
2. Create a number series for the data entry type
3. Set up a data entry type and the number series and link the data entry creation infocode to it.

11.5.1 Data Entry Types

Data entry types are used for creating data entries with unique entry codes. This is useful, for example when issuing gift cards and vouchers.

Before setting up data entry types you must set up two infocodes, one for creating data entries and one for checking the existing data entries. Then you can set up a data entry type and link the data entry creation infocode to it.

To Set up Infocodes for Data Entry Types:

1. Click **LS Retail - POS, Infocodes**. The **Infocodes** window appears:
2. Press **F3** to create a new infocode or click **Infocode, Card** to see the **Infocode Card** window and then press **F3** to create a new infocode.
3. Fill in the **Code** and **Description** fields.
4. Select the option *Create Data Entry* in the **Type of Input field** for the data entry creation infocode and the *Apply To Entry* option for the infocode you use to check the unique entry codes created.
5. Place a checkmark in the **Input Required** field and fill in the **Prompt** field for the *Apply to Entry* infocode.
6. Place a checkmark in the **Print Prompt on Receipt** and the **Print Input on Receipt** fields for both infocodes.

Data entries are used for creating entries with unique entry codes. This is for example, useful when making gift cards and vouchers.

To Set up Data Entry Types:

1. Click **LS Retail - POS, Data Entry**. The **POS Data Entry Type** window appears.
2. In the **Code** field, select the **Infocode** you want to link the data entries to.
3. Fill in the **Description** field.
4. Place a checkmark in the **Date Entry Only Allowed** field.
5. In the **No. Series** field select the numbering series for this application entry type.
6. Fill in other fields as needed.

Attention

As a standard, a data entry can only be applied once. For gift card or vouchers where you like to allow overpayment you have two options:

- 1) You can create a new voucher as change which creates a new data entry.*
- 2) If you prefer the data entry to stay open until the voucher has been completely used, then you select the parameter 'Create Voucher Entry' on the data entry. In that case you can do partial payments with the voucher since the system creates voucher entries for the issuing and for every time you redeem.*

12 Statistics

LS Retail offers sales analysis based on the POS terminal transactions and sales history based on special statistics tables as well as statistics on periodic offers based in item value entries.

12.1.1 Sales Analyses

Transactions from the POS terminals can be imported continuously throughout business hours. Thus, up-to-date transaction sales statistics are available at all times.

You can view a scrollable list of sales data for any periods you select, with the possibility of viewing the transactions behind the figures, for:

- Retail Items
- Product Group
- Item Category
- Infocodes
- Stores
- Sections
- Shelves
- Staff members
- POS terminals

Likewise, you can view payment data for tender types and currencies. Filters operate on all these windows, allowing you to retrieve exactly the information you need.

To View Sales Analyses:

1. Click **LS Retail - BackOffice, Sales History, Sales History – POS-Trans, Sales Analyses**.
2. Select the menus and forms as needed and use the filters in there e.g. for the date.
3. If needed you can view the statistics in a pie or a bar chart in Excel. To do that, click **Functions** and select either **Pie Chart** or **Bar Chart**.

12.1.2 Toplist

The Toplist gives you an overview about sales data for POS transactions, customers and items which can be sorted ascending and descending by number, quantity, amount, profit and discount amount. The list can be printed and the number of entries limited e.g. to see a top 10 or top 100 list or a flop list. This list is often called 'runners/sleepers' list.

To View the Toplist:

1. Click **LS Retail - BackOffice, Sales History, Toplist**.
2. Use the buttons **Trans.**, **Customer** and **Item** so select the required information.
3. Use the button **Sort** to change the sorting.
4. For printing press the button **Print**. In the form that opens you can specify the numbers of entries you like to print. Press **Enter** and then select whether you like a preview or printing.

12.1.3 Sales History (Statistics)

The number of transactions in the database can grow extensively depending on the type of business involved. There are four special statistics tables in LS Retail:

- Sales Statistics
- Staff Statistics
- POS Terminal Statistics
- Payment Statistics

These tables contain a summary of the transaction information, enabling you to have access to certain details from the transactions, even after they have been removed from the database.

You decide on the details you want to retain in the following ways: In the **Retail Setup** form on the **Sales History** tab, you choose whether you want to retain item sales information on item level, product group level or item category level (or none at all).

To Select Statistics Tables:

1. Click **LS Retail - BackOffice, Setup, Retail Setup**.
2. On the **Sales History** tab in the **Item Sales Statistics on** field, select the level of item grouping, from which you want the system to take the item sales statistics. The options are *None*, *Item Level*, *Product Group Level* and *Item Category Level*.
3. Place a check mark in the **POS Terminal Statistics**, **Staff Statistics** and **Payment Statistics** fields, if you want to collect the corresponding statistics.

Attention

You need to estimate the amount of statistical data you need and can be retained in view of the database space the statistics tables will fill as time passes. The more intervals (starting and ending times) you define in the table, the more entries you will have in the Statistics tables.

In the **Statistics Time Setup** table, you choose the time intervals into which you want to collect the statistics, that is, on hourly basis. The more details you retain, the larger these statistics tables will be.

The base for the statistics data is POS Transactions. You can create the statistics data from the POS Transactions in 3 different ways:

To create Statistics manually:

1. Click **LS Retail - POS, Periodic Activities, Create Statistics**.
2. Confirm that you would like to create Statistics.

To create Statistics within Posting Statement:

1. Click **LS Retail - BackOffice, Setup, Retail Setup**.
2. In the **Retail Setup Card, Sales History Tab**, set the parameter **Autom. Statistics Update**.
3. When posting the Statement, the system will create the Statistics Data.

To create Statistics from the LS Retail Scheduler:

1. Create a **Scheduler Job** which runs the Codeunit 99001461, Statistics Utils.
2. On the **Object Setup** tab of the **Scheduler Job** do **not** set the parameter: Uses Scheduler Job record.
3. Run the Job from the Scheduler.

12.1.4 Graphical View

You can view item sales graphically for each store and item.

To View Item Sale Statistics Graphically:

1. Click **LS Retail - BackOffice, Retail Item Card**. The **Retail Item Card** window appears.
2. Click **Sales, Graph**. The **Posted Item Sales** window appears.
3. Select the filters for viewing item sales as needed.
4. If you want to view/edit the information in Excel, right click the window and select **Send to Excel**.

To View Store Sales Statistics Graphically:

1. Click **LS Retail - BackOffice, Setup, Store Card**. The **Store Card** window appears.
2. Click **Sales, Graph**. The **Store Graph** window appears.
3. Select the filters for viewing item sales as needed.
4. If you want to view/edit the information in Excel, right click the window and select **Send to Excel**.

Attention

You need to have the PlusGraph OCX installed in order to see the graphs. The PlusGraph OCX is part of the LS Retail Toolbox and installed with it.

12.2 Statistics Setup

There is certain setup that must be carried out before you can collect and read statistics.

12.2.1 Statistics Time Intervals

To use statistics, used in sales histories, you must set up the Statistics time intervals for the system. The system sums up the requested statistical data for each of these time intervals.

To Set Up Statistics Time Intervals:

1. Click **LS Retail - BackOffice, Setup, Statistics, Statistics Time Setup**.
2. Press **F3** to insert a new time interval.
3. In the **Start Time** and **End Time** fields, define the time interval.

Repeat steps 2 and 3 for each statistics time interval you want to create.

Optionally you can use the Statistics time setup which can be inserted by using the default data.

Attention

You need to estimate the amount of statistical data you need and can be retained in view of the database space the statistics tables will fill as time passes. The more intervals (starting and ending times) you define in the table, the more entries you will have in the statistics tables.

12.3 Sales History / Retail Hierarchy

12.3.1 Retail Hierarchy

The Retail Hierarchy is used to set up hierarchy structures for the items and stores in order to have extra analyses structures in the sales history. In this case the sales history is the sales history form. Examples for a Retail Hierarchy are special item assortments like Men's and Women's Fashion or special store types like Food and Fashion. Statistical store grouping into regions and countries could be done in the same way. The Retail Hierarchy is not used for the price mechanism or data distribution.

To Set Up a Retail Hierarchy:

1. Click **LS Retail - BackOffice, Setup, Sales History – Item, Retail Hierarchy**.
2. Press **F3** to insert a new **Retail Hierarchy**.
3. Insert the **Code** and **Description**.
4. For definition of the Values, click **Hierarchy, Hierarchy Values**.
5. Insert the **Code** and **Description** for the Value.

Select the other fields as needed.

Repeat steps 4 to 6 for each Retail Hierarchy you like to set up.

When the Retail Hierarchy has been created, it can be assigned to an item category, a product group or a store. It is important to build the hierarchies logically since later changes might not fit into the other levels of item hierarchy and stores. A default item hierarchy and default store hierarchy can be assigned in the **Retail Setup**.

To assign a default Retail Hierarchy for items and stores:

1. Click **LS Retail - BackOffice, Setup, Retail Setup**. The **Retail Setup** card appears.
2. In the field **Default Item Hierarchy** select the default Retail Hierarchy for the item structure.
3. In the field **Default Store Hierarchy** select the default Retail Hierarchy for the stores.

Attention

Even the names of the field might suggest something else, they are not used for the fixed item hierarchy of item category and product group or the store grouping but are only used for the sales history.

To assign a Retail Hierarchy Value for an Item Category:

1. Click **LS Retail - BackOffice, Setup, Item, Groups, Item Categories**
2. Move to the line of the Item Category you like to assign an **Item Hierarchy Value** to.
3. In the field **Item Hierarchy Value** select the required value. The values are from the **Default Item Hierarchy** defined in the Retail Setup.

To assign a Retail Hierarchy Value for a Product Group:

1. Click **LS Retail - BackOffice, Setup, Item, Groups, Product Groups**.
2. Move to the line of the Product Group you like to assign an **Item Hierarchy** to.
3. Click **Product Groups, Item Hierarchy**.
4. In the field **Hierarchy Code** select the required Retail Hierarchy. In the field **Item Hierarchy Value** select the required value.

Repeat steps 4 for each Retail Hierarchy you like to assign.

To assign a Retail Hierarchy Value for a Store:

1. Click **LS Retail - BackOffice, Setup, Store Card**.
2. Browse to the required store.
3. Click **Store, Store Hierarchy**. The **Retail Default Hierarchy** window appears.
4. In the field **Hierarchy Code** select the required Retail Hierarchy. In the field **Item Hierarchy Value** select the required value.

Repeat steps 4 for each Retail Hierarchy you like to assign.

12.3.2 Period Setup

Periods can be used to specify period date filters for the use in the Sales History form. Such periods could be the dates for special sales, Christmas or Easter sales etc. The periods allow easier and faster date filtering. Periods are grouped into Period Groups. Such a group could be 'Summer Sales' containing the periods 'Summer 2004' and 'Summer 2005'.

To Set Up a Period Group:

1. Click **LS Retail - BackOffice, Setup, Sales History – Item, Period Group List**.
2. Press **F3** to insert a new **Period Group**.
3. In the **Period ID** field set the Period ID and in the **Period Name** field set the name.

To Set Up a Period:

1. Click **LS Retail - BackOffice, Setup, Sales History – Item, Period Setup**.
2. Press **F3** to insert a new **Period**.
3. Select a **Period Group** and set a **Period Code**. Fill in the **Description**.
4. Set the **From** and **To** fields
5. Set the other fields as needed.

Repeat steps 2 to 5 for each Period you like to set up.

12.3.3 Sales History for Special Groups

The Sales History can show information based on special groups. This gives the option to show items grouped by special group as well as season and event grouping (when linked to special group) in the sales history form.

To activate the showing of special groups in the sales history:

1. Click **LS Retail - BackOffice, Setup, Retail Setup**
2. In the **Retail Setup Card** on the **Sales History** tab, select the parameter: **Include Special Groups**.

12.3.4 Sales History Form

The Sales History form allows an overview about the sales history form different angles like data types such as stores, items customers or dates.

To View the Sales History Form:

1. Click **LS Retail - BackOffice, Sales History, Sales History**. The **Sales History** window appears.
2. In the **Store** field select the store you like to see in the sales history. If you leave the **Store** field blank you'll see all stores.
3. When you are logged into Microsoft Dynamics NAV as a **Retail User** that is assigned to a specific store, you'll find that store number in the **Store** field when opening the **Sales History** form. In that case you're not allowed to select a different store number.
4. If you like to use a date filter via the TrendScape line for a day, week, month, quarter or year then you need to select the RadioButton **General**. For a predefined period like end of the year sales you select the RadioButton **Specific** and the period in the **Period Grp.** Field.
5. By selecting the tabs **Store, Item Hierarchy** etc. you define the view on the specific data types.

