

Oracle® Retail MICROS Retail-J
Configuration and Messaging Guide
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MICROS Retail-J Configuration and Messaging Guide

Revision History

Document Revision	Date	Comment
1.2	March, 2015	Added Oracle cover and copyright page.
1.1	January, 2013	Rebranded; KPI example added.
1.0	November, 2011	First published in this form.

Glossary

Term	Definition
Access set	Access sets contain details used to connect to the database, LER and HTTP. Two files are associated with access data sets namely: Access.dat and Access.hdx.
Cold Backup	Backup taken while the database is offline
Hot Backup	Backup taken while the database is online
IIN	(Card) Issuer Identification Number; allocated in ranges to issuing networks (for example Visa) by the American Bankers Association. Issuer Identification Numbers are associated with specific attributes which help validate card transactions.
LER	Local Entity Repository
SUP	Software Update Process
TRC file	The trace facility allows a network or database administrator to obtain more information on the internal operations of the components of an Oracle application network than is provided in a log file. Tracing an operation produces a detailed sequence of statements that describe the events as they are executed. All trace output is directed to trace output files that can be evaluated to identify the events that led to an error.
XSD	XML Schema Definition; used by Retail-J to define the structure and format of data imported, used and exported by the application.

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Note: The rebranding for the latest version of this documentation set is in development as part of post MICROS acquisition activities. References to former MICROS product names may exist throughout this existing documentation set.

1. Introduction

This document describes elements of the configuration of Retail-J from a back office perspective.

2. Performance Troubleshooting

The following table and its supporting sections describe environment and application architecture and settings for consideration during implementation and periodic review. The environment specifics mentioned below generally relate to Windows, SQL Server and Tomcat and may differ for other environments.

Please note, any changes to a production environment should be considered carefully by suitably qualified personnel, and be fully tested before implementation. MICROS can not accept any responsibility for architecture, environment and application configuration changes without prior agreement.

Area	Item	Description	Comment	Possible Solution
Database	Data and log file growth	MS SQL Server's physical files, for example, are set, by default, to auto grow at 1 Mb for data files and 10% for log files.	This, amongst other factors, can cause fragmentation and heavy disc access.	Consider setting growth size using expected growth values over a specified period.
	Server Memory	Default memory settings may not be suitable.	Server performance may be degraded.	Consider optimising memory allocation.
	Shared drives and other usage	Shared drives or multiple applications on the database server. For example, the application File Exporter may be mapped to export to the data drive.	Disc access time may be degraded.	Consider a dedicated database server.
	Using the Audit Database	The audit database is not necessarily required for every deployment.	There is a trade-off between utility and performance.	Use the audit database when required for card submission or as a data archive.
Disc usage	Partitions	Multiple partitions reside on the same physical media.	Media failure poses a risk. Performance may not match that of separate discs.	Consider implementing sets of RAID 1 mirrored pairs.
Address Lookup Server	QAS	The application supports QAS address lookup.	Using QAS through the Estate Manager writes a large and unnecessary	Consider a web server instance on the application server to be used solely for QAS traffic.

Area	Item	Description	Comment	Possible Solution
			amount of data to the application log and adds one web service call to the Estate Manager for every transaction taken in the estate.	
Java Virtual Machine and MS SQL Server	POS Memory	Memory allocated to the JVM and MS SQL Server.	Inadequate memory allocation may cause excessive paging and system failure due to lack of virtual memory at POS terminals.	Consider changing the defaults; for example the POS JVM might be set at -Xmx512Mb and MS SQL Server might be set between 800 and 900Mb.
Corporate	Virus Scanning Policies	Virus scanning routines may operate on the Application Home and environment directories.	Virus scanning may cause system locking of required file sets.	Consider removing or rescheduling virus scans on Application Home, Java and Web Server directories.
Application	POS Start-up scripts	Start up scripts need to check for database availability.	Prevent system start-up without a database.	Check and modify start up scripts as necessary.
	POS Shutdown scripts	Shutdown scripts need to check for a correct database shutdown.	The database may be corrupted during shutdown.	Check and modify shutdown scripts as necessary.
	Naming Conventions	There are database, location, device and mailbox naming conventions used with the application.	Use of naming conventions provides for consistent installation and support.	Use naming conventions when the application is installed.
	Messaging	Some configurations can increase message traffic.	The number of messages and corresponding receipts can increase substantially if, for example, Master Tills and Slave Tills are updated unnecessarily.	Consider configuring message routing so that only the location (Master/Slave) needs to know about its own processes.

Area	Item	Description	Comment	Possible Solution
	Roles/Menus	It is possible to set up a large number of roles and menus.	This can lead to confusion and clutter. It invites experimentation which can lead to support calls through incorrect configuration.	Consider using the minimum number of roles with the appropriate menu sets. You may also wish to remove/hide unused menu sets.
	POS Terminal Profiles	Terminal profiles for POS devices can be set at any level of granularity.	If terminal profiles are set at location level, local changes will not affect the whole estate.	Consider creating POS terminal profiles by location.
	Processes	The application allows all processes to be set on all nodes.	User experimentation may result in multiple process start-ups causing, for example, dual submissions to the bank or duplicated documents being posted in the environment.	It is advised that only processes required on each node should be created as required. Consider the division of processes across nodes. Off-peak timing may also be a consideration for some processes; for example, card submission.

3. Database Considerations

The application is designed to operate in a tiered environment. The minimum recommended operating model utilises three tiers.

Each tier of deployment requires a database environment.

The application is designed so that each tier reduces the overall impact of data arriving at the Estate Manager.

3.1 Tiered Solution

In a typical installation, an enterprise solution is used for the Estate manager. Lower tiers may use smaller the database environments. For store operations, typically the following database environments are used:

- MSDE 1.3
- SQL Server 2000
- SQL Server 2005
- Oracle XE

For higher levels of operations we have experienced installations with the following database environments:

- IBM DB2
- Oracle 9i
- Oracle 10g
- Oracle 11gR1
- SQL Server 2000
- SQL Server 2005

3.2 User Permissions

On install, the application creates a user account which accesses the database environment. This user account should typically be the SYSTEM account and should have table ownership rights.

It should be noted that the account used to register the application with the database will have its credentials encrypted within the connection string. The initial creation account should not have any privileges revoked other than “revoke create schema”

3.3 Use of Anti Virus

Most enterprise environments will have some form of anti virus utility. We recognise this and are able to work within these bounds; however it should be noted for optimal performance the database files should be excluded from scans as this can cause environment locks that degrade performance.

3.4 Use of San Storage

The database environment doesn't rely on the use of SAN storage, however, the database environment can be configured for use with SAN storage. There are currently no known constraints in operating a SAN.

3.5 Data Archiving

The application does not actively recognise archiving. In order to advise on archiving a discussion with a Micros technical consultant is recommended to draft plans suitable for your environment.

3.6 Data Purging

The application has built-in purge functionality. Data retention can be specified at a terminal or a location level.

Data purging is customer and environment specific and should be discussed in detail with a Micros technical consultant.

3.7 Back up Plans

Back up plans and routines are often dictated by a customer's business continuity policy and the reliance on data from the application. As an application supplier with prior experience our preferred back up plans for the Estate Manager are:

- Hourly transaction back-up; shipped off-site
- Nightly hot backup
- Weekly cold backup

3.8 Database Maintenance

The application creates its own set of indexes; these can be tuned as required once transactions have flowed into the system.

The most important tables that are likely to experience high loading are:

- Baskets
- Messages
- Receipts
- Docs In
- Docs Out
- Basket Cards
- Report Items
- Report Transactions

If an audit database is installed, the tables below should be closely monitored for further tuning:

- Audit Items
- Audit Transactions
- Audit sessions
- Audit Documents In
- Submission Staging
- Cash Sessions
- Cash session validation errors
- Validation exceptions

The optimisation of the database environment through statistics gathering is a key part of database maintenance. It is recommended that statistics are gathered periodically to help maintain efficiency.

4. Messaging Before Retail-J 10.1

A large part of administration and troubleshooting requires an understanding of the movement of transaction (known as dynamic) and reference (known as static) data around the system.

The two main internal data transport mechanisms are:

- Messaging – mailbox-to-mailbox
- FTP – file system-to-file system

The messaging system moves data around the system from mailbox-to-mailbox. There is a mailbox for each location (or node) in the estate. The messaging system accumulates messages when parts of the system are off-line, and forwards them automatically once the system is back online. It produces receipts only when the destination actually reads the message and processes it successfully.

A simplified overview of the messaging system is shown in the diagram below.

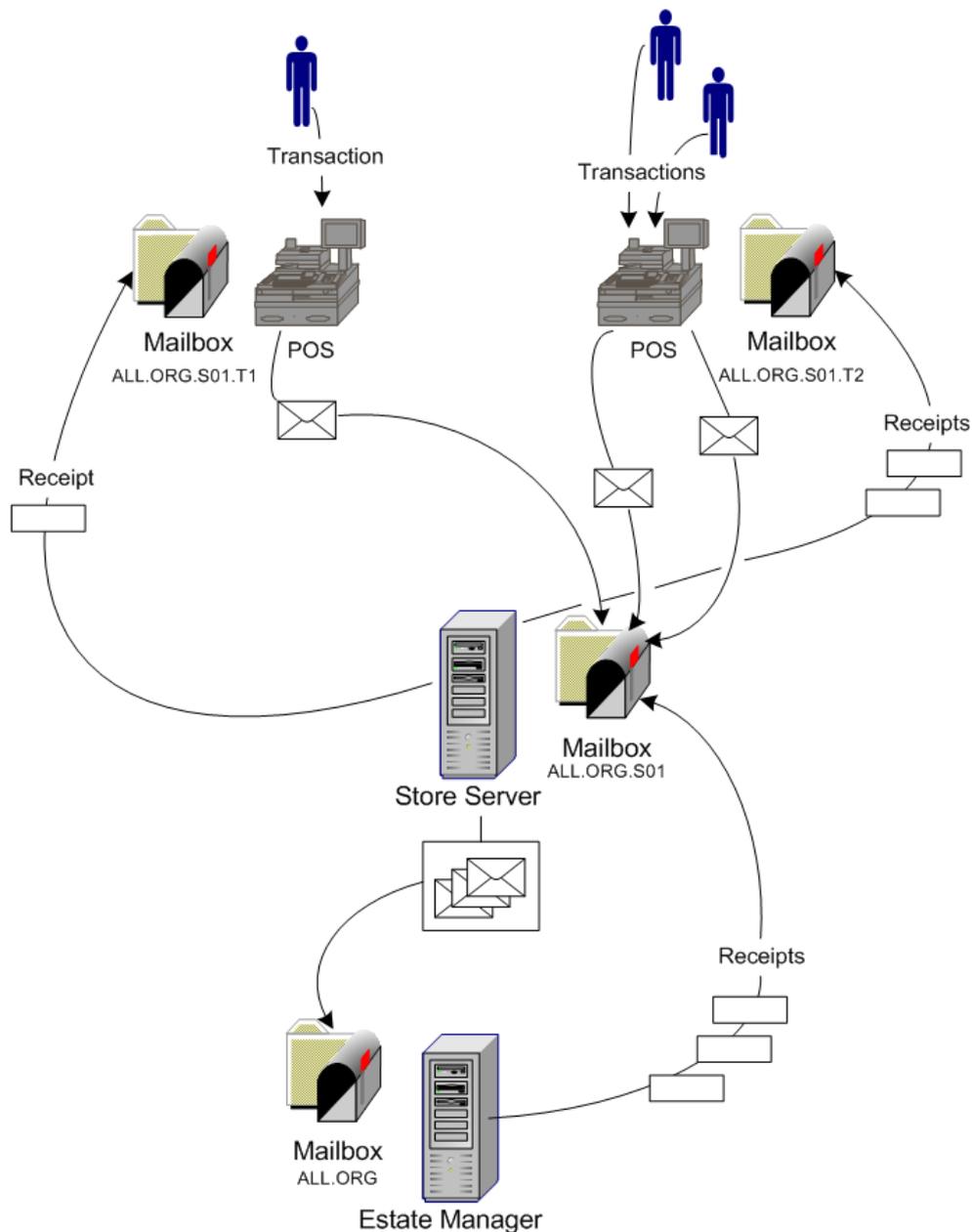


Figure 1: Messaging Mailboxes

4.1 Mailbox Addressing

The mailbox and messaging conventions used by the application are shown below.

