User and Developer Guide

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This is version 5.0.0.0 of the KonaKart User Guide

This User Guide can be downloaded in PDF format from http://www.konakart.com/docs/KonaKart_User_Guide.pdf [KonaKart_User_Guide.pdf]

Legal Notices

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Chapter 1. Introduction

What is KonaKart ?

KonaKart is software that implements an enterprise java eCommerce / shopping cart system. It's main components are:

- A shop application used by customers to buy your products
- An Administration application to enable you to manage your store
- Many Customization and Extension features - allowing your to customize and extend the way KonaKart works

Who is the software intended for?

Retailer

If you are a retailer and looking for a product to develop an on line store, then KonaKart could be a good match. Regardless of your size, KonaKart will provide a powerful solution that should cover most, if not all of your requirements, delivering unparalleled price / performance.

Although KonaKart is very easy to install and to get up and running, it really does require some JSP / Java development and deployment knowledge in order to realistically take a store into production. Therefore, if you have no Java knowledge in your company and you don’t intend on using external professional services, then it’s probably not the product that you should be using.

If you company has Java competency then you should feel right at home using KonaKart and soon be in a position where you can install and customize the software to cover all of your business needs and integrate with your other systems.

We provide Professional Services and Support Contracts to assist you during the development stage and to ensure that your store continues to run smoothly once in production.

Solution Provider / System Integrator / OEM

KonaKart offers an enterprise level eCommerce solution that you can easily customize to match the requirements of your customers. Most of the customizable areas such as the store front application, payment, shipping and promotion modules are open source. Also, the KonaKart engine implements a documented API, on top of which you can write integration modules and custom features in order to personalize your KonaKart offering.

We offer a Partner Program, Professional Services and Support Contracts to help you be successful and profitable in your eCommerce projects.

ISP

KonaKart is a very good match for ISPs offering Java hosting and software solutions. You may offer the community edition completely free of charge to your customers, with point and click installation to easily enable them to create their on line store.

The enterprise version of KonaKart which includes multi-store, is a good solution for providing many stores in a resource efficient manner.

Chapter 2. KonaKart Information

Community and Enterprise Versions

Since version 3.2.0.0, KonaKart comes in two separate installations:

- A free Community Edition which can be downloaded from our web site downloads page.
- Enterprise Extensions which we charge for. See our web site prices page for pricing details.

The Community Edition is intended for small businesses and charitable organizations. A condition of the license agreement is to display "Powered By KonaKart" with a link to our web site, on the main page of the on line store.

The Enterprise Extensions are available as a separate installation kit which is installed on top of the community edition to provide more features and functionality. Although we would prefer you to keep it, the "Powered by KonaKart" link is not mandatory for a KonaKart based store when the Enterprise Extensions are installed. Currently the features present only in the Enterprise Extensions are:

- Multi-Store. An Enterprise Extensions license allows you to run an unlimited number of stores with a single KonaKart installation and a single database schema.
- Indexed Search. Indexed search using Lucene search technology gives you a lightning fast search experience even for very large product catalogs. Digital download products (.txt and .pdf) can be indexed in the SOLR search engine and text fragments (snippets) surrounding search keywords can be returned.
- Advanced marketing functionality that allows you to capture customer data as the customer uses your KonaKart eCommerce store; and to use that data within complex expressions in order to show dynamic content, activate promotions and send eMail communications. For example, you could show a banner or activate a promotion only to customers in a certain age bracket that have Product A in their wish list and at least $50 worth of goods in their cart.
- Wish List functionality. Registered customers can add products to a wish list. The KonaKart API supports multiple named wish lists for each customer.
- Gift Registry functionality. Registered customers can create a gift registry which can be made public or private. Public gift registries can be searched for by shoppers and items within the registry can be bought and shipped directly to the address of the registry owner. The store front application contains an implementation of a wedding registry.
- Reward Points which enable you to increase customer loyalty and increase sales by rewarding customers for purchases as well as other actions such as registering, writing a review, referrals etc. The points may be redeemed during checkout.
- Gift Certificates. Gift Certificate products may be connected to any type of promotion and activated through a coupon code contained within the certificate.
- Job Scheduling. This is achieved with an integration of the Open Source Quartz scheduler. There is a framework for adding your own batch jobs and the source code of some useful example jobs.
- Support for Recurring Billing. Payment Schedule and Subscription objects have been introduced to support recurring billing natively using a KonaKart batch or through a payment gateway that manages the billing process at regular intervals.