Attention

*You need to have a Retail User defined and logged in order to open the Sales History form.
The Retail User can be for a specific store or without a store assigned to.*

12.4 Advanced Statistics

Advanced Statistics use the statistics tables, as mentioned above. Different from the fixed statistics forms, Advanced Statistics allow the user to define own statistics views by selecting different data types like 'No. of Transactions' or 'Items Sold' and combine them in an own 'view'. This makes it easy to have different statistics views for different purposes like one with POS sales data for a store manager or one with special POS cases like 'Voided Amount' and 'No. of Open Drawer' for controlling.

By using calculation formulas and fixed values, the Advanced Statistics allows calculations based on POS data, for example a very basic profit calculation using 'Sales Amount'; 'Cost Amount' and some fixed costs. When values turn into negative or exceed a fixed day based amount, the system can 'alert' with selectable colors.

Even a comparison between different periods like day, week, month, quarter and year is possible.

To Set Up an Advanced Statistics View:

1. Click **LS Retail - BackOffice, Setup, Statistics, Advanced Statistics View**. The **Advanced Statistics View** card appears.
2. Press **F3** to insert a new **Advanced Statistics View**.
3. Insert a **Statistics View Code** and fill in the **Description** field.
4. If needed, select colors for **Negative, Alert** and **Comparison**. In case you like to have own calculations in the view you can define how to handle **Formula Division**.
5. In the Advanced Statistics View lines press F3 to insert a new line.
6. Select a **Column Code** for the line. Only alphabetic codes are allowed.
7. Select the **Type** of the line like 'No. of Transactions' or 'Sales Amount' and fill in the Description field.
8. Depending on the needs, define the other fields.

Repeat steps 3 to 8 for each line you like to set up.

To View Advanced Store Statistics:

1. Click **LS Retail - BackOffice, Sales History, Sales History – POS Trans, Advanced Statistics, Advanced Store Statistics**. The **Advanced Store Statistics** window appears.
2. Insert the **Statistics View Code** you like to use.
3. With the **Date Filter** or the TrendScape line you can select the date filtering.
4. You can select to see the stores as rows by clicking **Statistics, Store as Row**. You can switch back to see the store as column by clicking **Statistics, Store as Column**.
5. To see the advanced store Statistics for a single store move to the line with the required store and click **Statistics, Single Store Statistic**.
6. After opening **Single Store Statistic** you can go further to **Store Detail Statistic** to see statistics by POS Terminal or staff.

Attention

Under the LS Retail - BackOffice, Sales History, Sales History – POS Trans, Advanced Statistics you'll find Additional Item Statistics and Additional Payment Statistics. Both are not designed for using the Advanced View but are different types of fixed Statistics forms.

13 Data Distribution

The Data Distribution mechanism built into LS Retail allows you to control how data is distributed from the Head Office to the stores. For example, you can define the Data Distribution of Items such that certain Items are only available in certain stores.

It is necessary to set up Data Distribution if you want to replicate data to different stores. By setting up the Data Distribution you:

- Make sure that the data is only sent to distribution locations that should receive it and not to other distribution locations.
- Shorten the time spent on transmitting data by sending only the data that the destination distribution location should receive. This can have an impact on costs related to the transmission of data.

The Data Distribution should be one of the first things you set up when setting up a new system. The Data Distribution must be set up before users start entering data into the system. Data entered before the Data Distribution is set up may or may not be distributed correctly.

Data Distribution setups between different organizations can be very different. A chain of supermarkets would probably need a full setup for all tables used in the system. A small single location store would need a simpler setup, since it does not have to distribute data to other stores.

In order to set up the Data Distribution you need to set up the following parts of the system:

1. **Table Distribution.** This is where you specify the Data Distribution type used for individual tables in the system.
2. **Distribution Groups.** This is where you specify how your stores and POS as well as other Distribution Locations are grouped together. You might want to create a distribution group for each city your stores are in or distribution groups for chains of stores.
3. **Distribution Locations.** A Distribution Location is a place where you keep data (a database). By default these are the Head Office, Stores and POS Terminals but it can be other databases as well. In order to be able to send data into or read data from that database, a setup needs to define parameter like the Database Server, the network connection and other related information.
4. **Distribution List.** This is where you define where individual records are distributed.

13.1 Default Data Distribution in LS Retail

Table Distribution controls how individual tables in the system are distributed. Note that Table Distribution says nothing about where the tables are distributed, only how they are distributed.

LS Retail consists of many different tables, which serve different purposes. The decision on how to distribute a table depends on the functionality of the table. For example, the Gen. Product Posting Group table is an example of a table that should be distributed to all distribution locations. The Item table might have a more selective Data Distribution, depending on the selection of items in the stores. Records in the Store table should only be distributed to the store it represents. These three tables would have a different Table Distribution, since their Data Distribution follows different principles.

Table Distribution is closely linked to the Distribution List. The Distribution List is used to tell the system how individual records should be distributed. Note the difference between the Table Distribution, which defines how tables are distributed and the Distribution List, which defines how records are distributed. The Distribution List is only used where you have to specify Data Distribution based on records.

The different types of Table Distribution are:

- All
- Specific
- By Master Only
- Master Default (not supported in LS Retail 4.2)
- Table Default
- No Distribution
- All Default

13.1.1 All

This option tells the system that the table should be distributed to all locations. The Distribution List for this table will be empty, since the system can find out the Data Distribution for all records in the table by looking at the Table Distribution. The user is not allowed to specify a different Data Distribution.

13.1.2 Specific

This option tells the system that the user will specify Data Distribution on record level. In this case the user has to fill in the Distribution List manually for each record in the table.

13.1.3 By Master Only

This option allows us to link tables together. In many cases it can be convenient to link the Data Distribution of one table to another. For example, we could assume that Items and Barcodes for the items should have the same Data Distribution. Therefore we can link the Barcode table to the Item table so that all barcodes related to an item will get the same Data Distribution as the Item. This is a very powerful feature because it allows the user to link many tables together and only specify the distribution at the top level. This kind of Data Distribution is used in the default settings that come with the system.

When By Master Only is used, the user must define the link between the tables. This is done through the Table Links field in the Table Distribution window. In our previous example the Barcode table would be linked to the Item table by linking the "Item No." field in the Barcode table to the "No." field in the Item table.

Attention:

Note that there must be some kind of relation between the tables when this option is used. You cannot use this option if there is no logical relation between the tables. You can therefore not link the Item table to the Customer table, since there is no direct table relation between those two tables.

When linking tables it is preferable that the linked fields are parts of the primary keys of the linked tables. This is not absolutely necessary, but can improve the performance of the system.

13.1.4 Table Default

This option is reserved for a specific table in the system:

- Store Groups

The user is advised not to change the Data Distribution of these tables. This Data Distribution option cannot be used for other tables in the system.

13.1.5 No Distribution

This option means that the table will not be distributed. Actions for this table will not be created. This distribution type might be used for tables that build a data link between other tables but shall not be distributed themselves.

13.1.6 All Default

This option is a combination of All and Specific. When a record is created for a table with Data Distribution type All Default, the system will create a List entry that tells the system that the record should be distributed to all locations. However, the user can modify the Data Distribution for the record afterwards.

The system comes with a predefined Table Distribution in the default data that should be appropriate for most organizations. Changes to the default Table Distribution settings should only be done by advanced users.

13.2 Data Distribution Groups

Data Distribution groups are mainly used to group the distribution locations of stores together. By grouping stores we make the task of assigning Data Distribution to records easier, since we do not have to specify the Data Distribution for each store, but for a group of stores.

Data Distribution groups are similar to mail groups. Once the mail group has been created we can assign recipients to it. The same goes for distribution groups, but instead of assigning recipients we assign stores.

A data distribution group consists of a group and a subgroup. The group can have one or more subgroups. Distribution Locations can be assigned to only one group, but they can be members of many subgroups.

Example

ACME Inc. runs a chain of hardware stores. ACME has stores in Washington, New York, Seattle, Los Angeles and San Francisco. We want to set up distribution groups for ACME. We begin by creating a distribution group named ACME. Within that group we create two subgroups, EAST and WEST. Once these have been created we can assign the stores to group ACME. Furthermore, we assign the Washington and New York stores to subgroup EAST and the Seattle, San Francisco and Los Angeles stores to group WEST. Now we can distribute data to the New York and Washington store by selecting group ACME and subgroup EAST (ACME->EAST). ACME->WEST can be used to distribute data to Los Angeles, San Francisco and Seattle. We can also distribute data to all the stores by selecting group ACME and subgroup ALL. If we want to distribute data to one store only, like Seattle, we can select ACME->SEATTLE.

We could also have created subgroups NORTH and SOUTH, and assigned stores to them. These groups can coexist with subgroups EAST and WEST because there is no limit on the number of subgroups within a group. The same goes for the stores (or members). They can be members of many subgroups but only one group.

This selection method is used when distributing data with the Distribution List. Once the record to be distributed has been selected you simply fill in the values for the group and subgroup.

The system expects one group to represent all stores within the organization. This group should have one subgroup as well. These groups are usually named All and referred to by All->All. This group and subgroup are a part of default values for LS Retail.

13.3 Actions and PreActions

Actions and PreActions stand for entries in Action and PreAction tables. The purpose of these tables is to:

- Keep track of changes made to data in LS Retail.
- Keep track of how the changes should be distributed.

The difference between those tables is that the PreAction knows only which data has changed (except that all the data shall be distributed everywhere without any exceptions). The Action knows that data has been changed and also how it should be distributed.

Every time a user changes data in defined LS Retail tables, a log of the change is written to the PreAction table. By change we mean that each creation, update or deletion from a table that is prepared for it in LS Retail is logged in the PreAction table. This allows the system to keep track of which records have been changed and when. Note that the system knows only which record has been changed; it does not know which fields in that record have been changed.

The PreAction table tells us what records have changed. But we want to know how the changed records should be distributed. Should they be sent to all stores or just a single store? In order to find this out we need to convert the PreActions to Actions. This is done by running codeunit PreAction->Action. By running that codeunit, the system will convert all PreActions to Actions, giving us a list of all changed records in the system and also telling us how they should be distributed.

13.4 Data Distribution Overview

This is an example on how the system finds the Data Distribution for an Item:

5. A user changes the description of an item.
6. The system detects that a change has been made to a record in the **Item** table. The system writes an entry in the **PreAction** table, stating the ID of the record, the number of the table (the Item table is number 27) and that the change was in the form of an update to an existing record.
7. The **PreAction->Action** codeunit is run. The codeunit will see that a change has been made to a record in the Item table.
8. The codeunit will look at the **Table Distribution** for the **Item** table, to find out how the Item table should be distributed. Depending on the Table Distribution, the program will find how the record should be distributed.
9. Once the Data Distribution of the record has been found, the program will insert entries into the **Actions** table for each distribution group and subgroup that the record has.

The whole idea behind the Table Distribution, the groups and the actions is to have a simple way to find out which data should go where. The concepts related to Data Distribution may seem complicated, but you should not worry. Once the Data Distribution has been set up, it requires almost no maintenance or intervention on the user's behalf.

13.5 Checklist for Data Distribution Setup

When you set up Data Distribution in LS Retail, you must enter certain information before you can start running the Data Distribution.

Order	Task/Overview	Mandatory
1	Setting Up Data Distribution	Yes
2	Setting Up Distribution Group 'All'	Yes
3	Setting Up a Distribution Subgroup 'All' that belongs to the Distribution Group 'All'	Yes
4	Setting Up Distribution Group as 'Default Group'	Yes
5	Setting Up a Distribution Subgroup as a 'Default Subgroup'	No
6	Setting Up other Distribution Groups	No
7	Setting Up Distribution Subgroups	No
8	Assigning Stores to Distribution Groups	No
9	Setting Up Table Distribution Automatically	Yes
10	Setting up Table Distribution Manually	No
11	Including/Excluding Locations from Data Distribution	No

13.6 Setting Up Data Distribution

When setting up Data Distribution you can either insert Data Distribution setup for a table manually, or you can use default data provided to set up the Data Distribution of selected tables automatically.

It is recommended to set up Data Distribution only where necessary. You should **not** have a table distribution set up for a table in which all records are valid in **all** locations. In case there is no table distribution setup defined for a table, the data of this table will be distributed everywhere.

It is also recommended to set up Data Distribution automatically and then manually change the settings.

To Set Up Table Distribution Automatically:

1. Click **LS Retail – Back Office, Setup, Retail Setup**.
2. In the **Retail Setup** window, click **Setup, Insert Default Data**.
3. Click **Clear All** and then select **Table Distribution**.
4. Click **Insert** to insert the data.

To Set Up Table Distribution Manually:

1. Click **LS Retail - Scheduler, Distribution, Table Distribution Setup**.
2. Fill in **Table ID** field in the **Distribution Setup** window.
3. If the table has a master table, fill in the **Master Table ID** field.
4. Select the relevant option in the **Distribution Type** field.