Addresses	<p>Mailbox addresses are built up according to their position in the estate.</p> <table border="1" data-bbox="472 320 1267 521"> <thead> <tr> <th data-bbox="472 320 871 360">Device</th> <th data-bbox="876 320 1267 360">Label</th> </tr> </thead> <tbody> <tr> <td data-bbox="472 367 871 407">Estate Manager</td> <td data-bbox="876 367 1267 407">ALL . [ORG]</td> </tr> <tr> <td data-bbox="472 414 871 454">Store Servers</td> <td data-bbox="876 414 1267 454">ALL . [ORG] . [SNNNN]</td> </tr> <tr> <td data-bbox="472 461 871 521">Tills/terminals</td> <td data-bbox="876 461 1267 521">ALL . [ORG] . [SNNNN] . [TNN N]</td> </tr> </tbody> </table> <p>Where [] indicates mandatory completion with optional, but consistent, content.</p>	Device	Label	Estate Manager	ALL . [ORG]	Store Servers	ALL . [ORG] . [SNNNN]	Tills/terminals	ALL . [ORG] . [SNNNN] . [TNN N]
Device	Label								
Estate Manager	ALL . [ORG]								
Store Servers	ALL . [ORG] . [SNNNN]								
Tills/terminals	ALL . [ORG] . [SNNNN] . [TNN N]								
Addressing	<p>Wild cards are used in addressing. A message can be sent to ALL.ORG.*.* which will send to all terminals in all stores, but it will not include the stores themselves.</p>								
Default Mailbox	<p>This is the mailbox to which messages are sent if cannot locate the appropriate mailbox for the message. Normally, this is the Estate Manager, for example. ALL.ORG, except on the Estate Manager itself where the default mailbox should be UNROUTABLE. On a terminal, you may wish to set the device ID to be the store BackOffice that the terminal is connected to, for example, ALL.ORG.S1.</p>								
Estate Manager	<p>The following mailboxes are set up at the Estate Manager:</p> <p>ALL.ORG.CONTROL ALL.ORG.LER ALL.ORG.XMLPROCESSING</p> <p>In this case the organization is known as ORG.</p>								
Location	<p>Locations are logical nodes within the system that can be reached via their associated mailboxes. For example, the Estate Manager may have connections to an OLA server or a warehouse in addition to the stores.</p>								
Node	<p>See location.</p>								
Routing	<p>You can configure both local and routed mailboxes. This configuration cannot be exported and must be set up manually for each node on . There is a test message feature to enable you to check your mailbox routing.</p> <p>To use the Message Routing Maintenance function, go to Administration > Messaging; the Routing Maintenance screen is displayed.</p>								
Store Back Office	<p>The following mailboxes are set up at a Store Back Office:</p> <p>ALL.ORG.S1.CONTROL ALL.ORG.S1.LER, ALL.ORG.S1.XMLPROCESSING</p> <p>In this case the store is known as S1:</p>								
Till/Terminal	<p>The following mailboxes are set up at a Store Back Office:</p> <p>ALL.ORG.S1.T1.CONTROL ALL.ORG.S1.T1.LER</p>								
LER	<p>The LER (local entity repository) mailbox is set up at store level and is configured to listen to the following: ALL.ORG.STORE.LER, ALL.ORG.*.LER and ALL.*.*.LER.</p>								
XML	<p>Mailboxes are configured for XML processing documents in store (XMLPROCESSING) and at the Head Office/Estate Manager (HOXMLPROCESSING) but not for terminals.</p>								

4.2 Dynamic and Static Data

Messaging Data can either be **Dynamic** or **Static**.

- Dynamic data is used for volume transactions such as POS Baskets and Cash Data.
- Static data includes relatively stable items such as User Passwords.

4.2.1 Dynamic Data Flow

The following diagram illustrates the transfer process for dynamic data. The transit of the XML documents used to carry dynamic data is described in the supporting narrative.

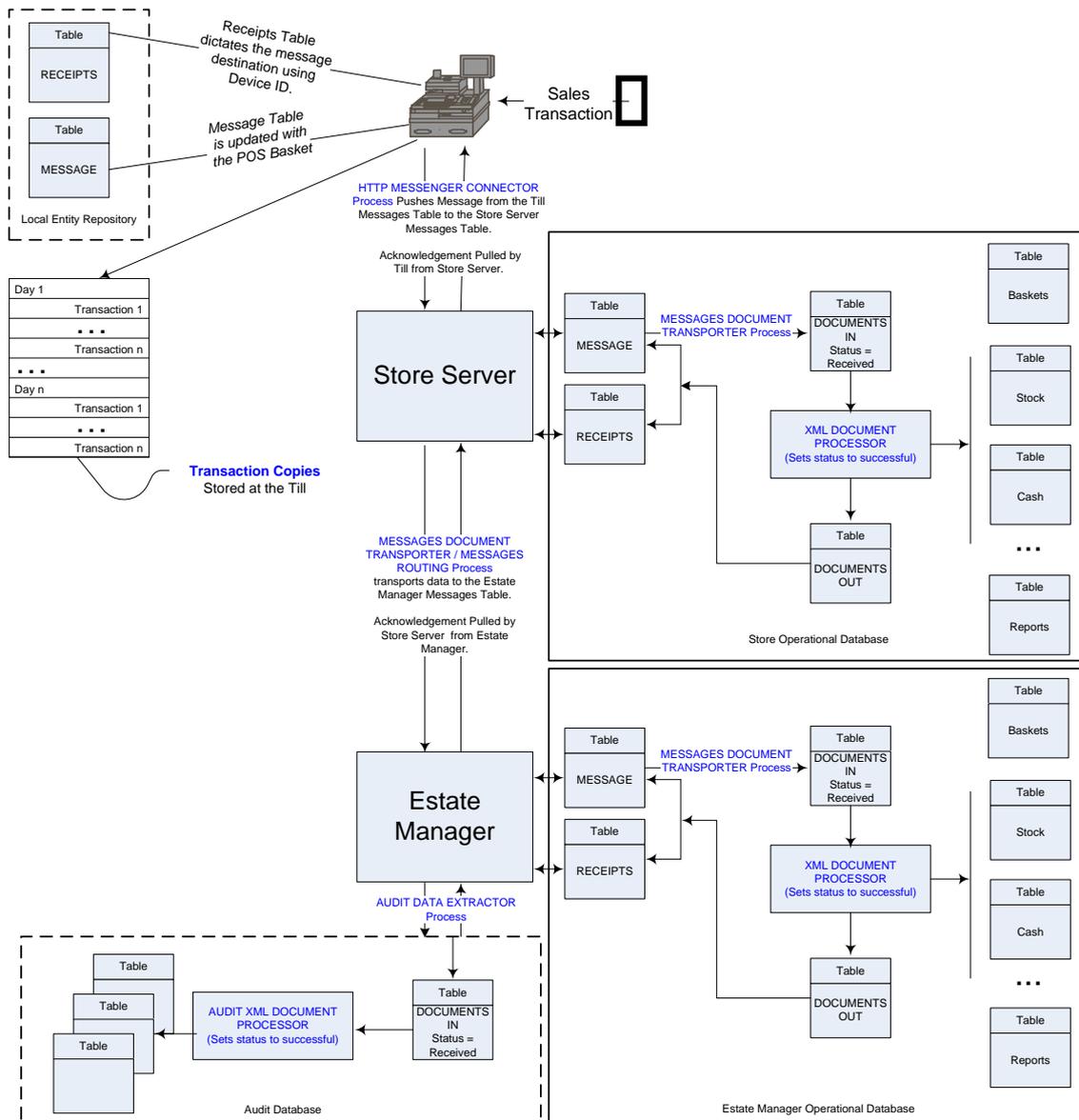


Figure 2: Messaging – Dynamic Data Example

In this example, a sales transaction has taken place at the till. This invokes the following steps.

- The Messages table at the till is updated with the POS Basket.
- The Receipts table at the till helps determine where the message should be sent by referencing the Device ID.
- The HTTP MESSENGER CONNECTOR process “pushes” the message from the till to store server.
- Acknowledgement is “pulled” back by the till from the store server.
- The store server decides whether the data is “static” or “dynamic”.
- The dynamic data is tagged as, for example: “`ALL.ORG.S01.XMLPROCESSING`”.

- 7) The MESSAGE DOCUMENT TRANSPORTER process sends the message to the Documents In table.
- 8) The Status of the message is “Received”.
- 9) The XML DOCUMENT PROCESSOR sets the status to “Successful” and updates the appropriate tables for the sale, such as:
 - Stock
 - Cash
 - Reports
- 10) The message is sent to the Documents Out table, and the Messages Table at the store server is updated.
- 11) The MESSAGES ROUTING process identifies where the message should now be sent and the MESSAGE DOCUMENT TRANSPORTER process transports data to the Estate Manager.

4.3 Static Data Flow

The following diagram illustrates the transfer process for static data.

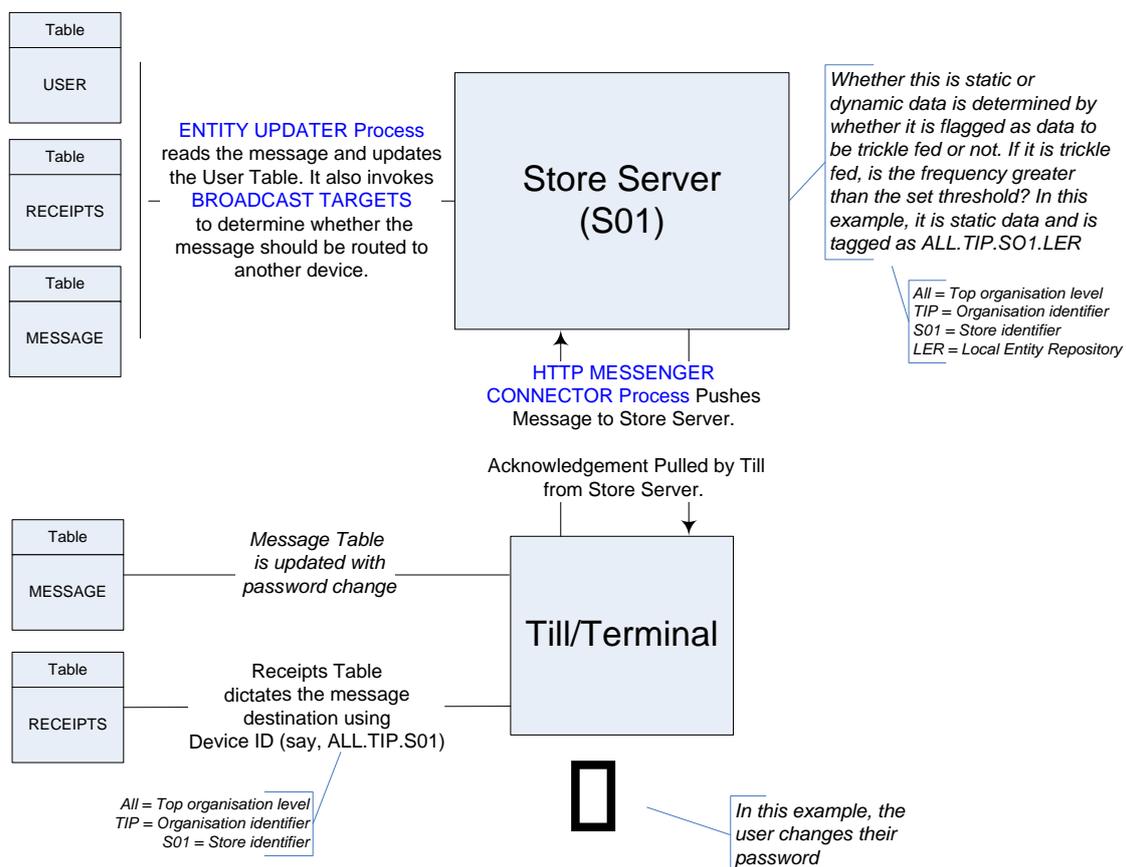


Figure 3: Messaging – Static Data Example

In this example, a user has updated their password at the till. This involves the following steps:

- 1) A user changes their password at the till.
- 2) The Messages table at the till is updated with the password change.
- 3) The Receipts table at the till helps determine where the message should be sent by referencing the Device ID.
- 4) The HTTP MESSENGER CONNECTOR process “pushes” the message from the till to the store server.
- 5) Acknowledgement is “Pulled” back by the till from the store server.
- 6) The store server decides whether the data is “static” or “dynamic”.
- 7) The Static Data is tagged as: “ALL.TIP.S01.LER”.
- 8) The ENTITY UPDATER process reads the message and updates the User table.

