



**LS RETAIL**

# **LS Retail Axapta**

## **White Paper**

*Applies to Microsoft Axapta v. 3.00*

Author: Guðmundur Helgi Axelsson

Date: 05.12.2005

[info@LSRetail.com](mailto:info@LSRetail.com)

[www.LSRetail.com](http://www.LSRetail.com)

# Contents

<b>1</b>	<b>Introduction.....</b>	<b>1</b>
1.1	The purpose of this document .....	1
1.2	Definitions, Acronyms, and Abbreviations .....	1
<b>2</b>	<b>Overview of Functionality.....</b>	<b>1</b>
2.1	Inventory .....	1
2.1.1	General .....	1
2.1.2	Retail Items .....	1
2.1.3	Barcodes and Variants .....	2
2.1.4	Item Hierarchy .....	2
2.1.5	Labeling, Text and Printing Setup .....	2
2.2	Offers .....	2
2.3	Infocodes and Data Entries.....	3
2.3.1	Infocodes .....	3
2.3.2	Subcodes.....	3
2.3.3	Data Entries .....	4
2.4	Store Management .....	4
2.4.1	Stores .....	4
2.4.2	Staff .....	4
2.4.3	Tender Types.....	5
2.4.4	Income and Expense Accounts .....	6
2.4.5	Sections and Shelves .....	6
2.4.6	Work Shifts .....	6
2.5	POS Terminals.....	6
2.5.1	General .....	6
2.5.2	Functionality Profiles .....	7
2.5.3	Hardware Profiles .....	7
2.5.4	Extra Print Setup.....	8
2.6	End-of-Day procedure.....	9
2.6.1	Statements.....	9
2.7	Distribution .....	9
2.7.1	Structure .....	9
2.7.2	Actions, PreActions and Table Distribution .....	9
2.7.3	Scheduler.....	10
2.7.4	Scheduler Jobs and Subjobs.....	10
2.8	Reporting.....	10
2.9	Maintenance.....	10

## Legal Note

This publication is subject to change without notice and does not represent any commitment on the part of Landsteinar Strengur hf. Landsteinar Strengur hf assumes no responsibility for any faults or shortcomings in this publication. The software described is supplied under license and must be used and copied in accordance with the enclosed license terms and conditions.

According to Icelandic copyright legislation, it is against the law to reproduce any part of this publication in any form or by any means, without the permission of Landsteinar Strengur hf. Axapta, is a registered trademark of Microsoft Business Solutions aps.

Microsoft is a registered trademark and Windows, Windows NT and Windows XP, and Microsoft Excel are trademarks of Microsoft Corporation.

Copyright © 2005 Landsteinar Strengur hf. All rights reserved. Published by Landsteinar Strengur hf.



Landsteinar Strengur

Armuli 7, 108 Reykjavík, Iceland

Tel: +354 550 9000 · Fax: +354 550 9010

# 1 Introduction

## 1.1 The purpose of this document

The purpose of this document is to list the functionality in LS Retail Axapta v3.00. The document describes the functionality but not the actual implementation or intended usage.

## 1.2 Definitions, Acronyms, and Abbreviations

<b>MBS Axapta</b>	This refers to the Microsoft™ Business Solutions - Axapta application.
<b>Back office</b>	This refers to the back office part of the LS Retail Axapta application.
<b>Scheduler</b>	This refers to the scheduler part of the LS Retail Axapta application.
<b>Replication</b>	The database replication mechanism provided by the LS Data Director.