- Google Base integration which allows you to publish your product information for inclusion in Google search results.
- XML Import/Export feature for KonaKart objects such as product, customer, order etc. This feature can be run with a script, providing arguments to define which objects to import or export. Some example scripts are provided.
- Digital download products (txt and .pdf) may now be indexed in the SOLR search engine and text fragments (snippets) surrounding search keywords can be returned from the search.
- For applications requiring an unlimited number of prices for products, these prices may now be set in a new database table and accessed instead of the standard product prices saved with the product data. This functionality allows you to define any number of catalogs, each of which may contain different product prices.
- The language of the admin app may be changed dynamically.
- PDF invoices can be created and sent to customers as email attachments and downloaded from the store-front application. The created PDF invoices can be stored on disk for archiving purposes or created dynamically whenever they are required.

Support Packages and Professional Services are available for *all* versions of KonaKart.

Is KonaKart Open Source?

Only the customizable parts of KonaKart are open source. These include the Struts action classes and forms, the JSPs, the payment modules, order total modules, shipping modules and the GWT One Page Checkout code. They are shipped under the GNU Lesser General Public License.

Is the source code available?

Under certain circumstances DS Data Systems will sell the KonaKart source code, although we prefer to sell an Escrow service where possible.

For the cases where functionality is missing, and it makes sense for this functionality to reside in the KonaKart eCommerce engines, we normally provide fixed price quotes for implementing the missing features and providing an API which we maintain for new releases. This allows you to easily upgrade when new releases become available and also allows you to be supported. The disadvantage of taking the source code and editing it, is that in most cases this results in a branching of the KonaKart code base which becomes difficult to upgrade and maintain.

Chapter 3. KonaKart Features

General Functionality

- KonaKart supports most popular databases through JDBC. (e.g. MySQL, PostgreSQL, Oracle, DB2, MS SQL Server are all supported in the download package). The database schema is an extension of the osCommerce 2.2 schema, and update scripts are provided to convert an original osCommerce database into a KonaKart database.
- Written in Java. Needs a servlet engine such as Apache Tomcat to run.
- Modular approach with APIs at various levels as well as SOAP Web Service interfaces. The web service interface promotes connectivity even from outside of the company firewall and allows client side applications (i.e. .Net, MS Excel etc.) to use the KonaKart engine. It also allows you to easily integrate eCommerce functionality into your current application, which may be for example, a content management system.
- Completely multilingual.
- Many objects contain custom fields to facilitate personalizations

JSR 168 portlet

- We realize that many of you require eCommerce functionality integrated within your portal server or Content Management System. For this reason we have integrated KonaKart with some popular products that support the JSR 168 portlet specification. We currently have support for:
  - Apache Jetspeed Portal
  - Liferay Portal

  KonaKart as a portlet may also work in other systems that support the JSR 168 portlet standard.

Open CMS Support

- An OpenCms module is available for KonaKart in order to integrate KonaKart functionality within this popular Open Source content management system .

Setup/Installation

- Simple click and run installation through an installer.

Design/Layout

- The store front application uses a JSP / Struts design. The source code of the JSPs and Struts Action classes is provided in the download so that they may be customized.
- It is relatively easy to write a UI in the technology of your choice by calling the KonaKart Client API. An example of this is our Catalog Inspector Demo which consists of a Adobe Flash object created using Open Laszlo technology.

Multi-Store

- KonaKart provides advanced multi-store functionality to enable you to run your stores from a single KonaKart deployment and a single database.
- There is a shared customers mode that allows you to share customers between all stores. This is very useful for shopping mall applications since a customer only has to register once in order to shop in many different stores.
- There is a shared products mode that allows you to share products between stores. This means that the products may only exist once in the database for maintenance purposes, but may be included in many stores. The product price may be different for each store in which the product is included. This is a useful mode for companies setting up stores in different countries, selling the same products.
- When KonaKart is configured to be in multi-store mode with a shared database (Engine Mode 2), product searches can span more than one store. They can span all of the stores, or a list of stores can be supplied in the search request.

  The ProductSearch object has a searchAllStores boolean which should be set to search all stores. If the search is only for a limited number of stores, then an array of storeId Strings can be set (storesToSearch) to identify which stores should be searched.
- The administration application allows a super user to create a store and then create a store administrator role so that when the store administrator logs into the administration application, he can only administer the store that has been assigned to him.
- For special cases where store data has to be kept within separate DB schemas, KonaKart can be configured to achieve this, although some of the functionality such as the sharing of customers described above, is not available in this mode.
- When in shared customer mode, other data, such as countries, zones and tax information is also shared. This can save a great deal of time in administering a KonaKart multi-store installation as these objects only need to be set up once for all stores.