- 9) This invokes BROADCAST TARGETS, which checks whether the message should be routed to another device.

4.3.1 Broadcasting

Data moves from the POS via the store server to the estate manager. Data can move in both directions. For example when updating products and prices. Broadcasting is one mechanism, FTP being another, of distributing data around the estate.

Broadcast Targets must be set up to inform the application where to send broadcast messages.

The Broadcast Targets Function enables you to view, edit, create and remove Broadcast Target information and is used to specify the destination(s) to which database changes should be distributed.

When specifying Broadcast Targets, it is important to bear in mind the following points:

- Broadcast Targets must be set up to inform the system where to send Broadcast messages (either trickle or bulk).
- Targets can be wild-card addresses or fully qualified devices. A wild card is denoted by *
- Targets should not include the mailbox, that is appended by the application being used that is mailboxes such as LER and XMLPROCESSING should not be included in the broadcast targets so should look like this:
`ALL.ORG.S01` OR `ALL.ORG`
 (Not `ALL.ORG.S01.LER` OR `ALL.ORG.XMLPROCESSING`)
- Targets can be set up on a DEFAULT or an "Item-type" basis, if required. If a specification is not set at the item type level, the DEFAULT will apply for that type.
- Broadcasts can be made up the hierarchy as well as down. This is particularly relevant for Item Types such as Users. User changes should typically be sent to all devices e.g. a password change should be communicated from till to server to Estate Manager
- Each change made at a particular node is replicated to all nodes defined in the Broadcast Target entity. This includes creations, edits and deletions.
- By default, updates will not be applied at the destination if the version of the entity they already have is of a later date than the replicated entity.
- Broadcasts can be either "Trickle" or "Bulk".
- Trickle Broadcasts place each update in a new message. A message is created for each saved configuration change.
- Bulk Broadcasts can place multiple updates in each message. Bulk broadcasts can be created in the Broadcast Utility by selecting several entities into one broadcast.
- If there is a requirement to regularly update particular entities, the Batch Broadcaster should be configured to carry out this task. A "tick" in this box indicates that the rebuild/update will be sent as a batch job. A batch is "staged" on the local filing system and is only applied when the whole batch is present.

Note: target addresses will vary according to which device is being viewed or edited.

5. Messaging From 10.1

Note, use in a three tier environment is not supported in this release (10.1).

A brokered queue based messaging orientated middleware architecture (MOM) has been introduced with effect from Retail-J 10.1. In the Retail-J implementation, the open source ActiveMQ provides the message brokering service.

Queue based messaging is incompatible with the previous Retail-J messaging architecture. This means that either legacy or queue based messaging can be used but not both. By default, legacy messaging is used unless MOM based messaging is configured.

5.1 Point-to-Point and Publish Topic Messaging

In this model, there are two types of messaging:

- 1) Point-to-point
- 2) Published topic

Messages are sent to one recipient or can be published to a number of recipients.

Point-to-point messaging uses an In Queue and an Out Queue.

Published messages use a Publish Topic.

A change to a user password at the till would be an example of a point-to-point message. Transactions are also point-to-point messages. Product and price updates are examples of Publish Topics.

5.2 Nodes

Retail-J senders and recipients are called nodes. A node is further classified as a processing node (the node performs some processing on the message) or non-processing nodes (the message passes through the node without processing).

A POS, a Master Till, a Store Server, and an Estate Manager are all discrete Retail-J nodes.

5.3 Message Broker

Each Retail-J node can be associated with one (usually) or more Message Brokers. A Message Broker is addressed as if it were a mailbox in the legacy approach.

A message broker is responsible for creating:

- 1) An IN Queue
- 2) An OUT Queue
- 3) A publish topic
- 4) A connection to a parent broker

The IN queue services requests coming into the node.

The OUT queue services data that is to leave the node

The PUBLISH topic publishes any data that will be required by multiple child nodes.

5.4 IN Queue

A listener in the IN queue saves a message into Documents In where it can be processed by the back office processors. The listener acknowledges the message in such a way that the message may not be received again by that queue. If no acknowledgement is received by the queue it is not be removed from the queue.

The message is read, verified and saved before marking the message as acknowledged. This ensures that all messages in the queue are saved into Documents In successfully before they are removed from the queue.

The message listener tests that the current node is the designated recipient. If it is not the designated recipient it submits the message directly to the OUT queue.

5.5 OUT Queue

The OUT queue either publishes the data (creates a topic for distribution) or submits the message to a nominated IN queue. The route is defined by the recipient encoded in the Retail-J message.

5.6 PUBLISH Topic

A Message Broker PUBLISH TOPIC:

- 1) Listens for messages being published to its device ID (and a wildcard), that is the node ALL.TIP.S01 listens for messages published to ALL.TIP.S01.* as does ALL.TIP.S01.T1
- 2) Acknowledges the message so that it is not to be received again by the node.
- 3) Forwards the message to the IN queue.

5.7 Message Broker Routing

The following diagram illustrates the routing between Message Broker mailboxes.

Message Broker Routing

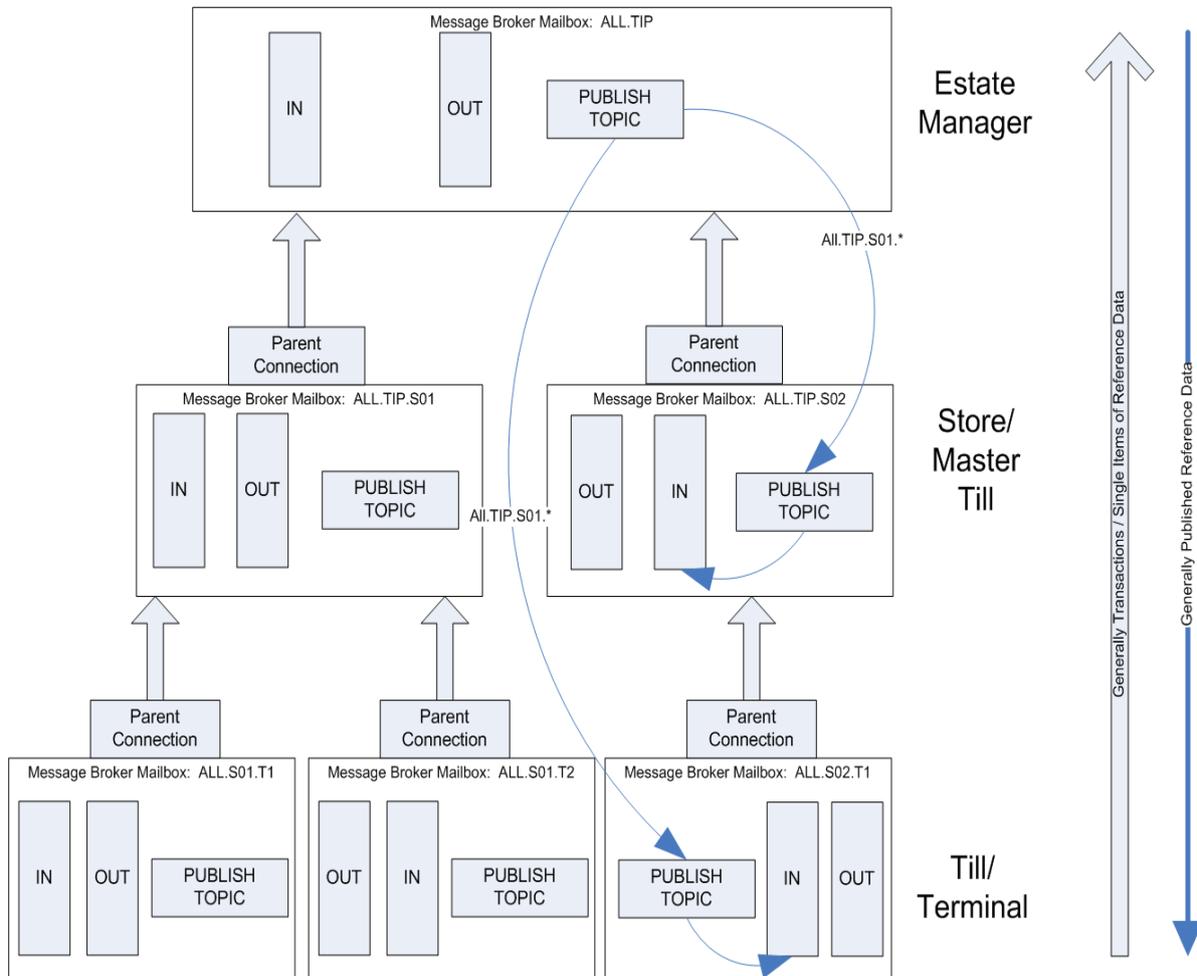


Figure 4: Message Broker Routing

Taking the Estate Manager as the top of the route; this mailbox has no direct routing information since it has no parent.

The Estate Manager uses its Device ID as a mailbox address for example, ALL.TIP.

A store might have the mailbox address of ALL.TIP.S01 and a connection string defining the connection to the local broker. The routing also loads the parent MailboxRoute allowing the local broker to connect with its parent.

This approach allows for persistence across the network since all messages to be delivered up the chain will be queued until the parent message broker becomes available. No broker is aware of its child brokers until that child makes a connection. If a parent becomes unavailable message delivery will cease and all messages will queue until the parent connection becomes available again.

The delivery method to children is via topics which require no direct connection.

The routing for all devices defines the parent connection of the current mailbox.

It is possible to define a connection string to a broker outside the Retail-J engine which will receive the raw messages after they have been processed by the Estate Manager.

The routing for all devices defines the parent connection of the current mailbox.

5.8 Batch Processing

Batch processing is defined by the prefetch limit. This throttles the delivery of messages to that defined in the MessageBrokerConfig.

The limits are defined separately on the IN and OUT queues and the PUBLISH topic.
 A future enhancement will be limits configurable by individual brokers.

5.9 Message Broker Configuration

Message Brokers are configured from Administration > Messaging > Message Broker.