# 2 Overview of Functionality

## 2.1 Inventory

### 2.1.1 General

All the standard Microsoft Axapta functionality regarding items, such as stock control, ordering and purchasing is available in LS Retail Axapta. In addition, LS Retail Axapta includes numerous features that concern item sales at the point of sale. Following is a list of the main features

### 2.1.2 Retail Items

Retail Items are one of the fundamental units in LS Retail Axapta. A retail item is actually an item from the Axapta standard application, but with extensions that make it suitable in the retail industry. This way the Retail Item is compatible with the rest of the Axapta application while providing the features required by the retail industry, such as:

- Specifying whether the item is a scale item or not.
- Specifying if, how, and when item price or quantity can be changed at the POS.
- If the item can be sold at a zero price.
- If the quantity of the item should be treated as negative.
- If it is possible to discount the item.
- For which unit of measure comparison prices are calculated (Liter, Kg, Gallon, etc.).
- Whether the item is blocked for ordering or blocked for sale at the POS.
- If the sale of an item triggers the sale of another item (linked items).

There are four different types of Retail Items – *standard item*, *retail item*, *item department* and *item group*. The standard item and retail item types are used to represent items that are used by the Axapta standard application and the retail application. These types usually represent actual physical items.

The item department and item group types are used to represent item groups and departments.

This makes it possible to create items that represent entire item groups or item departments and make them available for sale at the POS.

Each item has a type which tells you whether the item is a standard item or a retail item, which is an item sold at the POS terminals; an item group or an item department, which is sold at the POS terminals but not as a specific item but representing an item group or an item department.

Order parameters for items can vary between stores. Stores can have their own reorder points, ordering quantities, maximum inventory, vendors, vendor numbers and lead times.

### **2.1.3 Barcodes and Variants**

Each Retail 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 Axapta also supports barcodes where the 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, which are commonly referred to as Variants.

Variants are a part of the Axapta standard application. The variants have been extended in LS Retail Axapta so that they can have three different attributes – color, size and style. Variant creation is different in LS Retail Axapta, since Variants can be created automatically based on predefined variant groups. At the same time it is also possible to create Barcodes representing the Variants by assigning a Barcode Mask to the Item.

### **2.1.4 Item Hierarchy**

LS Retail Axapta has a four-level item hierarchy. On top we have the Item Departments, which represent the most general grouping of items. The second level is the Item Group, which is used to categorize items within the department. The third level is the Item itself while the fourth level is the Variant, which is used to represent variations such as color and size within the item.

Each item can belong to one Item Department and one Item Group. This relationship makes it possible to analyze sales on both group and department level. This also makes it possible to manage attributes common to all items within a group by changing the attribute on group level and then copying the change to all the 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. Retail Item attributes that can be managed via Item Groups include:

- Barcode masks
- Color, size and style groups
- Default profit percentage
- Default shelf and item labels
- Dispense printing groups

It is also possible to assign items to Item Families. Items within a family share the same sales and cost price. When a change is made to either price it can be copied to all items within the family.

### **2.1.5 Labeling, Text and Printing Setup**

Each Retail Item can have a number of Item and Shelf labels associated with it. This allows different types of stores to have different types of labels. The printing of new labels is triggered whenever a Retail Item is created or its price changed.

It is also possible to link Extra Print Setup to an item, triggering the printout of additional information when the item is sold at the POS. This is commonly used to print out warranty cards.

## **2.2 Offers**

LS Retail Axapta supports four types of offers:

- Promotion
- Discount Offer

- Mix & Match
- Multibuy

Promotions and Discount Offers work similarly. The main difference is that Promotions works like a price reduction while the Discount Offer will show the reduction as a discount at the POS. Both offers can be based on specific Price Groups or Currencies. It is also possible to specify the date and time when the offers are active. Promotions and Discount Offers can be based on Item Department, Item Group, Item and Variant level. They can also be configured to include all items in the store.

Mix & Match is a more versatile type of offer since it can be triggered by a combination of factors, such as Items, Variants, Item Groups or Departments. Discounts can be in the form of a deal price, a discount amount, a discount percentage or be specified per individual Item. It is also possible to put a limit on how often a Mix & Match offer can be triggered. Like the other discount offers, Mix & Match offers can also be based on Price Groups, be in different Currencies and with different activation dates and times.

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

Items are not restricted to being in just one offer at a time, since offers can have different priorities. This means that the offer with the highest priority will always be triggered first and the offer with the lowest priority is triggered last.