13.6.1 Distribution Group Setup

The LS Retail system must always have one distribution group and one distribution subgroup that includes all distribution locations. You must also set up one distribution group and one distribution subgroup for each store that includes just that store and the same for each POS terminal. This is system generated when you have defined the default distribution grouping. Beside these, you can create as many distribution groups and distribution subgroups as needed.

To Set Up Distribution Groups:

1. Click **LS Retail - Scheduler, Distribution, Distribution Groups**.
2. Press **F3** to enter a new distribution group.
3. Fill in the **Group Code** and **Description** fields.
4. Click **Group, Subgroups**.
5. Fill in the **Subgroup Code** and **Description** fields.
6. Click **Subgroup, Member List**.
7. In the **Distrib. Loc Code** field, select the relevant distribution location.

Repeat step 7 for each distribution location you want to include in the subgroup. Repeat steps 5 to 7 for each subgroup you want to include in the distribution group.

For each distribution group, at least one distribution subgroup must exist. When needed, you can add subgroups to an existing distribution group.

To Set Up Distribution Subgroups:

1. Click **LS Retail - Scheduler, Distribution, Distribution Groups**.
2. Browse to the distribution group you want to set up a distribution subgroup for and click **Group, Subgroup**.
3. Fill in the **Subgroup Code** and **Description** fields.
4. Click **Subgroup, Member List**.
5. In the **Distrib. Loc Code** field, select the relevant distribution location.

Repeat step 5 for each distribution location you want to include in the subgroup. Repeat steps 3 to 5 for each subgroup you want to set up for the distribution group.

Before you can distribute data to a store, the store must be assigned to a distribution group and a distribution subgroup.

To Assign Stores to Distribution Groups:

1. Click **LS Retail – Back Office, Setup, Store Card**. The **Store Card** window appears.
2. Browse to the relevant store and click **Store, Location Distribution**. The **Location Distribution** window appears.
3. Fill in the **Group Code** field by selecting the relevant distribution group.
4. Fill in the **Subgroup Code** field by selecting the relevant distribution subgroup.

Repeat step 3 and 4 for each distribution group you want to assign the store to.

On the **Store Card, General Tab**, you can find the **Default Distribution Group** which is filled in automatically when you create the store. You can change the Distribution Group there but be aware that this will change the group membership and might cause loss of data if not done within a logical process.

14 Replication Setup

When you insert, update or delete information in one database, the act of inserting, updating or deleting the same information in another database, is called replicating. The general aim of replication is to keep selected data in many databases the same. Most often one database is the main database, or a head office, where basic data is maintained and replicated to the other databases.

To replicate data in a table from database **A** to the same table in database **B**, you can use two general methods:

- The program knows before replication starts which data has been inserted, updated or deleted in database **A**. The program repeats the corresponding changes in database **B**.
- The program compares two tables in database **A** and **B** to find the differences between them. It changes the table in database **B** and makes it identical to the table in **A**. This method can prove to be slow if there are many records in the tables. With some extra configuration it is possible to speed that method up.

You need a replication process to manually or automatically replicate the changes you have made in one database to another. The replication process in LS Retail has the following main functionality:

- It allows you the replication between databases.
- It allows you to schedule the replication at user-defined intervals.
- It allows you to control data distribution; that is, which records are replicated where.
- It allows you to control which fields in a table are replicated, depending on their functionality.
- It offers several methods of replication, whether replication time is important, whether you need to extend replicated data from databases to POS terminals, or whether you want a simple replication, all depending on the tables being replicated.
- It allows replication of data between two databases that do not have the same table and field structure. This is always a project and needs detailed knowledge about the replication processes, database and table structure as well as functionality knowledge.

14.1 Replication Options in LS Retail

There are two ways of replicating in LS Retail, by using of the LS Replicator or by using the Data Director.

The LS Replicator is the Replicator for the LS Retail system. It is essential for replicating data in LS Retail. When you keep the system's data in more than one database you can set up the LS Replicator.

The Data Director works as a service and is used for the replication of data between databases.

14.1.1 LS Replicator

The LS Replicator, uses the **PlusCFront** to connect to the database. It makes the Microsoft Dynamics NAV Client more independent from the CFront connection processes. The *PlusCFront.ocx* takes care of starting and closing these processes. The *Cfront.dll* starts the process when the connection is made and closes the process on disconnects. The OCX communicates to this process through OLE automation (the process is in fact an automation server). All this happens in the background and is invisible to the user.

Example:

`Fin.exe -> PlusCFrontClient.ocx -> PlusCFrontSrv.exe -> CFront.dll -> server.exe`

14.1.2 Advantages of the LS Replicator

- No Memory Leak

Some versions of the Microsoft Cfront interface leak memory. This leak affects only the automation server because the Microsoft Dynamics NAV client is isolated from the interface. Because the automation process starts and stops for each connection, the leaked memory is released back to the operating system when the process stops.

- CFront Errors

Some errors in the CFront interface exit the caller-process after it throws an exception. This crashes the Microsoft Dynamics NAV client if using the previous method. Now it only crashes the automation server and the *CFront.ocx* returns an error and the job can be processed next time.

- Debug Mode

You can configure the Replicator to run in debug mode, and then it logs everything it does into a text file. This makes it easier for the user to track errors.

- Time Out Mechanism

PlusCFront can be configured to use *Time Out* mechanism. If some unexpected error occurs in the CFront interface and the system hangs, a *Time Out* terminates the automation server and returns an error into the Microsoft Dynamics NAV client. Also, if for some reason an automation process does not exit (possible reason: a job exits on some particular error) the *Time Out* exits the process automatically.

- Multiple Microsoft Dynamics NAV Versions

The PlusCfront supports different versions of Microsoft Dynamics NAV. You must use the appropriate Microsoft Dynamics NAV CFront files for each location and configure a *repl.cfg* file to tell PlusCFront which version is in use. It is possible to replicate between different versions (from 4.00 to 3.70 for example).

14.2 Checklist for Replicator Setup

When you set up replication in LS Retail, you must enter certain information before you can start running the replication. Depending on how you want to structure your business, the setup can vary from one distribution location to another. Certain setup is mandatory, other is optional.

For setting up replication in LS Retail, follow the tasks according to the order given, note that it has been assumed that certain tasks have already been carried out in the Retail and Store Setup, therefore those tasks are not mentioned in the checklist.

Order	Task/Overview	Mandatory
1	Installing External Objects for Replication	Yes
2	Setting Up System Versions – only Data Director	Yes
3	Specifying General Replication Information	Yes
4	Defining the mandatory Distribution Loc. Groups and Distribution Loc. Subgroups	Yes
5	Using Store Groups	No
6	Specifying Replication Info. for Distribution Locations	Yes
7	Testing Connections to Dist. Locations	Yes
8	Reading the Design of Dist. Locations	No
9	Setting Up Scheduler Job Types	Preferred
10	Setting Up Scheduler Jobs	Yes
11	Setting Up Scheduler Subjobs	Yes
12	Use Table Linking	Preferred
13	Setting Up Miscellaneous Jobs	No
14	Setting Up Normal Replication	Yes
15	Setting Up Replication with Replication Counters	Yes
16	Setting Up Replication by Actions	Preferred
17	Setting Up Distribution Filters	No
18	Excluding Records from Replication	No
19	Excluding Fields from Replication	Preferred
20	Setting Up Scheduler Logs and Actions Deletion	Preferred

14.3 Setup

Before you start the installation you must have a Microsoft Dynamics NAV license file that allows you to run LS Retail. It must contain the C/Front Granule. You should also have a valid license key for the LS Replicator. You can apply for a license key by contacting: support@LSRetail.com.

The information that must be sent is: Customer Name, Contact Person at Customer and Microsoft Dynamics NAV License number.

If you would like to use the Data Director you need to have a Data Director license. You can apply for a license key by contacting: support@LSRetail.com.

The information that must be sent is: Customer Name, Contact Person at Customer and Microsoft Dynamics NAV License number as well as number of stores. Additional information about number of threads and additional plugins might be necessary depending on the project requirements.

14.3.1 Installing External Components for PlusCFront Replication:

On the computer that will run the replication process, run the **PlusCFront xxx.exe** installation program. This will install the external components for the replication with

PlusCfront. Details about the PlusCfront can be found in the 'ReadMe.Doc.' that is available in the PlusCfront folder.

Follow the instructions given in the installation program to complete the installation.

After importing the Microsoft Dynamics NAV License in the PlusCfront License Information form, you can insert the PlusCfront License Key. In case you have no license key, press Cancel. You may need to restart the Computer afterwards.

14.3.2 System Versions

Before you can replicate with Data Director you must set up system versions. These are the Microsoft Dynamics NAV versions that will be used in the Data Director replication. Then you can assign a system version to each distribution location. This is necessary in for the system to create connection strings which point to the databases.

Please note that it is not necessary to set up the system versions when you use the PlusCfront Replicator only.

To Set up System Versions:

1. Click **LS Retail - Scheduler, Distribution, Dist. Location Versions**. The **Dist. Location Versions** window appears.
2. Fill in the **ID** and **Description** fields.
3. Fill in the **Plugin ID** field according to the options in the Online help for fields.
4. Fill in the **Plugin String** field.

You can also insert the system versions by inserting the default data in the **Retail Setup**:

1. Click **LS Retail – Back Office, Setup, Retail Setup**. The **Retail Setup Card** appears.
2. Click **Setup, Insert Default Data**. The **Insert Default Data** card appears.
3. Click **Clear All**, then select the **System Versions** and click **Insert**. Answer the confirmation question with **Yes**.

Attention

Note that the default data might not contain the version you are working with. In this case you need to setup the version manually.

14.3.3 General Replication Information

To run replication successfully, you should fill in replication information that will be used in all distribution locations in your system.

To specify General Replication Information:

1. Click **LS Retail - Scheduler, Setup, Scheduler, Scheduler Setup**. The **Scheduler Setup** window appears.
2. Fill in the **Days Actions Exist**, **Days Sched. Log Exists** and **Days Preaction Log Exists** fields. In case you use the Data Director and keep your messages in the Microsoft Dynamics NAV database, you fill in the **Days Inc./Outg. Msg. exist**.
3. If you like to replicate by **Preactions** – see also chapter 12 – then select **Replicate using Preactions**.
4. If you like to use the Microsoft Dynamics NAV Application Server to run the Scheduler then select **Enable NAS Scheduler**. You need to further configure the NAS in order to use it for that purpose.

14.3.4 Specifying Replication Information for Distribution Locations

For each Distribution Location with or in which you are running replication, whether it is the head office, store or POS terminal, you must specify replication information for the Distribution Location before running replication with the Distribution Location.

When you have installed and registered files for replication and specified replication information for distribution locations, you can test the connection to the Distribution Location to make sure that the setup has been carried out right.

To Specify Replication Info for Distribution Locations:

1. Click **LS Retail - Scheduler, Distribution Location**. The **Distribution Location Card** window appears.
2. Browse to the relevant Distribution Location.
3. On the General tab you can specify the Distribution Group. If the Distribution Location is a Store, it can come from the Store Card.
4. On the **Replication** tab, fill in the **Company Name**, **User ID** and the **Password** fields with the username and password of the Replicator running in the Distribution Location. Please keep in mind that this might be different from the database you are working in since the Distribution Location can point to a different database. The **Company Name** is case sensitive so make sure you enter it correctly.
5. If you are using the Data Director fill in the **Distribution Server** field.
6. If needed place a checkmark in the **Location Uses Server** field, and if you do, also fill in the **Server Name** field. When you use a SQL Server you must specify the **Db. Path & Name**.
7. If you are using the Data Director, select a system version in the **Version** field.
8. Select the **Driver Type**.
9. Change the contents of the **Net Type** field if needed.
10. Select the relevant path in the **Path to CFront Directory** field.

14.3.5 Distribution Location Connection Testing

When you have installed and registered files for replication and specified replication information for each Distribution Location, you should test the connections to each Distribution Location to make sure the setup has been carried out correctly.

To Test Connections to Distribution Locations:

1. Click **LS Retail - Scheduler, Distribution Location**. The **Distribution Location Card** window appears.
2. Browse to the relevant Distribution Location and click **Functions, Test Connection**.
3. If you use the Data Director, click **Functions, Test Connection with Data Dir**. Select to use the Data Director.

If the connection to the location has been set up right the system will prompt you with a message of a successful testing.

14.3.6 Reading Design of Locations

It is possible to replicate between Microsoft Dynamics NAV databases that do not have the same table and field structure. If this is the case, you need to read the design of the database that is different from the database that stores the replication jobs.

When you have read the design of the Distribution Location you can set up a field transfer list for replicating between different tables.

To Read Design of Locations:

1. Click **LS Retail - Scheduler, Distribution Location**. The **Distribution Location Card** window appears.
2. Browse to the location you want to read the design of and click **Functions, Read Design**.
3. A status window appears informing you of the status of the database reading. When the reading has been successfully finished, you can view the tables of the database by clicking **Dis. Location, Dist. Location Tables**.
4. With the Data Director it is possible to read only the table design or optionally both the tables and fields. To do so, use the **Read Design with Data Dir**. When you have just a few tables that have a different design, it is faster to just read the design of the tables and the fetch the fields only for those tables. This can be done under **Dis. Location, Dist. Location Tables**. Select the table and click **Table, Fetch fields v/DD**.