Customer Functionality

- Customers can view their order history and order statuses.
- Customers can maintain their accounts. They have an address book for multiple shipping and billing addresses.
- Permanent shopping carts for guests and registered customers. The permanent cart for guests is managed through cookies.
- Registered customers can create wish lists.
- Registered customers can create a gift registry which can be made public or private. Public gift registries can be searched for by shoppers and items within the registry can be bought and shipped directly to the address of the registry owner. The store front application contains an implementation of a wedding registry.
- Fast and friendly quick search and advanced search features. Search for products by category, by manufacturer or both.
- Product reviews for an interactive shopping experience.
- Number of products in each category can be shown or hidden.

- Global and per-category bestseller lists.
- Dynamic product attributes relationship.
- HTML based product descriptions.
- Display of specials
- Control if out of stock products can still be shown and are available for purchase.
- Customers can subscribe to products to receive related emails/newsletters.
- All emails are template driven and so fully customizable using the Apache Velocity template language.

Customer Groups - Wholesale/Retail

- Control what prices are displayed to customers. i.e. You may show different prices to wholesale customers or company employees etc.
- Enable promotions. Promotions may be enabled only for certain types of customers. i.e. You may want a 3 for 2 promotion to only apply to your retail customers.
- Send communications. You may send out bulk emails only to customers that belong to a particular customer group.

Call Center Functionality

- From the administration application, an administrator can open up a browser displaying the KonaKart eCommerce application and log in on behalf of a customer without requiring the customer's credentials. Once logged in as that customer, he can process orders for the customer and perform all tasks that are normally enabled for the customer when logging in independently.

One page checkout

- One Page Checkout screen using AJAX technology
- Existing customers go directly to the checkout screen where they can add coupons, change shipping methods, payment methods etc. and immediately see the updated total order amount without a screen refresh.
- New customers can add address details as part of the checkout process. They don't have to go through a registration process.

Checkout without registration

- KonaKart may be configured to allow customers to checkout without registering and creating an account.

Products

- Each product may be configured with multiple options. Every configuration may have:
  - A unique price
  - A unique SKU

    - A unique quantity
    - A unique available date
- Each product may be associated with a number of images.
- Each product may be associated with up to 4 prices. The actual price displayed can be controlled by the customer group. The Enterprise Extensions package allows you to associate an unlimited number of prices to a product.
- Each product may contain structured data as well as a description. The structured data can be used for comparing product features.
- KonaKart includes an import/export tool to efficiently load products into the database from a file, and to create a file from the products in the database.

Product Bundles

- Bundle products can be defined in the Admin App. The quantity of the bundle product is calculated automatically and tools are provided to calculate the cost (optionally using discounts) and the weight. In the application, the bundled products are available in the product detail screen, the quantity available is calculated and the quantity in stock of the bundled products is decremented automatically when an order is processed.

Gift Certificates

- Gift Certificate products may be connected to any type of promotion and activated through a coupon code contained within the certificate.

Reward Points

- Reward Points enable you to increase customer loyalty and increase sales by rewarding customers for purchases as well as other actions such as registering, writing a review, referrals etc. The points may be redeemed during checkout.

Indexed Search

- KonaKart has been engineered to manage product catalogs containing tens of thousands of products. In order to search for these products in an efficient manner, KonaKart may be configured to use the Apache SOLR enterprise search server based on the Lucene Java search library.
- This powerful technology not only provides for a lightning fast search experience, but also incorporates intelligence to correct common problems such as misspellings and plurals which often frustrate shoppers making them go elsewhere. For example, the words Television, Televisions, TV, TVs can all be configured to find televisions.

Product Tags and Tag Groups

- Tags are attributes that can be associated to a product and can be used to refine product searches.
- The purpose of a tag group is to organize tags and a tag group may be associated to a category so that it can be automatically displayed in a context sensitive fashion when a customer is viewing products belonging to a specific category.

Digital Downloads

- A product may be defined as a digital download.
- When a digital download has been paid for, a download link appears in the customer's private account page.
- The download link can be set to expire after a number of days or after a number of downloads.