Field	Value
ID	MyBroker
Type	Active MQ
Description	My Test MQ 2
IP Address	localhost
Port	61616
Failover IP Address	localhost
Failover Port	61619
Allow JMX Monitoring	<input type="checkbox"/>
Persistent	<input checked="" type="checkbox"/>
IN Queue Limit	1
OUT Queue Limit	1
Topic Limit	1
Advisory Support	<input type="checkbox"/>
BackOffice Auto Start	<input checked="" type="checkbox"/>
POS Auto Start	<input checked="" type="checkbox"/>
Mailbox Routing	

Field	Description
IP Address	This is the address of the host upon which the broker is to be run. It is possible to run all brokers on a single remote host using network connections to post and listen to the queues managed by each broker. Due to the persistence mechanism this will only be desirable in a limited number of cases.
Port	The TCP port upon which the message broker will be listening.
Failover IP Address	The address of an alternate broker to which messages are routed if the primary message broker is unavailable.
Failover Port	The TCP of the failover message broker service.
Allow JMX Monitoring	All message brokers support some level of JMX monitoring and this flag indicates that JMX monitoring messages will be produced to allow direct JMX monitoring of the queues managed by the messages broker. The port that this will run on defaults to 1099 when left blank. Ports can vary between 1100 and 7000 since these are outside the range of commonly used ports.
Persistent	This flag defines whether broker managed persistence is enabled or not. If persistence is not managed by the broker then the messages should also be written to the database as part of the broadcasting process. It is recommend that broker managed persistence is left enabled.

IN Queue Limit	This property defines the number of messages that may be submitted to the IN queue before they are delivered.
Out Queue Limit	This property defines the number of messages that may be submitted to the OUT queue before they are delivered.
Topic Limit	This property defines the number of messages that may be submitted to the PUBLISH Topic before they are delivered.
Advisory Support	This flag controls advisory messages between networks of brokers. Caution should be used when disabling this since the meaning of "Advisory Support" varies between brokers. Advisory Support creates topics pertaining to the status of queues and topics. Support messages are generated when queues and topics are started or stopped.
Back Office Start-up	The message broker will start as part of the back office servlet start-up.
POS Start-up	The message broker will start as part of the POSApplication start-up.

The last two options are for controlling when the broker will start and create the default set of queues

As part of the process start-up the message broker is created based on the configuration held within the Message Broker Configuration Maintenance section if, and only if, the Back Office autostart is enabled. If no configuration exists, it is assumed that default messaging will be used for backward compatibility.

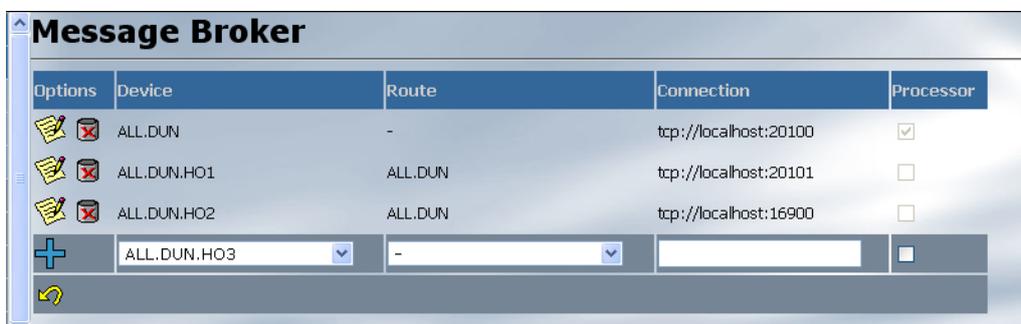
5.10 Database

This Messaging subsystem uses the MessageBrokerConfigs and Message tables. The legacy Receipts table is not used.

5.11 Message Routing

The message routing is a simple mechanism to permit the broker to define the local connection upon which the broker is to be created. The route is the device on which the parent broker resides. It is not required that a parent broker be running for a connection to be made. This connection will remain inactive until the parent broker is started.

Message Routing is configured using the following screen:



A check box allows you to configure which routes are processing routes. If a route is marked as a non processing route and messages are detected entering the IN queue, they are submitted directly to the OUT queue where they are processed to identify their next routed node.

6. Custom Report Definition and Report Export

This section shows you how to:

- Create a custom report definition
- Create a predefined report type
- Run/schedule a predefined report
- Export a predefined report

6.1 Example Details

The example used in this report definition uses the following specification:

ID	2010
Name	Demo: Daily Net Sales by Salesperson
Content	<ul style="list-style-type: none"> ■ The Salesperson Name and Salesperson ID ■ The Transaction Number ■ The Sale Amount for each item sold and assigned to the Salesperson ■ The Return Amount for each item returned where the original transaction links the returned item to the Salesperson ■ The combined net value of sales and returns for each transaction and the total amount per Salesperson combining all transactions ■ Ignore items returned without an original receipt
Data to be extracted	<ul style="list-style-type: none"> ■ Sales Items (Item Type 1) ■ Return Items (Item Type 3) ■ A combined Net Value ■ Transaction ID ■ Salesperson ID ■ Exclude non-receipted returns
SQL	<pre> select Date_Time_Created, Terminal_ID, Transaction_ID, Salesperson_ID, First_name, Last_name, Net_Sales_Value, Net>Returns_Value, (Net_Sales_Value + Net>Returns_Value) as Net_Value, Item_Type from ReportItems Left Join Users on ReportItems.Salesperson_ID = Users.ID where DateDiff(yyyy, Date_Time_Created, {TransactionDate})=0 and DateDiff(mm, Date_Time_Created, {TransactionDate})=0 and DateDiff(dd, Date_Time_Created, {TransactionDate})=0 and (Item_Type = '1' OR (Item_Type = '3' AND Original_Store_ID != '')) and Store_ID = '{StoreID}'; </pre>

6.2 Report Definition

You can define a new report from Data Maintenance > Reports > Report Definition Maintenance.

Predefined reports can be specified in various formats. CSV reports are the most likely option for use by the report exporter.

Report Definition Maintenance

Report Definition Maintenance will allow you to view, edit, remove and create the definitions of reports so as to make new reports available or change the behavior of existing reports.

Select Definition Set:

Select Report Type:

All existing report definitions for definition set "DEFAULT" are shown below.

Options	ID	Description	Report Group	Report Type
+				

Copy Report Definition Set →

- 1) Create a new report by clicking the Add icon.
 - 2) Type a unique ID
- Note:** IDs between 1 and 2000 are reserved for standard report definitions.
- 3) Select the Report Type (in this case CSV Report) and click the Next icon.

Report Definition Maintenance

Please enter a unique ID for the new report definition and click Next.

New ID	Report Type
<input type="text" value="2010"/>	<input type="text" value="CSV Report"/>

↶ →

The Report Definition Maintenance screen for your new report ID is displayed:

Report Definition Maintenance

You are editing report definition 2010.

Field	Value
ID	<input type="text" value="2010"/>
Definition Set	<input type="text" value="DEFAULT"/>
Type	<input type="text" value="CSV Report"/>
Description	<input type="text" value="Demo: Daily Net Sales by Salesperson"/>
Report Group	<input type="text" value="Operational"/>
Granularity Report	<input type="checkbox"/>
Can Save To File	<input checked="" type="checkbox"/>
Output Data Only	<input type="checkbox"/>
Use As Embedded	<input type="checkbox"/>
Hide Footer	<input type="checkbox"/>

The available fields are described in the table below.

Field	Description
ID	The ID of the report definition.
Definition Set	The set to which the report definition belongs.

Field	Description
Type	One from HTML, PDF, CSV, Text and POS Printer.
Description	Up to 30 characters of description.
Report Group	Group from which the report can be selected, for example Operational.
Granularity Report	If ticked, the System Administrator can select how detailed the report is to be, for example by hour, by day or by month. Relevant data needs to be retrieved by the SQL Statement or Java class used by the report.
Can Save To File	Allows the user to click an icon to save the data to a local hard drive.
Output Data Only	When checked, will omit report header information from the displayed results.
Use As Embedded	Future Use
Hide Footer	Future Use

6.2.1 Data Table

- 1) Type a unique Table Format ID and create a new Table Format, selecting Data Table to identify the Columns in a report and click the Add icon.
- 2) Type a Name for the TransData table and check Don't Display so that it doesn't show in the report.

The first Column in the example is the Salesperson ID. This will also be used to Group the data when the report is run

- 3) Type a unique ID without spaces that will indicate what is contained in the column as well as a description and click the + icon.

The description will be used in the Column header

- 4) Type the Database Column name.

The database table is not needed unless it is not from the current Retail-J database.

- 5) If required, type the Data Substitution Type from Product Description, Department Description, Reason description and Range Description.

Where this is selected, an ID will be replaced by the relevant description.

- 6) Keep Totals is checked for Currency Types that you wish to see totalled at the bottom of the column.

In this case, the report is designed for export and totals are not required.

- 7) Check Visible if you want this data to appear in the report.
- 8) Width identifies the number of characters that this column should take up.

For other report types, for example HTML, this field is defined as a % width.

- 9) Select how the field should be formatted in the column (for example string).
- 10) Select the required alignment and Save.

- 11) Repeat the Column setup for all columns.

For First Name and Last Name, we will only be using them in the Grouping line and therefore aren't visible in the actual report columns.

- 12) With all of the Columns defined, you can also use the up/down arrow icons to re-order their order in the report.
- 13) Establish Grouping Options for the report. In this example, we want the report to Group by Salesperson and include the Salesperson ID, and their Last and First Name.

Optional formatting steps

You would use the next few steps if your report were destined for use as a report, rather than as a data extract.

You might, for example, place dash in between the Salesperson ID and their name with the name in the format Last, First (separated by a comma)

The word "Salesperson:", the "-", comma and spaces are all considered text and will appear in the Grouping header on the report

Grouping Options	
Group By	Salesperson ID <input type="button" value="↑"/> <input type="button" value="↓"/> Group Column Description Salesperson: {DATA}
Then By	Last Name <input type="button" value="↑"/> <input type="button" value="↓"/> Group Column Description - {DATA}
Then By	First Name <input type="button" value="↑"/> <input type="button" value="↓"/> Group Column Description , {DATA}
Then By	(None) <input type="button" value="↑"/> <input type="button" value="↓"/> Group Column Description
Composite Columns	<input checked="" type="checkbox"/>

The

{DATA} entry indicates that the values in the Variables should be written after the text
Check off 'Composite Columns' if all group headings should appear in one line

- 14) Identify the SQL Statement or Java Class required to query the database. In our example, we're utilizing an SQL select statement which is pasted into the area as shown below:

Data Source Type	SQL <input type="button" value="↑"/> <input type="button" value="↓"/>
Query	SQL <input type="button" value="↑"/> <input type="button" value="↓"/> Java Class
The following variables are available: StoreID, StoreID_Description, TransactionDate, MyOptions	
<pre>select Date_Time_Created, Terminal_ID, Transaction_ID, Salesperson_ID, First_name, Last_name, Net_Sales_Value, Net_Returns_Value, (Net_Sales_Value + Net_Returns_Value) as Net_Value, Item_Type from ReportItems Left Join Users on ReportItems.Salesperson_ID = Users.ID where DateDiff/yyyy, Date_Time_Created, {TransactionDate})=0 and DateDiff/mm, Date_Time_Created, {TransactionDate})=0 and DateDiff/dd, Date_Time_Created, {TransactionDate})=0 and (Item_Type = '1' OR (Item_Type = '3' AND Original_Store_ID !=')) and Store_ID = '{StoreID}';</pre>	

- 15) Save the Table Definition.

6.2.2 Table Formats (Formatting Table)

In addition to the data table, a report format table must be specified.

- 1) Type a unique Table Format ID and create a new Table Format, selecting Formatting Table (which is used to define the required format for reports, for example column and cell sizes) and click the Add icon.

Since this example only requires only one formatting row and column (which will house the data format with multiple rows and columns), the default values of 1 are used.

Field	Value
ID	Format1
Name	Format Table
Rows	1
Columns	1
Width:	1
Span:	1
+	

- 2) Click the Add icon to add the Data Format into the Formatting Table.
- 3) Select the Data Table Type and Description and click the Next icon.
- 4) Once inserted, click the Save icon.