Attention

*Before reading design from another location, the **Local Store No.** field in the **Retail Setup** table in the location you are reading to must be set to the location you are reading the design to.
Also, the result of testing the connection to the location you are reading from must be successful.*

14.4 The Scheduler

In the LS Retail system, the Scheduler combines all scheduler jobs in the system, whether they are replication jobs or miscellaneous.

In the Scheduler you can view how the scheduler jobs were processed, if they were run successfully or if an error was returned. You can also set the actual date and time of next processing specific scheduler jobs from the Scheduler.

From the Scheduler you can run scheduler jobs directly without the scheduler server, you can also order a run of a specific scheduler job assign further priorities to a scheduler job to ensure it will be run ahead of other scheduler jobs by the scheduler server.

14.4.1 Scheduler Job Types

Scheduler job types are used for setting up objects that run different types of scheduler jobs. You can set up various scheduler job types for example for running replication as well as for running miscellaneous jobs in the scheduler, jobs which are not replicating data.

- For running PlusCfront replication you must set up a scheduler job type, running codeunit 99001484, **Perform Replication Job** and select the option *Single Location* in the Distribution Restrictions field.
- For running the Data Distributor you must set up a scheduler job type, running codeunit 99001466, **Data Distribution** and select any option in the Distribution Restrictions field.

You can create other job types running other objects.

When you have set up a scheduler job type, you can assign it to a scheduler job.

To Set Up Scheduler Job Types:

1. Click **LS Retail - Scheduler, Setup, Scheduler, Scheduler Job Types**.
2. Press **F3** to create a new scheduler job type.
3. Fill in the **Type Code** and **Description** fields.

For PlusCfront replication Job Types you must set the **Distribution Restrictions** to **Single Location**.

4. For running specific objects you have to set the **Distribution Restrictions** to **No**.
5. In the **Object Type** field, select whether you want to run the job type with a *Report, Dataport or Codeunit*.
6. In the **Object No.** field, select the relevant object.

Repeat steps 2 to 5 for each scheduler job type you want to create.

Another way to insert default Scheduler Job Types is to insert the default data from the **Retail Setup**.

14.4.2 Scheduler Jobs

Scheduler jobs can run at predefined intervals. Scheduler jobs can be used for various kinds of functionality: To run batches in the location, but most noticeable, to replicate table data between locations. When running replication, a scheduler job is called a replication job. Each replication job can replicate one or more table data.

You need to set up replication jobs to replicate data between locations, for example from the head office to selected stores.

To Set Up Replication Jobs:

1. Click **LS Retail - Scheduler, Scheduler Job**.
2. Press **F3** to create a new replication job.
3. Fill in the **Job ID** and **Description** fields.
4. In the **Scheduler Type Code** field select the scheduler job type set up to run **Data Replication**.
5. For PlusCfront Replication Jobs set the **Distribution Restrictions** to **Single Location**.
6. Replication with Data Director supports all types of **Distribution Restrictions**.
7. In the **From-Location Code** select the Distribution Location you like to replicate from.
The Replication with the Data Director supports the use of the **Use Current Location**. With that selected, the **From-Location** will be the Distribution Location of the **Local Store Number** set in the **Retail Setup**.
8. If you have set the **Distribution Restrictions** to **Single Location**, you select the Distribution Location you like to replicate to in the field **To-Location Code**.
9. For PlusCfront Replication Jobs select the **Object Setup Tab** and set **Object Type** to Codeunit and select the Codeunit 99001484.
10. For Data Director Replication Jobs select the **Object Setup Tab** and set **Object Type** to Codeunit and select the Codeunit 99001466.
11. In the Scheduler Job lines in the lower half of the window, fill in the **Subjob ID** field by selecting a subjob you want to include in the scheduler job.

Repeat step 11 for each Scheduler Subjob you want to include in the Scheduler Job. The subjobs will be run in the order they appear in the job lines. Repeat steps 2 to 10 for each replication job you want to set up.

Attention

You cannot include any Scheduler Subjobs in a Scheduler Job unless you have already set up the relevant Scheduler Subjob(s).

14.4.3 Scheduler Subjobs

For each table you want to set up replication for, you must set up a Scheduler Subjob. Then you must include a (number of) Scheduler Subjob(s) in a scheduler job.

Depending on the kind of the table you want to replicate and the direction you like to replicate it, you select the replication method for each subjob. There are three replication methods:

- Normal Replication
- Normal Replication with Replication Counter
- Replication by Actions

To Set Up Scheduler Subjobs:

1. Click **LS Retail - Scheduler, Scheduler Subjob**.
2. Press **F3** to create a new replication subjob.
3. Fill in the **ID** and **Description** fields.
4. In case you like to replicate tables between databases that have different table design you use the **From-Location Design** and **To-Location Design** – Reference see 14.3.6
5. Fill in the **From Table ID** and **To Table ID** fields by selecting the table(s) you want to replicate from/to. If you do not select the same table in both fields, you have to set up a transfer field list, determining which fields in the From-Table should be replicated into which fields in the To-Table.
6. In the **Replication Method** field, select the relevant replication method.
7. For Scheduler Subjobs with the **Replication Method** 'Normal', you need to define the **'What To Do'**.
Scheduler Subjobs with the **Replication Method** 'By Actions' have the **'What To Do'** blank.
8. Fill in other fields as needed, depending on the replication method you are using for the table.

Another way to insert default Scheduler Subjobs is to insert the default data from the Retail Setup.

14.4.4 Linking Scheduler Subjobs

You can define tables linked to a Scheduler Subjob. When you have linked a table to a Scheduler Subjob, the replication of the table will take place along with replication of the Subjob, according to the setup of the subjob. Linking Scheduler Subjobs guarantees that related tables are never replicated separately, either all linked tables are replicated, or none, even if the system stops in the middle of replication.

To Link Scheduler Subjobs:

1. Click **LS Retail - Scheduler, Scheduler Subjob**. The **Scheduler Subjob** window appears. Browse to the subjob you want to link other tables to and click **Subjob, Linked Tables**. The **Scheduler Subjob Linked Tables** window appears.
2. Fill in the **From Table ID** and **To Table ID** fields by selecting the table(s) you want to replicate from/to. If you do not select the same table in both fields, you have to set up a transfer field list, determining which fields in the From-Table should be replicated into which fields in the To-Table.
3. You need to create filters to specify the relation of the subjob and the linked table. Click **Linked Table, Filters and Links** and specify the relations.
4. If you want to include or exclude fields in the table from replication, first select the relevant option in the **Field Transfer Type** field and then click **Linked Table, Field List** and specify the fields you want to include/exclude from replication.

Repeat steps 2 to 5 for each table you want to link to the subjob.

Example

To link replication of the Statement Line table to the Statement table, you set up a subjob for the Statement table and then link the Statement Line table to the Statement table subjob. For linking the statement lines to the relevant statement you select the Statement No. field in both tables as a link. Then, when a Statement record is replicated, all records in the Statement Line table that have the same Statement No. are replicated as well.

14.5 Miscellaneous Jobs

Several jobs are available in the **LS Retail** system and can be run as miscellaneous jobs in the Scheduler at defined intervals. Before you set up a miscellaneous job, you must set up a scheduler job type, representing miscellaneous jobs.

To Set Up Miscellaneous Jobs:

1. Click **LS Retail - Scheduler, Scheduler Job**. The **Scheduler Job** window appears.
2. Press **F3** to create a new scheduler job.
3. Fill in the **Job ID** and the **Description** fields.
4. In the **Scheduler Job Type Code** field, select a scheduler job type you have set up for miscellaneous jobs.
5. On the field **Job Type** you select the Job Type **Custom**.
6. On the **Object Setup** tab, select the relevant object type in the **Object Type** field.
7. In the **Object No.** field, select the object you want to run in the scheduler.
8. If needed set **Uses Scheduler Job Record** to *False*.

14.5.1 Available Miscellaneous Jobs

The objects in the following table are examples of how to run miscellaneous jobs in the Scheduler at defined intervals in **LS Retail**. It is important to read through the list to check which jobs you need to set up in your company.

Object	Description	Scheduler Job Record
Codeunit 99001486 Delete Logs	Used to delete actions and scheduler logs in both head office and store databases. You need to run this job regularly in the relevant databases to manage database space properly.	Yes
Codeunit 99001461 Statistics Utils	Creates Statistic Records from Transactions.	No
Codeunit 99001560 PreAction -> Actions	Creates Actions out of Preactions.	No
Codeunit 99001453 Transaction Archiving	Used to Archive POS transactions. It copies POS Transactions into archived transactions and deletes them afterwards from the POS transactions.	No
Codeunit 99001491 Blocking Utility	Used to block staff that have today's date or an older one in the Date to be Blocked field and have yet to be blocked.	
Codeunit 99001468 Update Remote Statuses	Updates the remote statuses of the Data Director Message Tables. You can administrate remotely some parts of the Data Director messages.	Yes
Codeunit 99001481 Label Utility	Creates needed Labels	Yes
Codeunit 99008909 POS Transaction Server Utility	Update POS Inventory Lookup table by running this Codeunit.	No

14.6 Methods of Replication

The replication process for LS Retail uses three basic methods for replicating from one database to another:

- Normal Replication
- Normal Replication with Replication Counter
- Replication by Actions

Depending on the type of the table and data and the frequency of replication, you select which replication method is optimal for each replication job.

The **Replication Method** of each Replication Subjob defines which method is used, *Normal* or *By Actions*.

Attention

It is recommended not to combine the replication jobs 'Normal' and 'By Action' in one Scheduler Job.

14.6.1 Normal Replication

When you use the replication method *Normal Replication*, the replication process uses table comparison to make the table replicated to identical to the table replicated from. It reads the records in the table in the database it is replicating from (From-Table), finds the corresponding records in the table in the database it is replicating to (To-Table), and makes them identical to the records in From-Table. If the records in From-Table do not exist in To-Table, the replication process adds them to the To-Table. The replication process reads through the records in To-Table and deletes them if they do not exist in From-Table.

You can restrict the replication process actions to allow only adding to, updating or deleting to the table replicated to or any combination thereof.

If you are replicating tables that do not create actions, that do not have replication counters and from which records may be deleted, you have to use normal replication, otherwise normal replication with a replication counter is generally a better option. Since normal replication requires reading all table records in both databases, it is not recommended for large tables. If the records in the From- or To-tables are not deleted regularly, replicating by using replication counter is a preferred option.

Attention

Normal replication of a table from the head office to stores leaves no trace in the stores' databases of which records have been deleted in the table. Therefore, if the POS terminals are not online in store, and a given table is replicated to the POS terminals in the store, the store's database cannot tell the POS terminals database which records to delete. It is therefore not recommended to have a normal replication for tables that are sent to the POS terminals.

If the head office to stores replication method is normal, the replication of the same table to the POS terminals must be normal as well.

You can also set up normal replication from the stores to the head office. Then you need to make sure that replicating data from one store to head office does not overwrite data replicated from another store.

To Set Up Normal Replication:

1. Click **LS Retail, Setup, Scheduler, Scheduler Subjob**.
2. Press **F3** to create a new subjob.
3. Fill in the **ID** and **Description** fields.
4. Fill in the **From Table ID** and **To Table ID** fields by selecting the table(s) you want to replicate from/to. When the tables have a different table design as in the database you are working in, you fill in the **From-Location Design** and **To-Location Design**. This is necessary for assigning the not know fields in the transfer field list. If you do not select the same table in both fields, you have to set up a transfer field list, determining which fields in the From-Table should be replicated into which fields in the To-Table. See the chapters above as well.
5. In the **Replication Method** field, select the *Normal* option.
6. In the **What To Do** field, select the required option.

14.6.2 Replication with Replication Counters

Performing a normal replication of a table without replication counters may require reading all table records in both databases. A normal replication with replication counters, on the other hand, limits the number of records replicated each time.

14.6.3 The Replication Counter

For each scheduler subjob, the **Replication Counter** (sometimes called **Source Counter**) field indicates the number of a field in a table being replicated from (From Table) that is given a value when a record in the table is inserted or modified. The value is a number one higher than the Replication Counter value that was given to the last record inserted or modified in the table.

The replication counter allows the replication process to recognize the records that have been inserted or updated in the database being replicated from since the last replication took place to the same location, and replicate these records only. Records that are deleted from a table replicated with Replication Counter will not be deleted from the table in the database replicated to.

The replication process does not replicate the Replication Counter field to a To-Table, unless the Replication Counter field is in the primary key of the table. If the Update Repl. Counter field for the Scheduler Subjob has a checkmark, the program will update the Replication Counter in the To-Table. That is; for each record modified or inserted it looks for the highest Replication Counter value in the To-Table and increments it by one for the modified or inserted record.