Merchandising

- Display what other customers have ordered with the current product shown.
- For every product you may define a list of products for:
  - Up-selling
  - Cross-selling
  - Accessories
  - Dependent products (e.g. Service Plans or Extended Warranties)

Promotions

- Very powerful promotions sub-system
- All promotions can be associated with one or more coupons. Each coupon can be configured for unlimited use or to be used only for a programmable number of times.
- The following rules can be set for all promotions:
  - Include only some customers (e.g. those that haven't placed an order in the last 60 days) or exclude some customers (e.g. those that have placed an order in the last 60 days). Configure how many times an included customer can use the promotion.
  - Include or exclude products based on their category.
  - Include or exclude products based on their manufacturer.
  - Include or exclude any products at a product option granularity. (e.g. Promotion only applies to shoe size 7 or applies to all sizes except size 7)
- Promotions may be cumulative (e.g. A promotion of 10% discount for all hardware products and a promotion of 20% discount for all software products) or promotions may be exclusive, in which case the promotion giving the largest discount is chosen.
- All promotions may be configured to have a start and end date.
- The promotions themselves are KonaKart Order Total Modules which can easily be developed and slotted into the KonaKart architecture. The source code of the available promotion modules is included in the download package.
- The currently available modules are :
  - Order Total Discount

- The promotion gives a discount on the total amount of the order.
- You may set a minimum order value, the minum number of products, the minimum quantity of a single product, the discount as an amount or a percentage and whether to apply the discount before or after tax.

- Product Discount

  - The promotion gives a discount on a product
  - You may set a minimum order value, the minimum quantity of a single product, the discount as an amount or a percentage and whether to apply the discount before or after tax.

Marketing - Customer Tags and Expressions

- The Enterprise version of KonaKart contains sophisticated marketing functionality that allows you to capture customer data as the customer uses your KonaKart eCommerce store; and to use that data within complex expressions in order to show dynamic content, activate promotions and send eMail communications.

- Later in this document there is a chapter dedicated to this functionality.

Advanced Search Engine Optimization (SEO)

- You have full control over which SEO features to activate. KonaKart allows you to define multi-lingual templates in order to write product information (name, model, manufacturer, category) into:
  - The URL
  - The window title
  - The meta description
  - The meta keywords

- Google Base is a free Google service that allows you to publish your product information for inclusion in Google search results. The KonaKart Admin App allows you to easily publish your products to Google Base with the click of a button.

Reporting

- KonaKart is integrated with BIRT which is is an open source Eclipse-based reporting system. The default installation package includes a number of useful reports. Others may be easily added through the Admin App or just by copying them to a directory where they are automatically read by KonaKart. Instructions can be found in the Reporting FAQ.

Payment Functionality

- KonaKart implements an API and modular approach for introducing payment gateways. We include the source code of all currently available gateways.

- Disable certain payment services based on a zone basis.

Recurring Billing

- Support for Recurring Billing. Payment Schedule and Subscription objects have been introduced to support recurring billing natively using a KonaKart batch or through a payment gateway that manages the billing process at regular intervals.

- Later in this document there is a chapter dedicated to this functionality.

Shipping Functionality

- Weight, price, and destination based shipping modules
- Free shipping based on amount and destination
- Free shipping on a product by product basis
- Disable certain shipping services based on a zone basis
- KonaKart implements an API and modular approach for introducing custom shipping services.

Tax Functionality

- Flexible tax implementation on a state and country basis.
- Set different tax rates for different products.
- Charge tax on shipping on a per shipping service basis.

Returns

- Returns may be managed from the Admin App. KonaKart can support multiple returns per order, each of which may contain different product quantities and have a unique RMA code.