Width: 1
Span: 1
Transaction Data
+

- 5) Once Saved, select the Format Table as Primary

Options	ID	Type	Is Primary	Name
	TransData	Data Table	<input checked="" type="radio"/>	Transaction Data
	Format1	Formatting Table	<input type="radio"/>	Format Table

6.2.3 Report Criteria

The next step is to identify which criteria the user will select when running the report. In this example, the user can identify the Store and the Date of the Salesperson data:

- 1) Type the first variable: StoreID with a variable type of Data Source List.
- 2) The Data Source List allows the selection from a list of available data sources that already exist in Retail-J
- 3) Type a Name to identify the variable ID in more detail
- 4) Type a Header for this report criteria.
- 5) Check off "Is visible" so that the criteria is available to the user.
- 6) Check of "Is Editable" so that the user can change/select a value.

Refresh on Change can be selected if other fields may change depending on this selection (that is, a different store selection may have a different list of Terminal IDs).

The Visibility Parent Name can be used to identify a parent variable ID. If this variable has a parent, it can be initially hidden and only become visible when the Visibility Parent has the given value.

- 7) Set the field width.
- 8) Type any default value (use – for All).
- 9) Select the List Type from the drop down. In this case, we select Store.
- 10) Check off 'Use – as value for All' so that no selection, or the default of '-' shows All Stores.
- 11) Save the Report Criteria.
- 12) Continue entering Report Criteria as needed.
- 13) Select the appropriate Criteria Type for each.
- 14) Add a Date field as part of the Report Criteria:

Although not needed for this example, you can identify User Defined options that can be used in the Data lookup code.

- 15) For the sake of the example, we will add some options, but they will have no bearing on the results since they are not part of our example SQL statement:
- 16) Once all Report Criteria are entered, they can be adjusted by clicking on the up/down arrows.
- 17) When complete, click the Save icon.

6.3 Predefined Reports

Multiple Predefined Reports can be setup against the same Report Definition in case you needed to create some with Report Criteria already defined and some without. In our example, we will create one that has no predefined Report Criteria selected, and allows the user to define this information when running the report.

Any operational or audit report can be set up as a predefined report.

An automatic report consists of one or more predefined reports.

A predefined report needs to be set up before running an automatic report.

Reports can be set up to run automatically at set times. They can be run hourly, daily, weekly, monthly or as a one-off.

Criteria for automatic reports can be configured and are configured against each predefined report.

To configure a Predefined Report:

- 1) Navigate to Data Maintenance > Reports > Predefined Reports
- 2) Click add.

- 3) Type a unique ID and select User Defined Report from the dropdown.
- 4) Click the Next icon.
- 5) Type a Description for the Predefined Report.
- 6) Select the Report Definition ID that we created in the previous steps.
- 7) Enter a Function Authorisation Code if required (this can be used to limit access to the report).
- 8) Select Show criteria when running report manually.

Leave this unchecked only if you define the report criteria as part of the Predefined Report setup and don't want the User to change the values.

Optionally, Permitted Run Times can be set to limit the days and time of day that the report can be run.

- 9) Click Edit Report Criteria. It can be left as is, but needs to be saved in order to run the Predefined Report.

If you did not select “Show criteria when running report manually”, you will want to Edit Report Criteria.

In this example, we are not defining Report Criteria in advance and allowing the user to make these selections. Click next to save at the warning message for No Report Criteria Defined.

10) Optionally, edit the report criteria and click the Save icon.

6.3.1 Running the Report

- 1) Navigate to Data Maintenance > Reports > Predefined Reports
- 2) Click the Run icon.

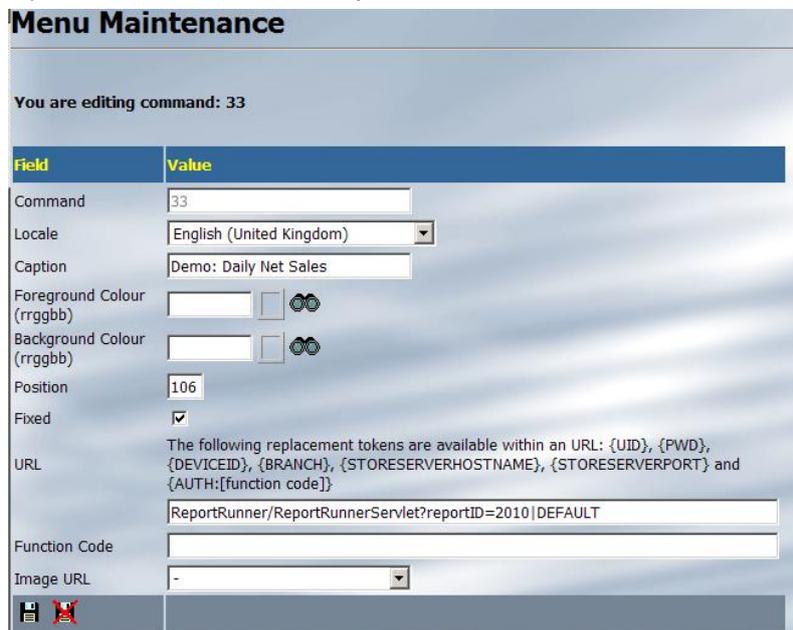
Optionally, you can assign the report to a menu item that can be accessed from the Operational Report section in Operations > Reports

To assign the report to a menu item:

- 1) Go to General > Menus > Menu Maintenance.
- 2) Select the BackOffice menu set for editing.
- 3) Expand the Home folder at the top of the page.
- 4) Expand the Operations folder.
- 5) Expand the Reports folder.
- 6) Expand the Operational Reports Folder.
- 7) Click the Add icon.
- 8) Enter a unique ID for the new command and click the Next icon.

The Menu Maintenance page for the new command is displayed.

- 9) Assign the URL as `ReportRunner/ReportRunnerServlet?reportID=2010|DEFAULT` where '2010' represents the Predefined Report ID.



Field	Value
Command	33
Locale	English (United Kingdom)
Caption	Demo: Daily Net Sales
Foreground Colour (rrggb)	<input type="text"/> <input type="button" value="OK"/>
Background Colour (rrggb)	<input type="text"/> <input type="button" value="OK"/>
Position	106
Fixed	<input checked="" type="checkbox"/>
URL	ReportRunner/ReportRunnerServlet?reportID=2010 DEFAULT <small>The following replacement tokens are available within an URL: {UID}, {PWD}, {DEVICEID}, {BRANCH}, {STORESERVERHOSTNAME}, {STORESERVERPORT} and {AUTH:[function code]}</small>
Function Code	<input type="text"/>
Image URL	-

6.4 Predefined Report Exporter

You can select the predefined reports that will be exported from Data Maintenance > Reports > Predefined Report Export.

Predefined Report Export Maintenance

You are editing report export 2010.

Field	Value
ID	2010
Description	Demo: Daily Net Sales
Location Type	Office
Location Profile	All
Location	<input type="text"/> TIP
Predefined Report	User Defined Report - test
Output Type	CSV
Include Header	<input type="checkbox"/>
Delimiter	,
Export Type	Save To File
Export Path	<input type="text"/>
Schedule Type	Daily
Run Time (hh:mm)	<input type="text"/>

You can configure the export as follows:

Field	Description
ID	Your report ID
Description	Your report description
Location Type, Location Profile, Location	The Location Type, Location Profile & Location drop down are standard selections.
Output Type	CSV, Batched XML, Individual XML (subsequent options differ according to your selection of CSV or XML)
CSV Options	The Include Header Row flag causes column headers to be written as the first line in the output file. The delimiter value is the character used to separate the columns on each line in the output file. The default delimiter is a comma.
Batched XML	Batched XML returns multiple rows to a single file. The Batch Root Element is the XML document root node which is used to wrap the 'per row' XML documents in a single file. The Max Batch Size configuration option determines the maximum number of 'per row' XML documents that can be added to a single batched document.
Individual XML	If the Individual XML option is selected, then for each row a new file is exported.
XML Template	The XML Template configuration option points to the XML template file used to create the XML documents.
Export Type	Save to file (when chosen, an Export Directory field is also visible). Send to Web Service (when chosen, Operation Name , Username and Password fields are visible).
Schedule Type	One Off - run the export once at a specific date and time.
	Hourly - run the export every hour from the start time until the end time.
	Daily - run the export at the same time every day.
	Weekly - run weekly on this day at that time

Field	Description
	Monthly - run monthly on this day of the month at this time.
	Timetable - allows one or more times to be selected per day based on the day of week.

6.4.1 Export Process

Remember, the Predefined Report Exporter process runs the report export and must be selected and configured.

7. Creating a Configurable Prompt

Workflow enables you to build a sequence of messages, choices and data input forms at the POS.

Some prompts are predefined and some are configurable. The following types of prompt can be configured for use in a workflow sequence.

- Configurable Customer Prompt
- Configurable Name and Address Prompt
- Customer Survey

A prompt workflow sequence is built using the following components:

Element	Description
Message prompts	A short message; "Have you found everything you wanted?"
Dummy actions	Where there is no event, such as clicking a choice button, that causes a transition from one state to the next, a dummy action is used to join one state to another. For example, clearing a message prompt might take you to the next state as defined by a dummy action.
Form prompts	A form made of input fields and Yes/No type questions; used for example to capture customer name and address. Form prompts can be supported by address and customer lookup from partial information. Country specific forms are provided for Customer Address Details. To use this feature, part of the workflow must be a choice prompt to select the country. This will take you to the correct form for that country.
Choice prompts	The introduction to a number of selections; for example "Why have you bought this gift?".
Choice actions	The selections introduced by the choice prompt above; for example: "Wedding"; "Birthday"; "Festival" and so on.

You can create a sequence of form based prompts that capture information and you can create choices which will determine which information is captured for a particular situation.

If customer details are captured via customer prompts during a transaction, any subsequent command within the transaction that requires the capture of customer details, for example returns, discounts, account debits and credits, and so on will use the previously captured details.

Here is a simple example workflow using some of the above elements.