## **2.3 Infocodes and Data Entries**

### **2.3.1 Infocodes**

Infocodes are a powerful tool that can be used to capture data at the POS. The system prompts the operator at the POS terminal for an input that can be selected from a list or entered as a code, a numeric or free text. Infocodes can be linked to the sale of an item, a sale to a customer, a specific Tender Type. Infocodes can also be linked to a number of actions performed at the POS. Infocodes are commonly used to capture customer details such as the customers postal code, which can be used for sales/demographics analysis.

Some of the key features offered by Infocodes include:

- Infocodes can be linked, creating a list of queries.
- The prompt given to the POS operator when the Infocode is activated.
- If the selection list should be displayed automatically on the POS.
- If input is required.
- Whether the Infocode can be used once or more within the same transaction.
- The minimum and maximum value if the input is numeric.
- The minimum and maximum length if the input is text.
- If the input value is either quantity or amount.
- The random factor specifying how often the Infocode is triggered.
- If the Infocode details should be printed on the receipt.
- Statistics showing the usage of the Infocode and amounts entered.

### **2.3.2 Subcodes**

Each Infocode can have a number of subcodes. A subcode is commonly used to present the POS operator with a list of available responses. Subcodes can also be used to trigger additional actions, such as the sale of an item, a discount or a change in the VAT calculations which is commonly used in duty-free retailing. Other uses for subcodes include staff discounts and the registration of damaged goods.

### **2.3.3 Data Entries**

Data Entries are used to register the usage of Gift Cards, Vouchers and serial numbers. They are closely linked to Infocodes since Infocodes can be used to create Data Entries. Parameters found on the Data Entry Card include:

- The number series used by the Data Entry.
- If the amount entered should be validated against the amount registered in the entry.
- If the data entry number should be printed as a barcode on the receipt.
- The format of the data entry barcode.
- The number and amount of issued entries.
- The number and amount of outstanding (open) entries.

By linking Infocodes to Data Entries it is possible to register when a Gift Card or Voucher is sold and when reclaimed.

## **2.4 Store Management**

### **2.4.1 Stores**

The Store is one of the central objects in LS Retail Axapta. It is used to control:

- The base currency used in the store.
- Codes that affect how the General Ledger Dimensions are updated during the posting of sales.
- How the end-of-day procedure (Statement Posting and Tender Declaration) should be performed.
- Maximum limits for rounding amounts and difference amounts acceptable during the end-of-day procedure.
- The accounts where rounding and difference amounts should be posted to.
- If the end-of-day procedure is based on date/time or shifts.
- The default Sales Tax Group for the store.
- The number sequences for Offers, Items, Statements, Staff and POS Terminals created in the store.
- The initial numbering sequences used by the POS Terminals and during the end-of-day procedure.
- How the counting of cash should be performed.
- The messages that are printed at the top and the bottom of the customers receipt.

There is no limit to the number of stores configurable.

### **2.4.2 Staff**

LS Retail Axapta requires Staff to be assigned to a store. A staff member can be of the type cashier, salesperson or both. This makes it possible to differentiate between the person working on the POS and the person assisting the customer within the store. It is also possible to see onto which POS the staff is currently logged.

The staff's personal details, such as home address, phone number and payroll number, can be registered. It is also possible to register if the staff member is left-handed, which in turn can affect the layout of the POS screen.

Staff members can be assigned unique POS passwords.

Staff members can be assigned different privileges depending on their role within the store. This includes:

- Manager privileges.
- X-reporting allowed.
- Tender declaration allowed.

- Performing a float entry allowed.
- Suspension and voiding of transactions allowed.
- Member is allowed to change item quantities to a negative figure.
- Allow opening of cash drawer without performing a sale.
- Giving maximum line and total discounts is allowed.
- Allow the following: the price of an item can be raised, lowered, both raised and lowered or not at all.

These privileges can be managed per individual staff or via Permission Groups which can be assigned to the staff.