You should use the field 'Replication Counter' as Replication Counter in the Transaction tables in order to replicate them from the stores to head office. You can add a special Replication Counter field to your own tables that is updated when the records are both updated and added, to replicate both changes and additions to these tables in the stores to head office.

14.6.4 The What to Do Field

In most cases the option selected in the **What to Do** field for each scheduler subjob, is *Add Only*. This option only allows new records in the From-Table to be added to the To-Table. Beware, that using the *Add* instead of *Add Only* option for ledgers and transactions may cause a loss of data in the database replicated to, since records with the same values in key fields in the From-database will override records in the To-database. The *Add Only* option will not allow overriding and return an error message for the scheduled subjob.

For small tables, such as the **Tender Type** table, *Update-Add* is an optimal option.

Performing a normal replication of a table without replication counters may require reading all table records in both databases. A normal replication with replication counters, on the other hand, limits the number of records replicated each time.

The replication counter allows the replication process to recognize those records that have been inserted or updated in the database being replicated from since the last replication took place to the same location, and will replicate these records only.

Attention

It is extremely important to select the right option in the field 'What To Do'. For example, it is safer to use the Add-Only option when replicating entries from store to head office, than using the Add option. The reason is that, if for some reason, the number series for the records being replicated, overlap for two distribution locations, the Add-Only option will return an error, while the Add option will not.

When the selected option includes 'Delete', then the content of the To-Table will be deleted first and then all the records will be sent. This means that in case one can be sure that there will be no deletions in the From-Table, it is more effective to select an option without 'Delete' in it.

To Set Up Replication with Replication Counters:

1. Click **LS Retail Scheduler, Scheduler Subjob**.
2. Press **F3** to create a new subjob.
3. Fill in the **ID** and **Description** fields.
4. Fill in the **From Table ID** and **To Table ID** fields by selecting the table(s) you want to replicate from/to. If you do not select the same table in both fields, you have to set up a transfer field list, determining which fields in the From-Table should be replicated into which fields in the To-Table.
5. In the **Replication Method** field, select the *Normal* option.
6. In the **What To Do** field, select the relevant option. Note that it is very important to select the optimal value in this field.
7. In the **Replication Counter** field, on the **Replication** tab, select the field you want to use as replication counter from the **Table Fields** window.
8. If needed, fill in the **Repl. Counter Interval**, **Upd. Counter on Empty Interval** and **Update Replication Counter** fields.

Attention

If no single-field key field exists in a table that fits as a replication counter, you can add a replication counter to a table.

If a table, which you want to replicate with replication counters, has no field that is suitable to act as replication counter, you can add a replication counter field to that table. The replication counter field is of the type integer.

To Add Replication Counters to Tables:

1. Click **Tools, Object Designer**.
2. Browse to the table, to which you want to add a source counter. Click **Design**.
3. At the end of the table, press **F3** to add a new field.
4. Fill in the **Field Name** field (for example *Replication Counter*).
5. In the **Data Type** field, select the *Integer* option.
6. Close the table, save and compile. Then click **Design** again.
7. Click **View, Keys** to see the **Keys** window. Add the new field as a key to the table.
8. Press **F9** to see the **C/AL Editor** window. In the **Replication Counter - On Validate ()** function, add a global or local variable that denotes the table itself. Then add the following code (TableName is the name of the variable you just created):

```
TableName.SETCURRENTKEY("Replication Counter");
If TableName.FIND('+') THEN
"Replication Counter" := TableName."Replication Counter" + 1;
ELSE
"Replication Counter" := 1;
```

9. Still in the **C/AL Editor**, in the **OnInsert ()** and **OnModify ()** triggers for the table, add the following code:

```
VALIDATE("Replication Counter");
```

10. Save and compile the changes.

Repeat steps 2 to 10 for each table, to which you want to add replication counters. Then look for all instances in the code in the database objects where records could possibly be inserted into the tables or existing ones modified, and make sure the **.INSERT** and **.MODIFY** functions are called with (TRUE), that is the triggers are run.

14.6.5 Replication by Actions

LS Retail has a structure that allows you to control distribution of all records in tables that have a functionality that creates so called **Actions**. Most tables in LS Retail, and a few modified standard Microsoft Dynamics NAV tables, have this functionality, resulting in that each time a record is added, modified or deleted; records are created in the Pre-Actions table.

For tables that have a functionality to create actions, you can set up replication with the replication method *By Actions*, which limits the number of records that needs to be replicated. If you use replication by actions, the replication process replicates a record to a location, only if its location distribution indicates this.

When replicating by actions, the replication process looks up data in another table that stores information on what actions have been performed since the last replication to the current location, and replicates those actions.

14.6.6 When to Use

When you replicate master data from head office to the stores, no other method gives you more control, especially concerning tables that are replicated further to POS terminals. The method cannot be used in replication from the stores to HO when using the PlusCfront Replicator.

14.6.7 Moving Actions

If the table that is replicated By Actions from head office to the store, shall be replicated further to the POS terminals, the actions created in the head office database need to be in the store database also. Otherwise there is no record in the store of what changes need to be replicated further to the POS terminals. You must place a check mark in the **Move Actions** field in the scheduler subjob from head office to the stores to tell the replication process that the actions should also be moved.

Several master data tables in the LS Retail system have a code that will insert an action entry in the **Preaction** table (that will lead to creation of entries in the **Actions** table if that function is used) each time a record is added, modified or deleted. You can set up replication for these tables by actions, thus limiting the number of records that need to be replicated.

To Set Up Replication by Actions:

1. Click **LS Retail Scheduler, Scheduler Subjob**.
2. Press **F3** to create a new subjob.
3. Fill in the **ID** and **Description** fields.
4. In the **From Table ID.** and **To Table ID** fields, select the table(s) you want to replicate from/to. If you do not select the same table in both fields, you must set up a transfer field list, determining which fields in the From Table should be replicated into which fields in the To Table.
5. In the **Replication Method** field, select the *By Actions* option.
6. The **What To Do** field must be empty, it is not used for replication By Actions.
7. On the **Replication** tab, make sure there is a checkmark in the **Update Repl. Counter** field.
8. If needed, place a checkmark in the **Move Actions** field.

Attention

It is not possible to use From-Table Filters for replication subjobs 'By Action'. Only the action defines whether the record shall be replicated.

14.7 Preload Actions

When setting up a new store or POS database, the data is replicated into the 'empty' database. In case all data were to be sent to this database, the best replication method would be 'By Normal'. But in case only specific data, for example only selected items, prices and so on, should be replicated into this database, the replication method 'By Normal' does not work without major workarounds. Creating Preactions by running a 'Modify' on the requested tables could result in that the data will not only be sent to the new database but to others with existing data as well.

In this case the functionality of 'Preload Actions' will help create only Actions for specific tables and specific distribution locations even without running a 'Modify'.

A specific combination of Scheduler Subjob and Scheduler Job creates the Actions that are used for the Preload and replicates the data:

To Set Up a Scheduler Subjob for Preload Actions:

1. Click **LS Retail Scheduler, Scheduler Subjob**.
2. Press **F3** to create a new subjob.
3. Fill in the **ID** and **Description** fields.
4. In the **From Table ID** and the **To Table ID** fields, select the table(s) you want to replicate from/to. They should be the same.
5. In the **Replication Method** field, select the *By Actions* option.
6. The **What To Do** field must be empty, it is not used for replication By Actions.
7. On the **Scheduler Subjob, Replication tab**, select Action Table ID as 99001527, Preload Action

To Set Up a Scheduler Job for Preload Actions:

1. Click **LS Retail - Scheduler, Scheduler Job**.
2. Press **F3** to create a new replication job.
3. Fill in the **Job ID** and **Description** fields.
4. In the **Scheduler Type Code** field select the scheduler job type set up to run **Data Replication**.
5. Define the **From-Location Code** and **To-Location Code**.
6. In the Scheduler Job lines fill in the **Subjob ID** field by selecting the Subjobs you want to include in the scheduler job. These are the Subjobs which are configured for the Preload Actions.

To Run a Scheduler Job for Preload Actions:

1. Click **LS Retail - Scheduler, Scheduler Job**.
2. Select the **Preload Subjob**.
3. Click **Actions, Preload**. This will create Actions in the Preload Action table with a specific Location Group filter that points to the To-Location of the Scheduler Job.
4. Run the Scheduler Job.

14.8 Filters in Replication

In the LS Retail system there are four ways to exclude table data from being replicated between locations. These are by setting filters on:

- Distribution Locations
- Including/Excluding Distribution Locations
- Table fields by Transfer Field List
- Records by From-Table-Filter

14.8.1 Distribution Locations Filters

You need to set up distribution filters when you want a job to replicate only to certain distribution locations like stores. For example you can set up distribution filters so that the job only replicates to a certain type of store, or to a certain group of stores, or so that it excludes these stores.

When setting up filters on distribution locations you must consider the effect of the Replication Method for the scheduler subjob set up for a table.

The location distribution takes care of excluding records from replication to a particular location if the scheduler subjob for the table in question has the replication method *By Actions*. By choosing location distribution for a record, you can control exactly to which locations it will be replicated.

If you need to exclude records for a scheduler subjob with the replication method *Normal*, with or without Replication Counter, you need to set up filters on the From-Table for the subjob.

14.8.2 Including/Excluding Distribution Locations

You can include or exclude selected distribution locations from a scheduler job by creating an include/exclude list. Whether the selected locations are included or excluded depends on the value in the **Distribution Restrictions** field for the scheduler job. This functionality is not available for the PlusCfront Replicator but only for Data Director.

To Include/Exclude Locations from Distribution:

1. Click **LS Retail-Scheduler, Scheduler Job**.
2. Browse to the job, for which you want to include/exclude location from distribution.
3. In the **Distribution Restrictions** field, select either the *Include List* or the *Exclude List* option.
4. Click **Job, Receiver Locations Include/Exclude List**.
5. In the **Location Code** field, select the location you want to include or exclude from the **Distribution Location List**.

Repeat step 5 for each location you want to include or exclude from the scheduler job.

14.8.3 Excluding Records

You can exclude certain records in a table from being replicated by setting a From-Table Filter on the table in the scheduler subjob set up for the table. This can be based on from what or to what location the table is being replicated. You can also use other table specific factors as long as you can create a filter that gives the proper results.

Cases do not come up often where you have to set filters on table records when replicating. One likely scenario is when you want to be able to make changes to and even maintain completely the **Staff** table in the stores, and send the results to head office.

If you are excluding records for a subjob replicated with the replication method *Normal*, with or without Replication Counters, you need to set up filters on the From-Table.

To Exclude Records from Replication:

1. Click **LS Retail - Scheduler, Scheduler Subjob**.
2. Browse to the subjob, from which you want to exclude records.
3. Click **Subjob, From-Table Filters**. The **From-Table Filters** window appears.
4. Fill in the **Field No.** field, by selecting the field you want to filter by.
5. In the **Filter** field, enter the data, by which you want to filter. The subjob will replicate only the lines containing this data in the selected field. You can filter by several fields.

Repeat steps 2 to 5 for each subjob from which you want to exclude records.

The **From-Table** Filter works only on replication subjobs with the replication Method *Normal*. On replication subjobs with the replication Method *Actions*, the action defines whether a record shall be replicated or not and, therefore, it is not possible to use an additional From-Table Filter.

Example

*You want to set filters on records in the **Staff** table to maintain the table in the stores and replicate results to the head office. First you set up a scheduler subjob for the table with the replication method *Normal*. The To-Location is the head office location. You want the staff members for each store to be collected in the head office and therefore you need to set a filter on the table in the head office database. Each store should only see its own records during replication. If you do not set a filter, each time the **Staff** table is replicated from a store, the replication process deletes all records in the head office database that do not exist in the store database, that is, all the data from the other stores.*

*Whenever the **Staff** table is replicated from a store to head office, the replication process filters the table in the head office database to include only staff members that belong to the store in question. It updates, adds and deletes records in the table to make them identical to the ones in the store. It does not see the other records in the table that belong to the other stores. If the **What to Do** field for the scheduler subjob has the Update-Add-Delete option selected, the store can delete staff members and have them deleted from the HO database too.*

Attention

*If you had selected the Update-Add option in the **What to Do** field, in the subjob in the example above, there might not have been a need for setting a filter on the records, because the replication would not delete any information in the head office database, and therefore, not overwrite data from other stores.*

14.8.4 Including/Excluding Fields when Replicating

For some tables it is important to include or exclude certain fields from replication. For example, not all table fields should be controlled from the head office database.

By including fields it is also possible to replicate between two structurally different tables, as long as you set up which fields in the From-Table should be replicated into which fields in the To-Table and the fields are of the same type.