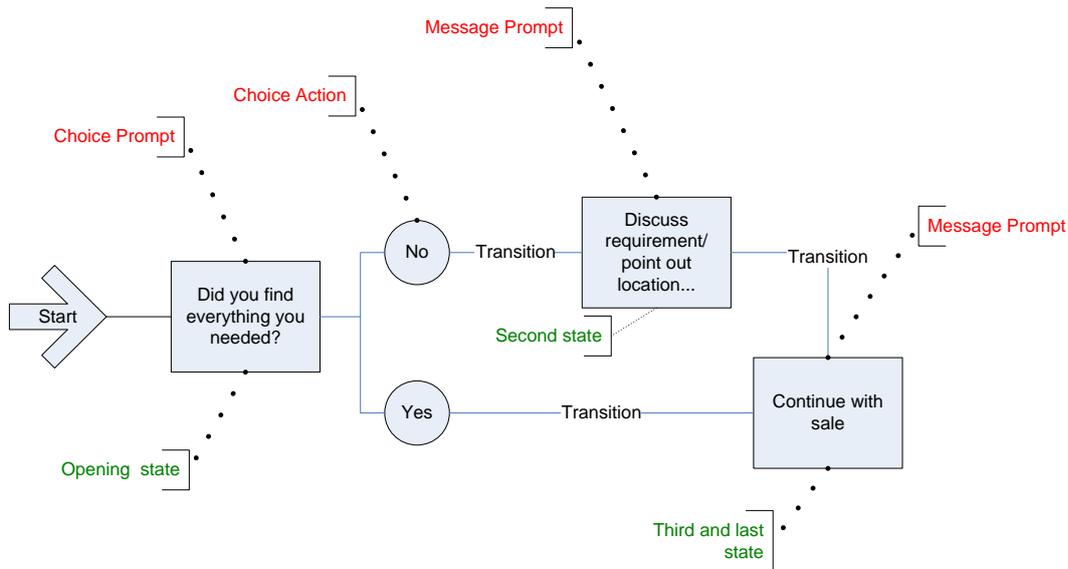
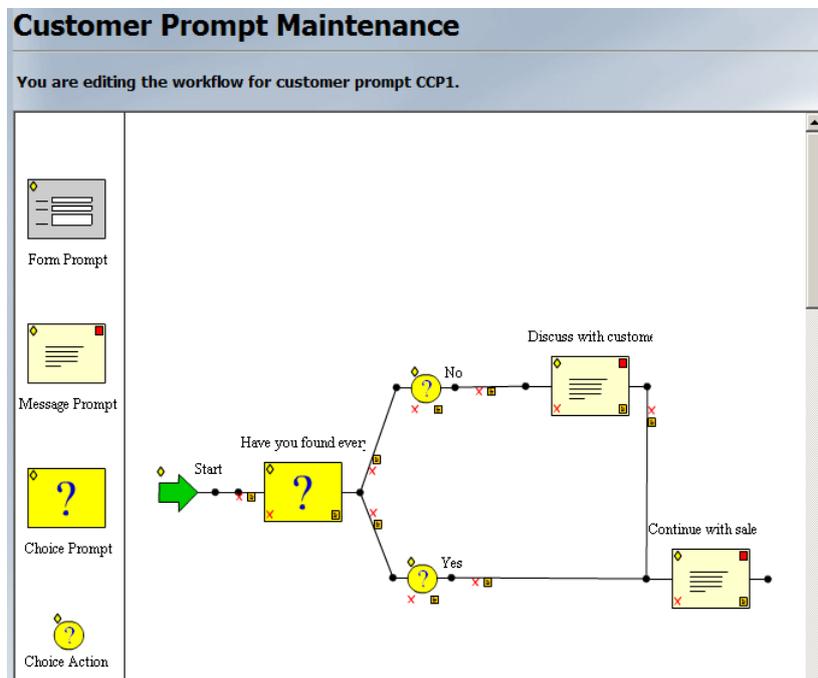


Figure 5: Example Customer Prompt Workflow

In this example, on selecting a POS customer prompt menu option, the POS operator is prompted to ask the customer if they found everything they needed in the store. This question results in a positive or negative response from the customer. If the customer found everything they needed, the operator clicks 'Yes' and is instructed to continue with the sale. If the customer replies in the negative, the operator is instructed to discuss the customer's requirements in more detail. Following the discussion, the operator continues with the sale.

From a workflow perspective, the first question is called a choice prompt. The prompt represents a workflow state. Two choice actions have been specified as "Yes" and "No". "Yes" takes you to a second state in which a message prompt is displayed. "No" takes the operator to the final state, to another message prompt, from which the operator continues with the sale transaction. In workflow terminology, actions trigger events, in this case the events are transitions from one state to the next.

The following screen shows the same workflow once it has been configured in the system.



The application offers a graphic workbench as well as field based configuration. Initially, it is recommended that you define your workflow outside the system; enter the workflow components one-by-one and then use the graphic workbench for visualisation and fine tuning.



The workflow graphic workbench can be selected where you see this icon:

There is also a graphical workbench for form layout design. In this case there is no corresponding field based configuration.

You will need Adobe Flash in your environment to use workflow.

7.1 Designing a Prompt Workflow

An outline design for the prompt workflow example illustrated above looks like this:

Prompt ID: CCP1 (Hello Customer)				
State	Example Name	Description	Actions	Next State
Choice 1	ChoiceState1	Have you found everything you need?	Yes	Message Prompt 2
			No	Message Prompt 1
Message Prompt 1	MP1	Discuss with customer	Dummy Action 1	Message Prompt 2
Message Prompt 2	MP2	Continue with sale	None	None

To convert the design into a workflow configuration, you need to:

- Define the configurable customer prompt and its attributes
- Define the states (choices, forms and messages) that make up the workflow
- Define the actions and events that join one state to another
- Configure the POS to use the customer prompt. Customer prompts can be attached to transaction types but in this case we will set up a menu command at the POS that invokes the customer prompt workflow from a button captioned "Hello Customer".

7.2 Defining the Configurable Customer Prompt

To define the configurable customer prompt and its attributes:

- Select Data Maintenance > Workflow > Customer Prompt

The Customer Prompt Maintenance screen is displayed.

Customer Prompt Maintenance

Customer Prompt Maintenance will allow you to view, edit, create and remove customer prompts.

Trading Region:	United Kingdom
Location Region:	All Regions
Location Type:	All Types
Type:	All
Status:	Enabled
Transaction Type:	All
Start Date:	25/05/09
End Date:	
Apply Filter	

All existing customer prompts which meet the criteria are shown below.

	Options	ID	Description	Type	Status	Location Region	Location Type	Transaction Type
		CCP1	Have you found everything you need?	Configurable Customer Prompt	Enabled	All Regions	All Types	-

+

- Use the filters to locate an existing customer prompt or click the Add icon to create a new prompt.

The Customer Prompt Maintenance page is displayed.

Customer Prompt Maintenance

You are editing customer prompt CCP1.

Field	Value
ID	CCP1
Trading Region	United Kingdom
Description	Have you found everthing you need?
Location Region	All Regions
Location Type	All Types
Status	Enabled
Priority	1
Transaction Type	Sale
Start Date	25/05/09 (dd/mm/yy)
End Date	(dd/mm/yy)

Timetable

Day	00:01	00:00	00:00	00:00	(hh:mm)
Sunday	00:01	00:00	00:00	00:00	(hh:mm)
Copy Times					
Monday	00:01	00:00	00:00	00:00	(hh:mm)
Tuesday	00:01	00:00	00:00	00:00	(hh:mm)
Wednesday	00:01	00:00	00:00	00:00	(hh:mm)
Thursday	00:01	00:00	00:00	00:00	(hh:mm)
Friday	00:01	00:00	00:00	00:00	(hh:mm)
Saturday	00:01	00:00	00:00	00:00	(hh:mm)

- Edit Locations →
- Edit Devices →
- Edit Customer Classifications →
- Edit Workflow →

- Enter the Field and Timetable settings.
- Select Edit Locations.

The Customer Prompt Maintenance – Edit Locations screen is displayed.

Customer Prompt Maintenance

You are editing locations for customer prompt 2010.

Options	Location
<input checked="" type="checkbox"/>	UK Store

- Edit the locations in which the prompt should appear.
- Select Edit Devices.

The Customer Prompt Maintenance – Edit Devices screen is displayed.

Customer Prompt Maintenance

You are editing devices for customer prompt 2010.

Options	Device
<input checked="" type="checkbox"/>	ALL.TIP.S01.T1
<input type="checkbox"/>	ALL.TIP.S01

- 7) Select the devices on which the prompt will be displayed.
- 8) Click the Back icon.

You are returned to the main Customer Prompt Maintenance screen.

- 9) Save your changes.

At this point you have configured the attributes of your customer prompt. The next stage is to add the states (choices, forms and messages) that make up the workflow

7.3 Defining States (Choices, Forms and Messages)

Workflow states are made up of Choice Prompts, Form Prompts or Message Prompts.

- 1) To define workflow states, from the main Customer Prompt Maintenance screen select Edit Workflow.

Customer Prompt Maintenance

You are editing the activity for customer prompt CCP1.

Field	Value
Name	CCP1
Description	Have you found everthing you need?
Plugin Class Name	

States			
Options	Name	Description	Start Point
	ChoiceState1	Have you found everything you need?	<input checked="" type="radio"/>
	MP1	Discuss with customer	<input type="radio"/>
	MP2	Continue with sale	<input type="radio"/>

Buttons:

You can see the 3 states noted in the example have already been set up.

Note the Start Point check box which defines the start of the workflow.

In some cases, where there has been additional development, you may need to add a Plugin Class Name.

- 2) To add a new state, click the Add icon.

The Customer Prompt Maintenance Application State screen is displayed.

Customer Prompt Maintenance

Please enter a unique name for the application state and click Next.

Name	Type
My test	Form Prompt

Buttons:

Dropdown menu options: Form Prompt, Choice Prompt, Message Prompt

- 3) Type a unique name for the application state, choose a type of prompt and click the Next icon. The content of the next screen depends on the type of prompt that you have chosen, that is:

- Choice Prompt
- Message Prompt
- Form Prompt

The Form Prompt is not used in the example and not covered in this section.

7.3.1 Choice Prompt and Choice Prompt Actions

The first state in the example is a choice prompt. For a choice prompt you need to create an action for each choice you specify. In the example, the choices are Yes and No. This requires two corresponding actions be set up.

For each action, you need to specify a next state representing the next step in the workflow if that action is selected.

Customer Prompt Maintenance

You are editing application state My test in customer prompt CCP1.

Field	Value
Name	My test
Description	Is this the question?
Plugin Class Name	

Options	Name	Event Name	Description

Icons: +, Save, Delete

- 1) Type a description – this becomes the text of the prompt.
- 2) For each choice you need to create an Action. To create an Action, click the Add icon.

The Customer Prompt Maintenance Application Action screen is displayed.

Customer Prompt Maintenance

Please enter a unique name for the application action and click Next.

Name	Type
Yes	Choice Action

Icons: Undo, Next

- 3) Type a name for the action and click the Next icon.

The Customer Prompt Maintenance Application Action detail screen is displayed.

Customer Prompt Maintenance

You are editing application action Yes in state My test in customer prompt CCP1.

Field	Value
Name	Yes
Event Name	Yes
Description	Yes
Next State Name	MP2
Plugin Class Name	

Icons: Save, Delete

- 4) Complete the Event Name, Description and Next State Name fields. For a custom development, you may also enter a Plugin Class Name.
- 5) Click on the Save icon.

You are returned to the Customer Prompt Maintenance Application State screen. From here you can add further Choice Prompt Actions. In the example, you would add a “No” Choice Prompt Action.

Customer Prompt Maintenance

You are editing application state My test in customer prompt CCP1.

Field	Value
Name	My test
Description	Is this the question?
Plugin Class Name	

Actions

Options	Name	Event Name	Description
 	Yes	Yes	Yes
			
 			

Whenever you add to or modify a workflow, you need to save your changes at every level, back up to the Customer Prompt Maintenance screen.

7.3.2 Message Prompt and Dummy Action

The second and third states in the example are message prompts. A message prompt is connected to the next state in the workflow by a dummy action.

Customer Prompt Maintenance

You are editing application state M3 in customer prompt CCP1.

Field	Value
Name	M3
Description	This is the third message
Plugin Class Name	

Actions

Options	Name	Event Name	Description
			
 			

- 1) Type a description – this becomes the text of the prompt.
- 2) To move to another state in the workflow you need to create an Action. To create an Action, click the Add icon.

The Customer Prompt Maintenance Application Action screen is displayed.

Customer Prompt Maintenance

Please enter a unique name for the application action and click Next.

Name	Type
DA3	Dummy Action
 	

- 3) Type a name for the action and click the Next icon.

The Customer Prompt Maintenance Application Action detail screen is displayed.

Customer Prompt Maintenance

You are editing application action DA3 in state M3 in customer prompt CCP1.

Field	Value
Name	DA3
Event Name	Dummy Action 3
Description	Transition to M4
Next State Name	M4
Plugin Class Name	

4) Complete the Event Name, Description and Next State Name fields. For a custom development, you may also enter a Plugin Class Name.

5) Click on the Save icon.

You are returned to the Customer Prompt Maintenance Application State screen. From here you can add further Choice Prompt Actions.

Customer Prompt Maintenance

You are editing application state M3 in customer prompt CCP1.