### 2.4.3 Tender Types

Tender types are used to control the different payment methods in a store. Tender Types can be of the following types:

- Normal – usually cash
- Card – either credit or debit
- Check
- Customer Account
- Tender Remove/Float
- Coupon

It is possible to define if the operation of Tender Type requires manager privileges, if the POS drawer opens when the Tender Type is used, if the Tender Type requires a card or account number and if the Tender Type needs to be counted during the end-of-day procedure. Each Tender Type also has a number of parameters that affect its usage. This includes:

- If the Tender Type is a foreign currency.
- If over tender and under tender are allowed.
- The maximum over tender amount.
- If returns and negative amounts are allowed.
- If keyboard entries are allowed or required for the Tender Type.
- If rounding should be done up, down, to the nearest allowed amount or not at all.
- The minimum rounding amount.
- The minimum and maximum amounts allowed for manual entry.
- The minimum and maximum amounts allowed for the Tender Type.
- If payment lines for the Tender Type should be compressed into one.
- If float entry is allowed for the Tender Type.

It is also possible to control how the posting of different tenders is done. Each tender type can be posted to a separate General Ledger account. The same applies to differences between the actual amount and the counted amount when performing the end-of-day procedure.

Tender Types also have a number of parameters that affect the printing of receipts and endorsements. Usage of a Tender Type can trigger the printing of a Voucher or a Gift Card. Similarly, using a Tender Type may require the printing of an endorsement as in the case of payment with Check.

Each Tender Type can have two change-back Tender Types associated with it, which is used when over tendering. This is useful when dealing with Gift Cards. If the change amount is over a specified limit, the change can be given in the form of a Voucher, otherwise in cash.

Payments with credit or debit cards can be handled specially. It is possible to post payments made with different card types (Visa, MasterCard) to different General Ledger Accounts as well as difference accounts.

#### **2.4.4 Income and Expense Accounts**

Income and Expense Accounts are used to register petty incomes and expenses at the POS. An example is the payment for window washing which can be registered to an expense account. This is an effective way to manage the flow of petty cash at the POS Terminal.

A Store can have a number of Income/Expense accounts defined. Each account can be associated to a General Ledger Account and a tax code. The usage of an account can trigger the printing of a special kind of receipt (Extra Print Setup). Posting to each account is done during the posting of Statement.

#### **2.4.5 Sections and Shelves**

A Store can be divided into sections and shelves. It is possible to assign Items and Item Groups to sections and shelves in order to track the sales in different areas of the stores. This makes it possible to track sales by individual sections or shelves.

#### **2.4.6 Work Shifts**

Each store can have its own work shifts. Staff can be required to work on specific shifts. The end-of-day procedure can be configured to function on shift level which simplifies the procedure in stores which are open after midnight.

### **2.5 POS Terminals**

The use of the POS Terminal functions depends on the integration of the LS Retail Axapta with the POS used.

#### **2.5.1 General**

Each POS Terminal is assigned to a store. A store can have any number of POS Terminals associated with it. The behavior of a POS Terminal is defined via four main areas, the POS Terminal Card, the Functionality Profile and the Hardware Profile.

The POS Terminal Card contains the settings that are unique to a POS Terminal. This includes parameters such as:

- The POS Terminal number and which store it is assigned to.
- Which Hardware Profile is assigned to it.
- If manager key is required when items are returned.
- If return is allowed within a transaction.
- What kind of receipt is printed when a return is performed.
- If the staff needs to log in after each transaction.
- The number of minutes before the POS performs an auto-logout.
- Whether the drawer is opened during a login or logout.
- The terminal and store number used in EFT transactions.
- The number of the last Z-report performed.
- Whether the POS is run in online or standalone mode.
- Which Staff is currently logged on the POS.

The POS inherits a number of settings from the Store it is assigned to. It is still possible to override some of these settings on the POS itself. This includes:

- The handling of the end-of-day procedure with regard to sales performed on the POS.
- If the POS uses the receipt printing specified on the store or overrides those settings.