To Exclude Fields when Replicating:

1. Click **LS Retail - Scheduler, Scheduler Subjob**.
2. Browse to the subjob, from which you want to exclude fields.
3. In the **Field Transfer Type** field, select the *Exclude List* option.
4. Click **Subjob, Transfer Field List**. The **Scheduler Subjob Transfer Field List** window appears.
5. In the **Field No. From** field, select the field you want to exclude from the transfer.

6. In the **Field No. To** field, select the field in the target table (**To Table ID**) that corresponds with the field selected in step 5. If the target table is the same as the source table (**From Table ID**), then this should be the same field number as in step 5.

Repeat steps 5 to 6 for each field that you want to exclude from the subjob.

A similar method is used for including fields in replication. In that case you select the *Include List* in 3 and the fields you want to include in the transfer in 6.

14.8.5 Fields and Tables to Exclude From Replication

For some tables, it is very important to exclude certain fields from replication. For example, not all table fields should be controlled from the head office database. You can also decide to have certain table fields maintained in the store databases only, such as item store ordering information, and therefore you must exclude them from the replication from head office to the stores.

Following are some examples of tables and fields that should never be replicated to stores from the head office:

Table Number	Table Name	Field No.	Field Name
10000700	Retail Setup	6	Local Store No.
10000700	Retail Setup	680	Distribution Location
99001586	Scheduler Job Header	21	Last Date Checked
99001586	Scheduler Job Header	22	Last Time Checked
99001586	Scheduler Job Header	27	Next Check Date (can be replicated during setup, then added to exclude list)
99001586	Scheduler Job Header	28	Next Check Time (this field can be replicated for the first time, then added to exclude list)
99001586	Scheduler Job Header	45	Error Occurred
99001586	Scheduler Job Header	86	Last Message Text
99001586	Scheduler Job Header	40	Run Status
99001471	POS Terminal	30	Not Active
99001471	POS Terminal	34	Closing Status
99001593	Scheduler Replication Counter		Table should not be replicated
99001597	Scheduler Log		Table should not be replicated
99001598	Scheduler Log Line		Table should not be replicated

Attention

The above list is not complete. The exact tables and fields to be excluded from replication are depending on the project specific requirement.

14.9 Advanced Learning

The time needed and the cost involved in running replication in your system depends heavily on how you optimize the replication you need. Here are some helpful hints for optimizing replication.

14.9.1 Number of Replicators (Schedulers)

You can set up more than one Scheduler for Replication. Using a number of Replicators means that you can distribute the load of replication jobs between the Replicators. When setting up a number of Replicators it is simplest to set up the Scheduler as you would for one Replicator, then you should create one scheduler job type for each Replicator and assign the job types to scheduler jobs in the scheduler. You should also assign one scheduler job type to each scheduler server. Note that you might want to use the same Replicator for all scheduler jobs that work on the same table in the system. When you have assigned the relevant job types to all scheduler jobs you can change the timing of jobs in the scheduler.

14.9.2 Line Speed

When setting up replication, a rule of thumb is to use at least a 64K line. The faster the line is, the better.

14.9.3 Time Between Replications

To save the number of connections/phone calls to the distribution locations, you can set up Scheduler Subjobs that replicate by the replication method Normal, so that those will be activated as seldom as possible, maybe once every 24 hours - even though you are replicating small tables.

You should keep the number of replications from store to head office as small as possible, even though you are using the replication methods By Actions or By Replication Counter. Minimizing the number of connections to the store to pull data from it, saves you a number of connections/phone calls.

Usually the data replicated from store to head office is transactions that need to be posted, if you post a statement at head-office/store once a day you only need to replicate the entries/transactions once a day.

14.9.4 Side Effects of Renaming Records

When you rename a record, it is the same as inserting a new record and deleting the old one, with the addition of changing in other tables the renamed value in all fields that have a relation to it. For replication it is crucial for the system to have a way of keeping track of changes to all records in tables that are replicated. When you rename, the relational issue with other tables makes it very difficult to track the changes.

When a record is renamed in a table, you cannot be sure that the replication of the table will succeed unless the replication is set up so that the From-Table and To-Tables are the same, and there are no other tables that have a relation to the renamed value.

15 Replication Management

When you have set up replication you must manage the replication process on a regular basis. The main issues of concern when managing replication are:

- Checking if replication is running according to the setup in the Scheduler.
- Delete replication logs
- Delete actions

15.1 Scheduling Scheduler Jobs

In the Scheduler, you can schedule jobs to run at a specified date and time. If the Scheduler Server is running, it will process jobs according to this schedule. The scheduler checks the next check date and next check time fields and processes the job with the earliest date and time, even though the date and time has passed.

To Schedule Scheduler Jobs:

1. Click **LS Retail – Scheduler, Scheduler**.
2. Browse to the scheduler job you want to schedule.
3. In the **Next Check Date** and **Next Check Time** fields, enter the date and time you want the job to run next. After the job has run, the system will assign a new **Next Check Date** and **Next Check Time** according to the value in the **Time Between Check** and **Time Units** field.

15.1.1 Prioritizing Scheduler Jobs

In the Scheduler you can order a run of a specific scheduler job by assigning further priorities to a scheduler job to ensure it will be run ahead of other scheduler jobs by the scheduler server.

To Give Scheduler Jobs Priority in the Scheduler:

1. Click **LS Retail – Scheduler, Scheduler**.
2. In the **Scheduler** window, browse to the scheduler job you want to give priority.
3. Click **Functions, Order Run of Scheduler Job**. The system will change the Run Status of the scheduler job to *Special Order*.

15.2 Running the Scheduler Server

You can have the scheduler server run jobs scheduled in the Scheduler. You can filter the scheduled jobs by job types, for example only running replication jobs.

To Run the Scheduler Server:

1. Click **LS Retail – Scheduler, Periodic Activities, Scheduler Server**.
2. If you want to filter the scheduler server by job type, select the relevant scheduler job type in the **Scheduler Type Filter** field.
3. Fill in the **Scheduler Sleep Sec.** field with the number of seconds you want the scheduler server to wait between running jobs in the Scheduler.
4. Click **Start**.
5. You can run a selected scheduler job directly from the scheduler window, without using the scheduler server.

To Run Scheduler Jobs Directly:

1. Click **LS Retail – Scheduler, Scheduler**.
2. Browse to the scheduler job you want to run directly.
3. Click **Functions, Run Scheduler Job Directly**.

Repeat steps 2 to 3 for each scheduler job you want to run directly.

If you want to repeat a scheduler job which has already been processed, using the same data and replication / action counters, you need to set the replication counter to the required start value on the selected job under **Scheduler, Replication Counters**.

Then repeat steps 2 to 3 for the scheduler job you want to run directly.

15.2.1 Checking Replication

Checking the functionality of the replication should be a daily task in your business, not just in the setting up and testing face of the replication. Connections to distribution locations can be faulty and database can be full, causing the replication process to stop with an error and no data to be replicated to the location in question. It is therefore very important to check replication logs regularly in order to find possible replication errors in accessing and writing to another database.

The Replicator creates two logs you can view in order to check if errors have been registered. You can view replication logs for all scheduler jobs from the Scheduler Server window. You can also view replication logs for a particular scheduler job from the Scheduler window. When drilling down to log entries you find logs for replication of each table in a scheduler job.

15.2.2 Checking Number of Replications

Checking the number of replication entries is a way to check if the replication process is working as normal. You can check the number of replications for a group of entries in the **Scheduler Log** window. In this window you can check if the number of records the replication process has read, deleted, added or updated is credible, bearing in mind the following:

15.2.3 Normal Replication

If the scheduler subjob has Replication Method *Normal*, the replication process should be reading the complete From-Table each time and making the necessary updates, adds or deletes in To-Table.

15.2.4 Normal Replication with Replication Counter

If the scheduler subjob has Replication Method *Normal* using a *Replication Counter* field, the replication process should only read records that have a Replication Counter higher than the last Replication Counter stored for the job to the same location. It should generally be making updates or adds to a To-Table for every record it reads from a From-Table, that is, the number of records read is the same as number of updates and additions.

15.2.5 By Actions

If the scheduler subjob has the Replication Method *By Actions*, the records read denote the records in the **Actions** table. The replication process should be reading the actions in the range of the Replication Counter value of the previous set of entries to the same location to the Replication Counter value of the current entry. Then you can check the number of actions in the **Actions** table against the number of records replicated in one replication, by following these guidelines:

1. Find the range of actions used for the selected scheduler job in the **Scheduler Log** window (the Replication Counter value for the previous replication to the same location plus 1, to the Replication Counter value of the current replication).
2. In the **Actions** table, filter on the table replicated in the job and the range of actions found in the recent step.
3. Count the number of delete, update and delete actions within the filter. The number should be the same as the number of updates, additions and deletes recorded in the Scheduler Log window for the replication you are examining.

15.2.6 Checking Moved Actions

For a subjob replicated by actions, for which the actions should be moved, check the **Actions** table in the database in each store. Actions in the head office database with the value in the **Entry No.** field lower than the last Replication Counter value stored in the **Scheduler Log** table for each store should all be in the store's database.

Note that the entry numbers of the actions in the stores are not necessarily the same as in head office. If you make a change to a table in the store database, an action is added to the **Actions** table with an Entry No. one higher than the highest existing Entry No. This action is not in the head office database. When the replication process next moves actions, it adds the head office actions to the **Actions** table, thereby shifting the Entry No. of the actions to a value one higher than in head office database.

15.2.7 Checking Scheduler Logs

You should check the functionality of the replication regularly. Something can always happen to the connections to the stores or a database can fill up, causing the replication process to stop with an error and no data being replicated to the faulty location. The scheduler server log stores information about errors that come during the replication process.

To Check Scheduler Server Logs

1. Click **LS Retail – Scheduler, Periodic Activities, Scheduler Server**. The **Scheduler Server** window appears.
2. Click **Server, Scheduler Log**. The **Scheduler Log** window appears.
3. Browse to the log for the scheduler job that you want to check. In the **Message Text** field you will see if the last replication of the job was successful.
4. If necessary, click **Log Entry, Lines**, for information about the replication of each table in the scheduler job.

To Check Scheduler Job Logs

1. Click **LS Retail – Scheduler, Scheduler**.
2. Browse to the job, the log of which you want to check.
3. Click **Scheduler, Log**, for information about each replication of the scheduler job.
4. If necessary, click **Log Entry, Lines**, for information about the replication of each table in the scheduler job.

15.2.8 To Use the External Log File

The most detailed log can be found in a log text file. This should be used only in case of searching for problems during replication and not as the standard log.

To Write Into the Log File

1. Click **LS Retail – Scheduler, Setup, Distribution Location**.
2. Browse to the current distribution location.
3. On the **Replication** tab you find: **Path to CFront Directory**.
4. Open the 'Repl.cfg' file in this directory with an editor.
5. Set the parameter '**DEBUGMODE**' to **YES**
6. If necessary you can change the parameter '**LOGFILE**' and '**LOGSIZE**' to your needs. In '**LOGFILE**' you can specify the filename of the logfile. In '**LOGSIZE**' you can specify the maximum size of the logfile. When the file reaches the maximum size, it will be renamed into '**filename.old**' and a new file will be created. If the '**filename.old**' exists, it will be removed.
7. Save the '**Repl.cfg**' file.
6. The activities of the Replicator are stored in the logfile.

For more details about the 'Repl.cfg' file please refer to the 'Readme.doc' coming with the PlusCFront.

Attention

The logfile can get big quite fast. It is not meant as a permanent logfile for everyday use but only for getting details in case of replication problems. For that the 'DEBUGMODE' should be set back to NO, when the problem has been detected /solved.

15.3 Resetting the Replication Counter

In specific cases you might like or need to resend some data. If you replicate **By Actions** or by **Normal with Replication Counter**, the records are 'marked' as Sent by the replication counter. In order to send these records again, you would need to reset the replication counter. The same applies if you decide to delete preactions or actions directly from the table instead of using the mechanism described in the chapter below.

In that case you have the option of leaving the last preaction or action per scheduler job and subjob in the table, or reset the replication counter.

To Reset the Replication Counter Manually

1. Click **LS Retail - Scheduler, Scheduler Job**.
2. Browse to the required scheduler job.
3. Click **Job, Replication Counters**.
4. Select the subjob for which you would like to reset the replication counter and set the counter to the required value.

To Reset the Replication Counter Automatically

1. Click **LS Retail - Scheduler, Scheduler**.
2. Browse to the required scheduler job.
3. Click **Functions, Preset Replication Counters**.
4. In the **Preset Replication Counters** form you can select to set all counters to zero, or reset the counters back to a specific date and time.
5. Click **OK** to confirm and start.

Please note that in the case of the replication method **By Actions** the Preaction or Action must still exist in the system. In case of the replication method **Normal with Replication Counter**, the records that you would like to resend must exist in the system.