Field	Value
Name	M3
Description	This is the third message
Plugin Class Name	

Actions

Options	Name	Event Name	Description
 	DA3	Dummy Action 3	Transition to M4

Whenever you add to or modify a workflow, you need to save your changes at every level, back up to the Customer Prompt Maintenance screen.

7.4 POS Menu Configuration

In the example, the customer prompt workflow is invoked from a menu button at the POS.

1) To configure this menu button, select Data Maintenance > General > Menus

The Menu Maintenance screen is displayed.

Menu Maintenance

Menu Maintenance will allow you to view, edit, remove and create menus.

All existing menu sets are shown below.

Options	ID	Description
	iPOS	iPOS
	Config	Config
	ConfigAUT	ConfigAUT
	ConfigUS	ConfigUS
	Default	Default
	Palm	Palm
	Restaurant	Restaurant
	Coalition	Coalition
	BackOffice	BackOffice
	UserBackOffice	UserBackOffice

2) Select a menu set for editing.

In this case, the Default menu set is chosen.

Menu Maintenance

Menu Maintenance will allow you to view, edit, remove and create menus and commands. Use the tree to navigate the menu hierarchy.

Current Menu: Default -

- All Menu
 - Cash Management
 - Collect Sale Menu
 - Customer Details Capture Menu
 - Dispatch Menu
 - Flight Menu
 - Home Delivery Return Menu
 - Layaway Menu
 - Manager
 - Non Sale Menu
 - Offline Sale Menu
 - Order Menu
 - Product Wastage Menu
 - Quote Menu
 - Recall Menu
 - Return To POS Menu
 - Return Menu
 - Sale Menu
 - Store Menu
 - Telephone Sale Menu
 - Tender Menu
 - Transaction Type Menu
 - Void Menu
 - Sign On Menu
 - View Basket Menu

3) Expand the relevant menu folder.

In this case, the Sales Menu folder has been expanded.

Sales contains the following sub-menus and commands:

Options	Type	Position	Description
	Command	1	Product Sale
	Command	2	MMG Sale
	Command	3	Non Merch
	Command	4	Gift Voucher
	Command	5	Product Search
	Command	6	No Sale
	Menu	7	More
	Command	Max	Back
	Menu		
	Command		
	Menu Link		

4) To add the customer prompt to the menu, click on the Add Command icon. The Menu Maintenance Add ID for New Command screen is displayed.

5) From the drop down list select Customer Prompt and click the Next icon. The Menu Maintenance Editing Command screen is displayed.

Menu Maintenance

You are editing command: CustomerPrompt

Field	Value
Command	CustomerPrompt
Locale	English (United Kingdom)
Caption	Hello Customer
Foreground Colour (rrggb)	<input type="text"/> <input type="text"/> <input type="text"/>
Background Colour (rrggb)	<input type="text"/> <input type="text"/> <input type="text"/>
Position	3
Fixed	<input checked="" type="checkbox"/>
Customer Prompt	Have you found everything you need?
Function Code	<input type="text"/>
Image URL	-
Context Help URL	<input type="text"/>

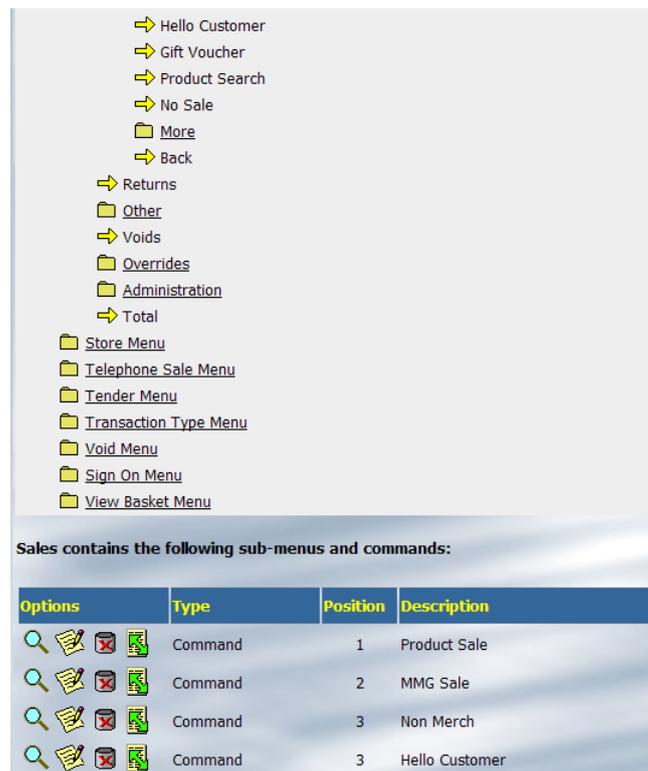
 

- 6) Select the customer prompt from the drop down list of available prompts. In this case the prompt is called "Have you found everything you need".
- 7) Type a Caption for the menu button. In this case, "Hello Customer"
- 8) Complete any of the remaining fields as required then press the Save icon.

Take care that the position of the button does not drop it below the visible area of the screen.

You are returned to the main Menu Maintenance screen.

Note the addition of the Hello Customer menu command at position 3.



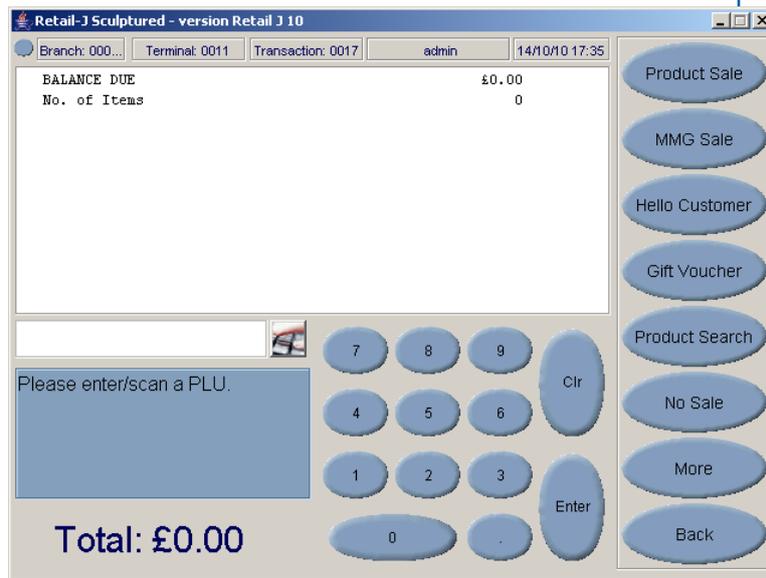
Menu items list:

- Hello Customer
- Gift Voucher
- Product Search
- No Sale
- More
- Back
- Returns
- Other
- Voids
- Overrides
- Administration
- Total
- Store Menu
- Telephone Sale Menu
- Tender Menu
- Transaction Type Menu
- Void Menu
- Sign On Menu
- View Basket Menu

Sales contains the following sub-menus and commands:

Options	Type	Position	Description
   	Command	1	Product Sale
   	Command	2	MMG Sale
   	Command	3	Non Merch
   	Command	3	Hello Customer

- 9) Finally, start the POS and view the Customer Prompt.

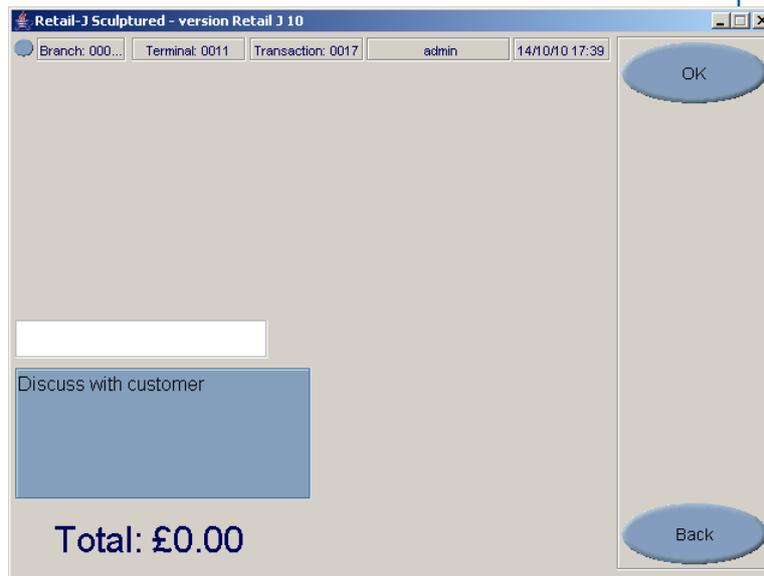


Note the Hello Customer menu button.

10) Click the button and the defined choice prompt is displayed.



11) Click the No button and the "Discuss with Customer" message is displayed.



12) Click OK and the “Continue with Sale” message is displayed.



13) Click OK and you are returned to the Sales menu.



8. KPI Configuration

Key Performance Indicators (KPIs) are quantifiable measurements, agreed to beforehand, that reflect the critical success factors of an organisation.

Within Retail-J, KPIs can be individually configured for every store and every employee.

Available KPIs include selectable MMG sales or quantities, selectable product sales and quantities and selectable tenders.

KPIs have been used in a number of ways (according to configuration) including:

- Commission calculation
- Employee targets achievement

KPIs are configured into the system with a maintenance page that specifies which departments and/or products go to make up which KPI figure. Figures can also be specified by tender.

The screen below shows two KPI categories, one set up against products (in this case product value) and one set up against tenders (for example cash, credit card, debit card, gift voucher).



Options	ID	KPI Category Type	Description	KPI Type	Start Date	End Date
  	KPI01	Product	Product Value KPI	Value	01/01/10	01/01/12
  	KPI01	Tender	Tender Value KPI	Value	01/01/10	01/01/12

KPI categories (for products) are maintained using the following maintenance page:

KPI Category Maintenance

You are editing KPI category: KPI01

Options	Field	Value
	ID	KPI01
	KPI Category Type	Product
	Locale	English (United Kingdom)
	Description	Product Value KPI
	KPI Type	Value
	Start Date	01/01/10 (dd/mm/yy)
	End Date	01/01/12 (dd/mm/yy)
Applicability		<input checked="" type="checkbox"/> Commissions
		<input checked="" type="checkbox"/> Employee Targets
		<input type="checkbox"/> Employee Performance Monitor
		<input checked="" type="checkbox"/> KPI Reporting
Item Type		<input type="radio"/> Sales Only <input type="radio"/> Returns Only <input checked="" type="radio"/> Both
	Include Tax	<input checked="" type="checkbox"/>

Included MM Groups

<input checked="" type="checkbox"/>	1	Config
<input checked="" type="checkbox"/>	2	Hospitality
<input checked="" type="checkbox"/>	3	Phones
<input type="checkbox"/>		

Excluded MM Groups

<input type="checkbox"/>		
<input type="checkbox"/>		

Included Product Groups

<input type="checkbox"/>		
<input type="checkbox"/>		

Excluded Product Groups

<input type="checkbox"/>		
<input type="checkbox"/>		

Included Products

<input type="checkbox"/>		
<input type="checkbox"/>		

Excluded Products

<input type="checkbox"/>		
<input type="checkbox"/>		

8.1 KPI and Commissions

The system operates by first breaking down sales and returns of products into particular KPIs. KPI totals are maintained by transaction processing for both employee and store by each of the KPI categories. Both employee and store totals are calculated so as to allow for both employee based and store based commission strategies.