It is also possible to define the messages that appear on the customer display during idle time and the maximum length of the text to display.

Initial entry number series for Transactions can also be specified on POS level.

### 2.5.2 Functionality Profiles

The Functionality Profile contains a number of settings that are common to all the POS Terminals within a store. The Functionality Profile is assigned to the Store the POS belongs to.

The functionality profile contains parameters such as:

- New price must be keyed in if the price of an Item is zero.
- The total amount of the transaction should be displayed in a secondary currency.
- Printing X-reports on the POS possible.
- Whether the POS should disable the comparison of retail prices and customer prices in order to give the customer the lowest price.
- How long transactions should exist on the POS and when to issue a cleanup warning.
- Whether training transactions should be retained as regular transactions or treated as voided transactions.
- Whether logins and logouts should be registered as transactions.
- Whether the POS compresses multiple scanning of the same items into one line or creates a line for each scanning.

The Functionality Profile also contains a number of settings that control tax handling and how the POS formats and rounds amounts. This includes:

- If the company's Tax registration number is printed on the receipt.
- If Tax amounts are printed on the receipt.
- If no Tax is used or the POS should add Tax to the retail prices.
- The currency symbol used and the multiple items symbol.
- The amount and price rounding parameters.
- The format in which decimal numbers are displayed and printed.
- The maximum price and quantity allowed on the POS and if these limits are active.

The Functionality Profile also contains a number of actions that can trigger Infocodes at the POS. Infocodes can be triggered at:

- The start and end of transaction.
- When a tender declaration is performed.
- When a void transaction is performed.
- When a negative adjustment is made.
- When a refund is made.
- When a total discount is given.
- When the price of an item is either increased or decreased.
- When price is overridden.
- When the quantity in the line becomes negative.
- When a serial number is requested.

### 2.5.3 Hardware Profiles

The Hardware Profile contains settings used to control the behavior of the POS hardware. It is possible to run many different POS hardware platforms with LS Retail Axapta by creating a hardware profile for each platform. LS Retail Axapta uses OPOS drivers extensively to communicate with POS Hardware and the Hardware Profile contains settings such as drivers that are use to communicate with each peripheral. Settings on the POS Hardware profile include:

- The x and y coordinates where the POS screen is drawn on the display.
- If a screen keyboard is available and if the company logo should be displayed.

The Hardware Profile also contains a number of parameters that affect how peripherals connected to the POS work. This includes:

- Printer. The layout of the receipt, print commands used for formatting text, if the printer is shared between terminals, how logos are printed on the receipt and which character set the printer uses.
- Line Display. The messages displayed on during a transaction, character sets and delay between messages.
- Magnetic Stripe Reader. How events from the reader can be enabled and disabled.
- Cash Drawer. How open/close messages are read from the drawer.
- Scanners. How events from the scanner are received.
- Scale. If manual input is allowed.
- Keylock. How keylock messages are received.
- Keyboard. How decimals are handled, if enter repeats last item.
- Tone. The various tones generated by the POS speaker.
- EFT. Parameters that affect the communication between the POS and the EFT server.

Keyboard mappings are also configured via the Hardware Profile. This allows the POS to use various POS keyboards by mapping the keys to regular PC-keyboard codes. This also allows certain keys on the PC-keyboard to be disabled or mapped to other key combinations.

The logo that is printed on the receipt can be stored in the Hardware Profile. Settings can be copied between profiles.

#### **2.5.4 Extra Print Setup**

Extra Print Setup is used to print information that can not be printed on the regular receipt. This includes items such as warranty cards and gift cards. The setup of the Extra Print Setup is flexible and can accommodate a number of parameters such as:

- The rotation of the document.
- Whether the document should be printed on the receipt printer or a document printer.
- The number of times the document should be printed.
- Whether the receipt header and footer should be printed on the document.
- Whether infocodes should be printed on the document.