Attention

Resending data that has already been replicated can cause data inconsistency. One example would be a record that has been modified in the To-Database after it was replicated out of the From-Database. In this case, resending the record would overwrite the modification done in the To-Database. Therefore, in this case you might prefer to set up a new scheduler job and set the scheduler subjob to use field exclude list so the replication would exclude the fields which have been modified in the To-Database.

Attention

Resetting the Replication Counter automatically can take a long time.

15.4 Deleting Scheduler Logs and Actions

The Scheduler Log table can grow very large. You can use the Codeunit 99001486 **Delete Logs** to delete actions and scheduler logs in both head office and store databases. You should set the job up as a miscellaneous job in the Scheduler in all relevant databases and run it periodically to manage database space properly.

To Set Up Scheduler Logs and Actions Deletion:

1. Click **LS Retail – Scheduler, Setup, Scheduler Setup**. The **Scheduler Setup** window appears.
2. On the **Data Deletion** tab, fill in the number of days you want actions and scheduler logs to exist in the **Days Actions Exist** and **Days Sched. Logs Exist** fields.

Preactions and Action will only be deleted if they have been processed to all 'receivers'.

Appendix A – Tables to Replicate

When you set up replication to stores from head office and further to POS terminals, you need to decide which tables to replicate based on the areas you are using, how you are going to post and which tables are necessary for system functions.

You can let the system insert default replication jobs by running Creating Default Data for LS Retail. You can change the settings where needed.

Following is a list of a typical replication setup where the head office posts statements:

Table ID	Name	HO Store to	Store POS to	Store HO to	POS Store to	Replic. Method	Frequency	Linked Table	Suggested Group
4	Currency	If needed	If needed	No	No	Actions	Often		Item
6	Customer Price Group	Yes	Yes	No	No	Actions	Often		Item
13	Salesperson /Purchaser	If needed	If needed	No	No	Actions	Special		
14	Location	If needed	No	No	No	Normal	Special		
15	G/L Account	Yes	If Needed	No	No	Actions	Special		
18	Customer	If needed	If needed	If needed	No	Actions	Often		Customer
27	Item	Yes	Yes	If needed	No	Actions	Often		Item
90	BOM Component	Yes	Yes	No	No	Actions	Special		Item
91	User Setup	Yes	Yes	No	No	Actions	Special		
97	Comment Line	If needed	No	No	No	Actions	Special		
98	General Ledger Setup	If needed	If needed	No	No	Normal	Special		
204	Unit of Measure	Yes	No	No	No	Normal	Often		
231	Reason Code	If needed	No	No	No	Normal	Special		
252	General Posting Setup	Yes	No	No	No	Normal	Special		
308	No. Series	If Needed	If needed	No	No	Normal	Special		
325	VAT Posting Setup	Yes	Yes	No	No	Normal	Special		
330	Currency Exchange Rate	If needed	If needed	No	No	Normal	Often		
340	Customer Discount Group	If needed	If needed	No	No	Normal	Special		Item
5050	Contact	If needed	If needed	No	No	Actions	Special		Customer
5401	Item Variant	If needed	If needed	No	No	Actions	Often		Item
5404	Item Unit of Measure	If needed	If needed	No	No	Normal	Special		Item
5722	Item Category	Yes	Yes	No	No	Actions	Special		
5723	Product Group	Yes	Yes	No	No	Actions	Special		
7002	Sales Price	Yes	Yes	No	No	Actions	Often		Item
7004	Sales Line Discount	If needed	If needed	No	No	Actions	Often		
10000700	Retail Setup	Yes	Yes	No	No	Actions	Special		
10000701	Retail Hierarchy	If needed	No	No	No	Actions	Special		
10000702	Retail Hierarchy	If needed	No	No	No	Actions	Special		

	Value								
10000703	Retail Hierarchy Defaults	If needed	No	No	No	Actions	Special		
10000704	Item Distribution	If needed	No	No	No	Actions	Special		
10000729	MSR Card Link Setup	If needed	If needed	No	No	Actions	Special		
10000733	Periods	If needed	No	No	No	Actions	Special		
10000735	Item Special Groups	If needed	No	No	No	Actions	Special		
10000736	Item/Special Group Link	If needed	No	No	No	Actions	Special		
10000742	Retail Users	If needed	If needed	No	No	Actions	Special		
10000747	Campaign Header	If needed	No	No	No	Actions	Special		
10000748	Campaign Line	If needed	No	No	No	Actions	Special		
10000755	Item Hierarchy Viewer	If needed	No	No	No	Normal	Special		
10000757	Campaign Page	If needed	No	No	No	Actions	Special		
10000777	Retail ICT Header	If needed	No	If needed	No	Normal Source	Often	10000778	ICT
10000779	Store Group	Yes	No	No	No	Actions	Special		
10000782	Store Group Setup	Yes	No	No	No	Actions	Special		
10000784	Attribute Setup	If needed	If needed	No	No	Actions	Special		
10000785	Attribute Option Values	If needed	If needed	No	No	Actions	Special		
10000786	Attribute Values	If needed	If needed	No	No	Actions	Special		
10000787	Division	If needed	If needed	No	No	Normal	Special		
10001303	Inventory Masks	If needed	No	No	No	Actions	Special		
10001324	Inventory Management Setup	If needed	No	No	No	Actions	Special		
10001350	InStore Setup	If needed	No	No	No	Actions	Special		
10001351	InStore Dist. Location Setup	If needed	No	No	No	Actions	Special		
10001400	Season	If needed	No	No	No	Actions	Special		Item
10001401	Event	If needed	No	No	No	Actions	Special		Item
10001402	Event/Item Link	If needed	No	No	No	Actions	Special		Item
10001403	Item Status	Yes	Yes	No	No	Actions	Special		Item
10001404	Item Status Link	Yes	Yes	No	No	Actions	Special		Item
10001406	Data Access Authorizations	If needed	No	No	No	Actions	Special		
10001407	Data Access Log	No	No	If needed	No	Normal Source	Often		
10001408	Data Access Table	If needed	No	No	No	Actions	Special		
10001412	Extended Variant Dimensions	If needed	No	No	No	Actions	Special		Item
10001413	Extended Variant Values	If needed	No	No	No	Actions	Special		Item
10001414	Item Variant Registration	If needed	If needed	No	No	Actions	Special		Item
10001417	Variant	If needed	If needed	No	No	Actions	Special		

	Framework Setup								
10001430	Collection Framework	If needed	If needed	No	No	Actions	Special		Item
10001439	Sales Type	If needed	If needed	No	No	Actions	Special		
10001446	Period Group	If needed	No	No	No	Actions	Special		
10001451	Product Attribute Settings	If needed	No	No	No	Actions	Special		
99001451	Barcodes	Yes	Yes	No	No	Actions	Often		Item
99001452	Linked Item	Yes	Yes	No	No	Actions	Often		
99001453	Periodic Discount	Yes	Yes	No	No	Actions	Often		
99001454	Periodic Discount Lines	Yes	Yes	No	No	Actions	Often		
99001459	Barcode Mask	Yes	No	No	No	Actions	Special		
99001461	Staff	Yes	Yes	No	No	Actions	Special		Setup
99001462	Tender Type	Yes	Yes	No	No	Actions	Special		
99001464	Tender Type Card Setup	Yes	Yes	No	No	Actions	Special		
99001465	Trans. Tender Declar. Entry	No	No	Yes	Yes	Normal	Special		
99001466	Tender Type Setup	Yes	No	No	No	Actions	Special		
99001467	Voucher Entries	No	No	Yes	Yes	Normal	Special		Stats
99001468	POS Module Parameters	If needed	If needed	No	No	Actions	Special		POS
99001469	Initial Entry No. in Loc.	If Needed	If Needed	No	No	Normal	Setup		
99001470	Store	Yes	Yes	No	No	Actions	Special		
99001471	POS Terminal	Yes	Yes	No	No	Actions	Special		
99001472	Transaction	No	No	Yes	Yes	Normal Source	Often		Trans
99001473	Trans. Sales Entry	No	No	Yes	Yes	Normal	Often		Trans
99001474	Trans. Payment Entry	No	No	Yes	Yes	Normal	Often		Trans
99001475	Trans. Income/Expense Entry	No	No	Yes	Yes	Normal	Often		Trans
99001476	Income/Expense Account	Yes	Yes	No	No	Actions	Special		
99001477	Trans. Coupon Entry	No	No	Yes	Yes	Normal	Often		Trans
99001478	Trans. Infocode Entry	No	No	Yes	Yes	Normal	Often		Trans
99001479	Table Specific Infocode	Yes	Yes	No	No	Actions	Special	99001482	
99001480	Barcode Mask Segment	Yes	No	No	No	Normal	Setup		
99001481	Discount Validation Period	Yes	Yes	No	No	Actions	Special		
99001482	Infocode	Yes	Yes	No	No	Actions	Special		
99001483	Information Subcode	Yes	Yes	No	No	Actions	Special	99001482	
99001485	Posted Statement	No	No	If needed	No	Normal Source	Often		
99001486	Scheduler Setup	Yes	If Needed	No	No	Normal	Setup		
99001487	Statement	No	No	If needed	No	Normal	Often		Statement

99001488	Statement Line	No	No	If needed	No	Normal	Often	99001487	Statement
99001489	Posted Statement Line	No	No	If needed	No	Normal	Often	99001485	
99001490	Trans Inventory Entry	No	No	Yes	Yes	Normal	Often		Trans
99001491	Tender Type Card No. Series	If Needed	If Needed	No	No	Actions	Special		POS
99001492	POS Terminal Receipt Text	Yes	Yes	No	No	Actions	Special		Item Setup
99001493	Transaction Status	No	No	Yes	No	Normal	Often		Trans
99001494	Trans. Sales Entry Status	No	No	Yes	No	Normal	Often		Trans
99001496	Trans. Mix Match Entry	No	No	Yes	Yes	Normal	Often		Trans
99001497	Distribution List	If Needed	No	No	No	Actions	Often		Item Setup
99001499	Distribution Subgroup	Yes	No	No	No	Actions	Setup		
99001500	Distribution Group	Yes	No	No	No	Actions	Setup		
99001501	Distribution Group Member	Yes	No	No	No	Actions	Setup		
99001502	Promotion	Yes	Yes	No	No	Actions	Often		
99001503	Promotion Line	Yes	Yes	No	No	Actions	Often		
99001504	Mix & Match Line Groups	Yes	Yes	No	No	Actions	Often		
99001505	Multibuy Discount Line	Yes	Yes	No	No	Actions	Often		
99001506	Work Shift Setup	Yes	Yes	No	No	Actions	Special		
99001507	Work Shift RBO	No	No	Yes	No	Normal	Special	99001485	
99001508	Work Shift Entry	No	No	No	Yes	Normal Source	Often		
99001512	Distribution Location	Yes	Yes	No	No	Special	Setup		
99001513	Safe	If Needed	No	No	No	Actions	Setup		
99001515	POS Functionality Profile	Yes	Yes	No	No	Actions	Special		POS
99001517	Default Product Group Labels	If Needed	No	No	No	Actions	Setup		
99001518	Staff Permission Group	Yes	No	No	No	Actions	Special		Staff
99001519	File and Program Setup	If Needed	No	No	No	Actions	Special		
99001526	Sales Quantity Limitations	If Needed	If Needed	No	No	Normal	Special		Item
99001528	Comparison Unit of Measure	Yes	No	No	No	Actions	Special		
99001529	Conversion Value	Yes	No	No	No	Actions	Special		
99001530	Store Section	Yes	No	No	No	Actions	Special		
99001531	Section Shelf	Yes	No	No	No	Actions	Special		
99001532	Item Group Section Location	Yes	Yes	No	No	Actions	Special		