The inputs to the Retail-J commissions system are:

- Employee sales data by commission category by location by day
- Total store sales by day
- Employee hours worked by location by day

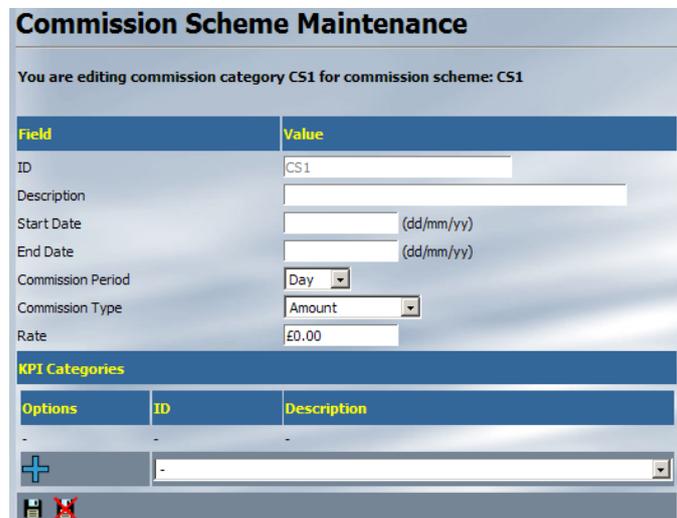
The outputs are:

- Employee monthly commission

- Total store monthly commission

8.1.1 Employee Commission Rate Configuration

Not all KPI figures go to make up the commission calculation. Some are for information only. A maintenance page specifies employee commission rate configuration and identifies which of the KPIs are used for commission calculation purposes.



The rate associated with each commission category can be:

- an amount of money for each KPI unit
- a % for a value based KPI
- a target value
- a target quantity

8.1.2 Commission Calculation

Commission owing is calculated by looking at the KPI values by employee, the KPI values by store, the commission rates and the hours worked by employee. Each time it runs it updates two sets of totals: employee commission payments and location commission payments. The commission calculation calculates values for either a specific employee or all employees, a specific location or all locations and for specified dates.

The KPI values that are calculated can be manually edited in case of issues with the store systems.

Once commission has been calculated and approved for a store, or individual employee, then the commission payment details are flagged as approved and can no longer be adjusted. The related KPI figures are also flagged as approved at the same time.

8.1.3 Commission Adjustment

The commission calculated for the store and employees can be adjusted by recording the amount and reason code together with any notes.

The reason code type, "Commission Adjustments", is used. This has to be selected when making any manual adjustments to employee or location commission payments.

8.1.4 Employee Monthly Commission Summary

The Employee Monthly Commission Summary shows the commission on the month to date and last month's commission for all locations at which the employee has worked together with any adjustment details. This report is available in the store and at Head Office.

8.1.5 Location Monthly Commission Summary

The Location Monthly Commission Summary shows the same as the above report but for the location (store). It also shows each of the commission rates that are referred to in the commission scheme and the total earned by each rate by the location for the month.

8.1.6 Cross-Store Commission

If a store refunds an item which was originally purchased in another store, the system removes the commission from the store refunding the item.

If an employee works at a store which is different to his/her base store, the commission is allocated to the base store.

8.2 Employee Targets Achievement

Employee targets can be set against KPI Categories.

The achievement of employee targets is reported on screen or to a spreadsheet format for the month to date with the Employee Targets Report.

Employee Targets Report

You are viewing the Employee Targets Report for the month to date as at 30/06/11 23:59.

Location Region: All Location Type: All

Store: All

Company: All

Report run by admin at 03/06/11 12:37

Employee	Target	Actual	% CUM	Target	Actual	% CUM
Chris Sidell	£30,000.00	£0.00	N/A	£30,000.00	£0.00	N/A
Michael Jones	£0.00	£0.00	N/A	N/A	£0.00	N/A
Mandy Wilson	£0.00	£0.00	N/A	N/A	£0.00	N/A
Total	£0.00	£0.00	0%	£0.00	£0.00	0%

Cumulative percentages reporting is calculated as Sales Month to Date / ((Monthly Sales Target / No. of Days in Month) * Days of Month gone by so far)

8.3 Viewing KPI Totals

KPI totals can be viewed by Location and Employee.

8.3.1 Location KPI Totals

In the example below, there are KPI totals to review and approve for the UK Store.

Location KPI Totals Maintenance

Location KPI Totals Maintenance will allow you to view, edit, remove and create Location KPI Totals.

Select Location:

Enter Start Date: (dd/mm/yy)

Enter End Date: (dd/mm/yy)

Select Status:

Apply Filter

All Location KPI Totals which match the criteria are shown below.

Options	Location Name	Date	Status
	UK Store	01/01/11	Un-Approved

Totals can be modified until they have been approved.

Location KPI Totals Maintenance

You are editing location KPI totals for location UK Store on 01/01/11.

Field	Value
Location Name	<input type="text" value="UK Store"/>
Date	<input type="text" value="01/01/11"/>
Status	<input type="text" value="Un-Approved"/>

KPI Categories

Product Value KPI	<input type="text" value="£0.00"/>
Tender Value KPI	<input type="text" value="£0.00"/>

Approve KPI Totals

8.4 Example Set Up: Percentage Based Commission

8.4.1 Setting up KPIs

Commissions are based on KPIs. A KPI Category must be set up in order to configure a Commission.

- 1) Go to Data Maintenance > KPIs > KPI Categories and click on the + icon to add a new KPI Category

- 2) Enter a unique ID and select a KPI Category Type.

The KPI Category Types define the basis of the KPI. Choose between Product KPI Category Type or Tender KPI Category Type.

A Product KPI Category refers to the sale (and where applicable to the return) of a product, MMG or Product Group.

A Tender KPI Category is based on a tender, for example how often a certain tender is used.

For this example, set the KPI Category Type to "Product" and click on the next icon

- 3) Enter a description for the KPI Category.

For example to monitor the sales of one product, enter the name of the product as the description. To control the sales of an entire MMG, enter the name of the MMG as the description.

- 4) Select a KPI Type.

The KPI Type indicates how a KPI Category is to be monitored and can be value or quantity based (ignore the percentage option here as it is used in another part of the application also based on KPI Categories).

- 5) To base the KPI on the value of a product sold (or returned) select the KPI Type "Value" and add the product below to Included Products.

- 6) Scroll up again and select the applicability of the KPI. To link the KPI to a Commission tick "Commission" and if required also KPI Reporting.

The options Employee Targets and Employee Performance Monitor apply to another part of the system, which is not relevant for this example.

- 7) Under Item Type select applicability for sales, returns or both.

For this example click on "Sales". Tax can also be included if required.

- 8) Save the page.

Sales of the product selected can now be monitored based on value.

Now you can proceed to set up the Commission.

8.4.2 Setting up Commission Schemes

To set up a Commission Scheme:

- 1) Go to Data Maintenance > Commission > Commission Schemes and click on the + icon to add a Commission Scheme.
- 2) Enter a unique ID and click on the arrow to drill into the Commission Scheme.
- 3) Give the scheme a description and select the currency applicable.
- 4) To add a category, which defines the specifics of the commission, enter an ID and click on the plus icon underneath Commission Categories.

- 5) Enter a description, a start and an end date if required and select a Commission Type.

Two types of Commission are supported: an amount Commission Type and a percentage Commission Type.

- 6) For this example, set the Commission Type to percentage and enter a Commission Rate, for example 1%.

Now all KPI Categories applicable to a percentage Commission will appear in the drop down list under KPI Categories automatically. In general for a percentage Commission, a Value KPI Type must be set up (for example 1% on the value of every product). If an amount Commission (for example. £1 on every product sold), the applicable KPI Type must be set to Quantity.

- 7) Select the KPI Category set up previously and click on the plus icon to add it to the Commission Scheme and save the page.
- 8) Assign the Commission Scheme to a store under Data Maintenance > Locations or to an employee under Data Maintenance > Employees.

Commission totals can be viewed under Operations > Commission.

Two options are available: Location Commission Payments and Employee Commission Payments.

- 9) To update the totals run Commission Calculator Process by clicking "Recalculate Totals"
- 10) To initialise the Commission Calculator go to Administration > Processes > Process Configuration. Select the appropriate device and click on the plus icon.
- 11) Select Commission Calculator from the drop down list, select the device, leave the Cluster Node field blank and click on the arrow. Specify how often the process should be run, specifying Job Type, Start / End Date and frequency and save the page.
- 12) View the progress of the calculation under Administration > Processes > Job Management.
- 13) View successful jobs in Operations > Commission > Location Commission Payments or Employee Commission Payments and view, edit or approve the updated values.

9. Mobile POS

The following are required to enable the TMP and TRP interface.

- TMP Broker
- TRP 1.5.10_GOLD

- TRP Device to allocate the Sales/Refunds against
- TRP licence to cover the extra devices
- WSDL

The following XSL's are required for the Exporter

- AccessControl.xsl
- Enterprise.xsl
- KeyPresets.xsl
- Merchandise.xsl
- MerchandiseHierarchy.xsl
- Promotion.xsl
- Tender.xsl

The following XSL is required for the Importer:

- POSlog.xsl

Add the above XSL's need to the TRP working folder, for example:

RETAILPOS\%NAME%\XSLTransforms

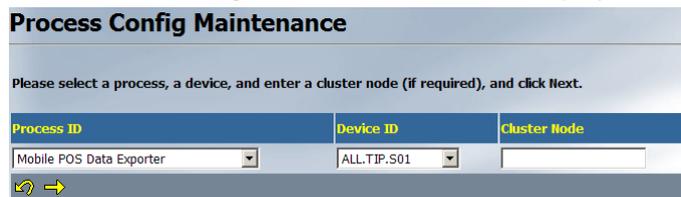
Add the WSDL to the expanded `rjWebServices` folder under the `webapps` folder.

9.1 Mobile POS Exporter

The Mobile POS Data Exporter is used to pass static data from the TRP database to the TMP database. It can be configured to create a file for each of the elements or to pass the data over a web service via the broker to the TMP database.

To add the Mobile POS Exporter Process to the processes for a device; go to Administration > Process > Process Configuration > Add

The Process Config Maintenance screen is displayed.



Process ID	Device ID	Cluster Node
Mobile POS Data Exporter	ALL.TIP.S01	

Figure 6: Select Process

Select the Mobile POS Data Exporter and the required Device ID and go to the next screen.

At this point you can map the export to a file or to a web service.

9.2 Export to File

To map the export to a file, select File as the Export Type and enter the export directory, for example:

c:\MobilePOS\RetailPOS\MobilePOS\EXPORT

Process Config Maintenance

You are editing configuration for process Mobile POS Data Exporter, device ALL.TIP.S01

Field	Value
Process ID	MobilePOSDataExporterProcess
Device ID	ALL.TIP.S01
Cluster Node	
Auto Start	<input type="checkbox"/>
Start Time	00 :00
End Time	00 :00
Last Exported (dd/mm/yy hh:mm)	<input type="text"/> <input type="checkbox"/> Update
Export Type	File
Export Directory	c:\MobilePOS\RetailPOS\MobilePOS\EXPORT
POS Menu	

Figure 7: Export to File

9.3 Export to Web Service

To map the export to a web service, select Web Service as the Export Type.

Process Config Maintenance

You are editing configuration for process Mobile POS Data Exporter, device ALL.TIP.S01

Field	Value
Process ID	MobilePOSDataExporterProcess
Device ID	ALL.TIP.S01
Cluster Node	
Auto Start	<input type="checkbox"/>
Start Time	00 :00
End Time	00 :00
Last Exported (dd/mm/yy hh:mm)	<input type="text"/> <input type="checkbox"/> Update
Export Type	Web Service
URL	http://localhost:9082/MobilePOSBroker/services/MasterData
Operation Name	acceptMasterData
Username	
Password	
Timeout (s)	30
POS Menu	

Figure 8: Export to Web Service

Enter the following URL:

<http://localhost:9082/MobilePOSBroker/services/MasterData>

Enter the following Operation Name:

acceptMasterData

This link points towards the Mobile POS broker web service.