Each line in the document can be aligned left, right or center and can have a formatting of wide, high, bold or italic. Printing of the following parameters from the sales line is also supported:

- Barcode on Appl. Entry
- Number on Appl. Entry
- Amount in Line
- Amount in Line Text
- Description
- Date
- Number in Line
- Price in Line
- Quantity in Line
- Transaction Gross Amount
- Transaction Discount Amount

Extra Print Setup can be assigned to Items and Tender Types.

## **2.6 End-of-Day procedure**

### **2.6.1 Statements**

The end-of-day procedure is done by posting a Statement. A statement is used to calculate the sales done in the store, comparing the sales amount to the payments in the cash drawer and posting the results to the Inventory and General Ledger modules.

Statements are created per store. They can include sales registered by POS Terminals or staff members. Statements can be based on date/time or work shifts.

The counting of money from the cash drawer can be done via the statement or by making a Tender Declaration at the POS. In case of a Tender Declaration the counted amounts are read in when the statement is calculated.

Calculated statements can be posted partially or entirely. A partial posting only posts item sales and does not post any financial information. This part of the posting process can be automated. The finance posting can then be done at another time. A full posting posts both stock movements and updates the finance part at the same time.

The posting process depends on parameters configured in the Store and in the Retail Setup Table. Among those are:

- The posting of discounts. If total discounts, line discounts, infocode discounts, customer discounts and special offered discounts are posted separately.
- If the sales date or the statement posting date is used as a base date for the posted entries.
- Whether customer purchases are posted directly to the customers' account or as a shipment.

## **2.7 Distribution**

### **2.7.1 Structure**

LS Retail Axapta builds on a Head Office – Store structure. This means that data can be replicated between the Head Office and the stores. The application supports a number of configurations which include (but are not limited to) the following scenarios:

- Single store with a 3<sup>rd</sup> party POS and replication.
- A Head Office with a 3<sup>rd</sup> party POS and replication.
- A Head Office and a store databases with a 3<sup>rd</sup> party POS and replication.
- A Head Office, Region and a store databases with a 3<sup>rd</sup> party POS and replication.

The system uses the LS Data Director to move data between the databases in each location. The LS Data Director is integrated with the LS Retail Axapta application and supports a number of different modes of transfer. For more information on these modules, please consult the LS Data Director White Paper.

### **2.7.2 Actions, PreActions and Table Distribution**

LS Retail Axapta has a built-in logging mechanism, allowing the application to keep track of changes made to data in the database. These changes are logged to tables named Actions and PreActions.

The Actions and PreActions can be used as a log in order to know which data needs to be sent to the stores. This removes redundant data from the transmission process and makes the transmission both fast and efficient.

The main difference between Actions and PreActions is that Actions contain information on how the data should be distributed that the PreActions do not have. This distribution

information allows the system to send the data only to the locations where it is actually needed.

The distribution mechanism depends on a set of rules that define where to send the data. These rules are named Table Distribution. The table distribution allows the distribution of data to be linked. This makes it possible to link the distribution of barcodes to the items they represent.

The Table Distribution and the Actions are the backbone of the distribution mechanism. The Table Distribution provides the general rules on how to distribute the data while the Actions provide the details on how individual records should be distributed.

### **2.7.3 Scheduler**

LS Retail Axapta 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 the head office and stores and between stores and POS terminals. These transfers are done with the LS Data Director.

The Scheduler is a flexible tool that can operate according to a number of parameters. Jobs can be scheduled to run on certain dates and times or with regular intervals.

### **2.7.4 Scheduler Jobs and Subjobs**

Please refer to the LS Data Director White Paper for more information on the functionality provided by the Scheduler Jobs and Subjobs.

## **2.8 Reporting**

Various reports and statistics will be included in the next version of LS Retail Axapta.

## **2.9 Maintenance**

The application includes a clean-up and archiving mechanism that is used to restrict the growth of the database by either deleting or archiving redundant data. This includes:

- A method to delete old actions and preactions.
- A method to delete old scheduler logs and Data Director Log files.
- A method to archive old transactions.