99001533	Item Section Location	Yes	Yes	No	No	Actions	Special		POS
99001534	Item POS Text Header	Yes	Yes	No	No	Actions	Special		POS
99001535	Item POS Text Line	Yes	Yes	No	No	Actions	Special		
99001536	Barcode Mask Character	Yes	No	No	No	Actions	Setup		
99001539	Archived Transactions	No	No	If needed	No	Normal Source	Often		
99001540	Archived Sales Entry	No	No	If needed	No	Normal	Often	99001539	
99001541	Archived Payment Entry	No	No	If needed	No	Normal	Often	99001539	
99001542	Archived Income/Expense Entry	No	No	If needed	No	Normal	Often	99001539	
99001543	Archived Infocode Entry	No	No	If needed	No	Normal	Often	99001539	
99001544	Archived Mix & Match Entry	No	No	If needed	No	Normal	Often	99001539	
99001545	Archived Tender Declar. Entry	No	No	If needed	No	Normal	Often	99001539	
99001546	Archived Trans. Coupon Entry	No	No	If needed	No	Normal	Often	99001539	
99001548	Item Label	Yes	No	No	No	Actions	Special		Item
99001549	Item Label Setup	Yes	No	No	No	Actions	Special		POS
99001550	POS Print Setup Header	Yes	Yes	No	No	Actions	Special		POS
99001551	POS Print Setup Line	Yes	Yes	No	No	Actions	Special		POS
99001552	POS Table Spec. Print Setup	Yes	Yes	No	No	Actions	Special		POS
99001553	POS Print Variable	Yes	Yes	No	No	Actions	Special		
99001554	Dist Location Version	Yes	Yes	No	No	Actions	Setup		
99001557	POS Data Entry Type	Yes	Yes	No	No	Actions	Special		
99001558	POS Data Entry	No	No	Yes	Yes	Normal	Special		Stats
99001559	Staff Statistics	No	No	Yes	No	Normal	Often		POS
99001560	POS VAT Code	Yes	Yes	No	No	Actions	Special		
99001562	POS Modules	If needed	If needed	No	No	Actions	Special		POS
99001563	Table Distribution	Yes	No	No	No	Actions	Special		Item
99001564	Item Family	No	No	No	No	Actions	Special		
99001568	Payment Statistics	No	No	Yes	No	Normal	Often		Stats
99001569	POS Terminal Statistics	No	No	Yes	No	Normal	Often		Stats
99001570	Sales Statistics	No	No	Yes	No	Normal	Often		
99001571	Statistics Time Setup	Yes	No	No	No	Normal	Setup		Item Setup
99001572	Shelf Label Setup	Yes	No	No	No	Actions	Special		Item Setup
99001573	Shelf Label and Poster	Yes	No	No	No	Actions	Special		Item Setup
99001574	Label/Poster Report	Yes	No	No	No	Actions	Special		Item Setup

99001575	Store Price Group	Yes	Yes	No	No	Actions	Often		Item Setup
99001580	Dashboard Alarms	Yes	No	No	No	Normal	Special		
99001581	Dashboard Store Alarms	Yes	No	No	No	Normal	Special		
99001585	Coupon Issuer	Yes	Yes	No	No	Actions	Special		Scheduler
99001586	Scheduler Job Header	Yes	No	No	No	Actions	Special		Scheduler
99001587	Scheduler Job Line	Yes	No	No	No	Actions	Special		Scheduler
99001588	Scheduler Subjob	Yes	No	No	No	Actions	Special		Scheduler
99001589	Job Receiver Group	Yes	No	No	No	Actions	Special		Scheduler
99001590	Scheduler Subjob Filter	Yes	No	No	No	Actions	Special		Scheduler
99001591	Scheduler Subjob Field List	Yes	No	No	No	Actions	Special		Scheduler
99001592	Scheduler Job Type	Yes	No	No	No	Actions	Special		Scheduler
99001594	Distrib. Include/Exclude List	Yes	No	No	No	Actions	Special		Scheduler
99001595	Scheduler Subjob Linked Table	Yes	No	No	No	Actions	Special		Scheduler
99001596	Scd.Subjob Linked Table Filter	Yes	No	No	No	Actions	Special		Setup
99001610	Cash Declaration Setup	Yes	No	No	No	Actions	Special		
99001617	Link Conditions	If Needed	No	No	No	Actions	Setup		
99001618	Table Links	If Needed	No	No	No	Actions	Setup		
99001619	Distribution Sublocation	Yes	No	No	No	Actions	Special		
99001621	Coupon Header	Yes	Yes	No	No	Actions	Special		
99001622	Coupon Line	Yes	Yes	No	No	Actions	Special		
99001629	POS Fixed Start Amount	Yes	Yes	No	No	Actions	Special		POS
99001633	Staff Store Link	Yes	Yes	No	No	Actions	Special		POS
99008900	POS Hardware Profile	Yes	Yes	No	No	Actions	Special		POS
99008901	POS Menu Profile	Yes	Yes	No	No	Actions	Special		POS
99008902	POS Key Command	Yes	Yes	No	No	Actions	Special		POS
99008903	POS Key Mapping	Yes	Yes	No	No	Actions	Special		POS
99008905	POS Menu Header	Yes	Yes	No	No	Actions	Special		POS
99008906	POS Menu Line	Yes	Yes	No	No	Actions	Special		POS
99008907	POS Help Texts	Yes	Yes	No	No		Special		POS
99008908	POS Macro Header	Yes	Yes	No	No	Actions	Special		POS
99008909	POS Macro Line	Yes	Yes	No	No	Actions	Special		POS
99008920	POS Command	Yes	Yes	No	No	Actions	Special		POS
99008921	POS Staff Perm. Group	Yes	Yes	No	No	Actions	Special		POS

	Menus								
99008922	POS Lookup	Yes	Yes	No	No	Actions	Special		POS
99008925	POS OPOS Message	Yes	Yes	No	No	Actions	Special		POS
99008926	POS Run- Objects	If needed	If needed	No	No	Actions	Special		POS
99008927	POS Color	Yes	Yes	No	No	Actions	Special		POS
99008933	POS Interface Profile	Yes	Yes	No	No	Actions	Special		POS
99008934	POS Button Translation	Yes	Yes	No	No	Actions	Special		POS
99008935	POS Parameter Setup	Yes	Yes	No	No	Actions	Special		POS
99008936	POS Parameter Option Values	Yes	Yes	No	No	Actions	Special		POS
99008937	POS Button Parameters	Yes	Yes	No	No	Actions	Special		POS
99009200	Statistic View	Yes	No	No	No	Normal	Setup		
99009201	Statistic View Lines	Yes	No	No	No	Normal	Setup		

Appendix B – Replicating Data to New Stores

When setting up replication or when you start a new store in your business, you have a choice how you create a store database with all the necessary information. The following methods give you suggestions on how to accomplish this.

1. Using Dataports to Import Data

When you have set up a new store in the head office database, you can have dataports export and import necessary data into the store database. LS Retail does not provide these dataports.

2. Using All Stores Database to Create Data

You can use an all stores database as a base for the new store database. An All Stores Database contains up to date data for every store, except for data that is replicated from the store to head office. To create a new store database, you copy the All Stores Database and delete data from it that does not belong to the store. Then you place this new base in the new store and start replicating to it from head office.

3. Creating and Maintaining an All Stores Database

The head office cannot be used as an all stores database because of posting information from other stores that cannot be deleted. Therefore you need to create a database that will include all data replicated from the head office from the start of replication. To do so, follow these guidelines:

- Create the All Stores Database by using the head office database as a base before any replication has taken place from the stores to head office. The new database can be located in the same place as the head office database.
- Set the database up as a distribution location in head office and include the All distribution location in ALL distribution group and distribution subgroups.
- Set up replication for the All Stores Database that includes all scheduler subjobs replicated to the stores.
- Start regular replication to the All Store Database from head office and maintain it along with other replications.

Now you can copy the All Stores database to a new store database by deleting from it the data that does not belong to the new store. This can be very useful if for some reason you lose a store's database and need to create a new one as fast as possible. Be aware though that the database should not include data that is replicated from the store to head office, such as statements and ledger entries.

Appendix C - Replicating Between Different Types of Locations

When you organize and set up replication between distribution locations you need to decide which tables to replicate and how they should be replicated. To decide which tables to replicate between locations is one of the main issues when setting up replication.

When deciding whether to replicate a table or not, you need to know whether it is necessary because of its system functionality or whether it depends on how you are using the system. This mainly goes for replication between head office and stores. The data replicated between store/head office and POS terminals is, however, relatively stable; that is, the tables replicated to and from POS terminals are under most circumstances the same.

You can configure setup of distribution locations in LS Retail in several ways:

- By having a main database (head office) connected to a number of stores, which are connected to a number of POS terminals.
- By having POS terminals online in store, a scenario where no replication has to be set up between store and POS terminals.
- By having the POS terminals connected directly to the head office, a scenario where the head office serves as the store, that is, replicates the same data to and from POS terminals as a store would have. Therefore, when referring to replication between POS terminals and a store, you can use the same setup arguments for replication between POS terminals connected straight to the head office.
- By replicating data from store to store through the head office which is not recommended for most of the data.

Appendix D – Replicating from Head Office to Store and Back

When you organize and set up replication between head office and stores you need to decide which tables to replicate and how they should be replicated. To decide which tables to replicate between locations is one of the main issues when setting up replication.

1. Replication from Head Office to Stores

A very common setup is to replicate data from the head office to the databases in the stores meaning that the tables in the stores' databases contain the same information as in head office. The replication process then replicates the data further to the POS terminals if necessary.

For replication from head office to stores, using the replication method *By Actions* for scheduler subjobs, is recommended where possible. Remember to consider also further replication to POS terminals. A table that is replicated to stores and then further to POS terminals should be replicated with the same method from head office to store and then from store to POS terminals.

2. Replication from Stores to Head Office

For replication from stores to head office using the replication method *Normal* with Replication Counter for scheduler subjobs is recommended where possible. If necessary, you must add Replication Counters to tables.

One of the basic decisions you have to make is whether you want to replicate the transaction from the POS terminals to head office or keep them in the stores.

3. Posting in Store

The Replicator collects transaction data from the POS terminals in transaction tables in the stores' databases. If you decide to save space in the head office database and keep the store transactions in the stores, all posting takes place at the store. In that case, you need to replicate to the stores all tables necessary, such as the posting setup tables, for the posting procedures. Then you need to replicate the necessary ledger entry tables back to head office and registers along with posted statements. Please note that you only get item application entries at posting when you have the necessary information in the database. Therefore posting of statements in the store is not the recommended procedure.

4. Posting in Head Office

If you do not want posting of statements to take place in the stores, the replication process should be set up to replicate the transaction tables to head office. The transaction tables in the head office database then contain all the transactions from all the stores.

If you replicate the transactions to head office, you have a choice whether to post in the store or in head office number series. If you post in the stores, each store needs different number series for statements, item ledger entries, G/L entries, customer ledger entries, item and customer register as well as all other entries that are created in the posting procedures in the store and you want to replicate back to head office. You might also want to replicate tables affected by posting, for example the **Item Ledger Entry** table. LS Retail offers a table, **Initial Entry No. in Loc.**, where you can select different initial entry numbers for various tables for each store.

Attention

You must keep in mind that if you do not set filters on replication from store to head office, for example record filters on store numbers, and use number series for each store, replication from store might override data at head office.

Appendix E – Replicating from Store to Store through Head Office

To change a record in a store, replicate it from the store to head office and again from head office to the other stores is perhaps the most advanced type of replication, especially if the record is also changed in head office.

Depending on the nature of your business, you may for example want to allow changes on customers and additions of barcodes in the stores, information that has to be extended throughout your business. Items can be changed during the posting procedure, so if you are posting sales in the stores, you might need to replicate the Item table back to head office and then to all stores.

Following is information about how to set up scheduler subjobs for replicating between stores:

1. Normal Replication

If a scheduler subjob, used for replicating a table from head office to stores has the replication method *Normal*, the scheduler subjob replicating the table from stores to head office should have the same replication method.

The most important issue to consider is the **What to Do** field of the scheduler subjob. Since you do not want the stores to allow deletion of records in the table in the head office database, the *Add Only* option should be selected.

You should also be aware that the timing of replication should be set so that the changes made in head office will override the changes in the stores that you want to replicate to head office and onwards. This is arranged by using the same Replicator to run both the scheduler subjob to- and from the head office to store. Then, in the Scheduler you must time the scheduler jobs so that first the job from stores to head office is run, and then the job from head office to stores.

2. Normal Replication with Replication Counter

If a scheduler subjob, used for replicating a table from head office to stores has the replication method *Normal*, but also uses a Replication Counter, you can extend the changes made in the store through head office to the other stores like this:

- Set up scheduler subjob for the relevant table from the stores to head office using the same **Replication Counter** field as the head office to the stores replication of the table uses.
- Place a checkmark in the **Update Replication Counter** field for the relevant scheduler subjob. When the replication process replicates from the stores to head office, it updates the Replication Counter in the head office on the record that was changed in the store. Then, it replicates the record next time the head office to Stores replication to all the other stores is run.

3. Replication By Actions

If a scheduler subjob, used for replicating a table from head office to stores has the replication method *By Actions*, as it most probably is for the **Item**, **Customer** and **Barcode** tables, you need to consider how the changes in the store will be replicated to head office and from there to other stores.

One solution is to create a scheduler subjob from head office to the stores that uses *Actions* and a similar subjob that uses replication method *Normal*. You create another job from the Stores to the Head Office that has the replication method *Normal*. By letting the Replication Counter only be updated in the store databases, you can set up replication from the stores to

head office using the Replication Counter, and let the changes be extended to the other stores via the normal replication subjob from head office to the stores. In this case you must set up three subjobs; one Normal from head office to stores, one from each store to head office and one by Actions from Head Office to the Stores. You should exclude the Replication Counter in the subjobs from the Head Office to ensure that it is only updated in the Stores.

Attention

When you are replicating from store to store through head office, you cannot replicate the tables which you have set up initial entry numbers for from head office to store, since the entry number