PDF Invoices

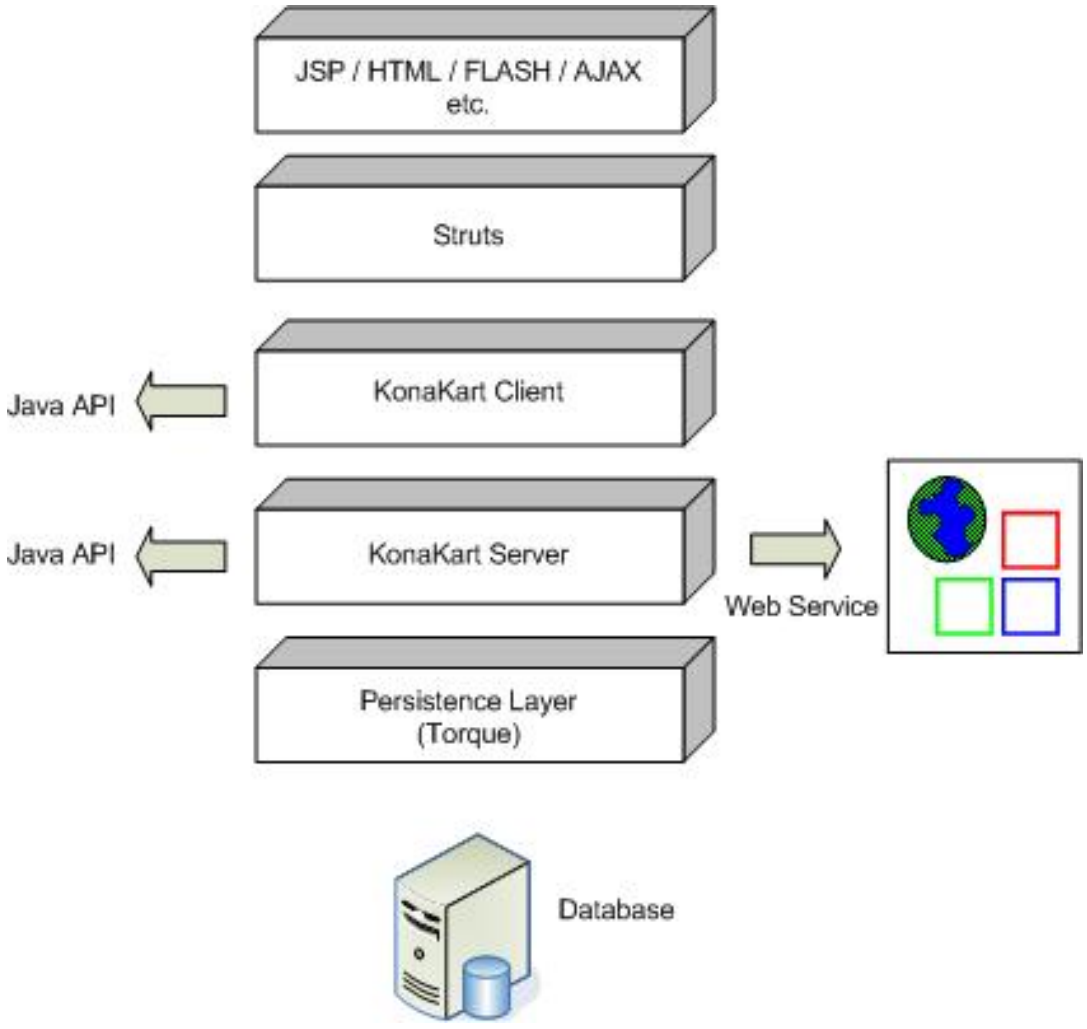
- PDF invoices can be created and sent to customers as email attachments and downloaded from the store-front application. The created PDF invoices can be stored on disk for archiving purposes or created dynamically whenever they are required.

Chapter 4. Architecture

KonaKart has a flexible architecture lending itself to a variety of different physical implementations to suit different needs.

Software Architecture

KonaKart has a modular architecture consisting of different software layers as can be seen in the following diagram:



KonaKart - Software Architecture

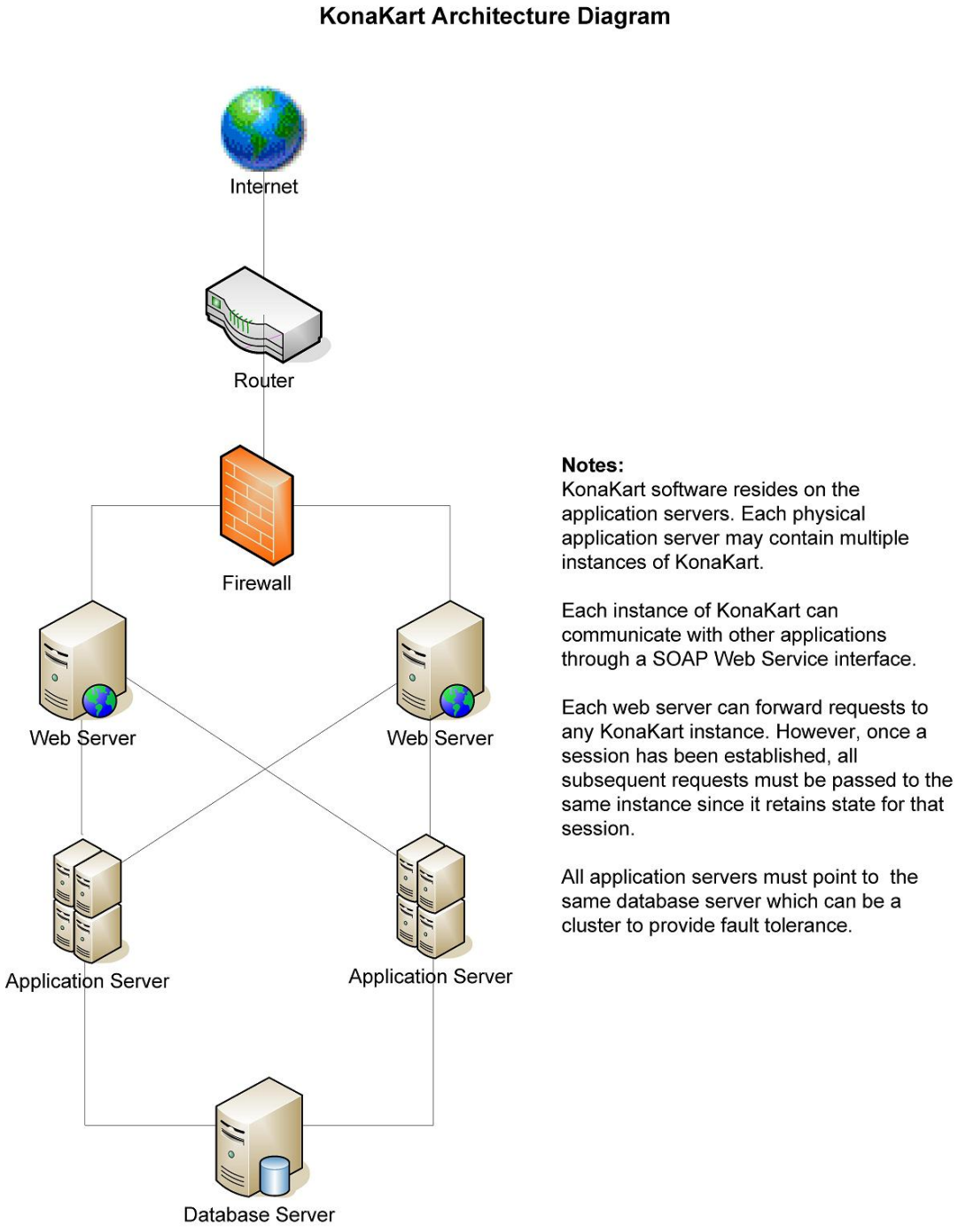
The Relational Database is accessed through a widely used persistence layer (Torque [http://db.apache.org/torque/]) which caters for databases from many different vendors such as Oracle, Microsoft's SQL Server, DB2 from IBM, MySQL, Postgres and many others.

The KonaKart Server is a multi-threaded component that contains the core functionality of the eCommerce application. It exposes both a SOAP Web Service interface (WSDL [http://www.konakart.com/konakart/

services/KKWebServiceEng?wsdl]) and a Java API (Javadoc [http://www.konakart.com/javadoc/server/]).

The KonaKart Client manages the state of a user (associated with the user's session) as he navigates around the application. The process of writing a web based application is greatly simplified by using the API of the KonaKart client (Javadoc [http://www.konakart.com/javadoc/client/]) rather than by calling the KonaKart Server directly.

Struts [http://struts.apache.org/] is a popular framework that implements the Model-View-Controller (MVC) architecture. The source code of the Struts Action classes (for the store front application [http://www.konakart.com/konakart/Welcome.do]) is included in the download package in order to provide examples of how to call the KonaKart Client API. The store front application uses JSPs to generate the UI. However, different technologies can easily be implemented thanks to the modular approach of KonaKart. An example of this is our Catalog Inspector Demo [http://www.konakart.com/konakart_cat_inspector/main.swf] which consists of a Adobe Flash object created using Open Laszlo [http://www.openlaszlo.org/] technology.



KonaKart - Architecture Diagram

Chapter 5. Installation

Please read this section carefully before attempting to install KonaKart.

Before You Begin

Before proceeding, please check that your chosen platform is one that is currently supported and that you have installed the pre-requisite software.

Platforms Supported

Currently KonaKart can be installed on Linux, Unix, or Windows XP/2003/Vista. It has been successfully installed on other platforms including Mac OS using the manual installation .

Please contact the KonaKart team at `<support@konakart.com>` if you would like to see KonaKart support running on another platform.

Pre-requisites

- A Java runtime environment
- A database loaded with KonaKart tables
- KonaKart itself

Install Java

KonaKart requires the Java 2 Standard Edition Runtime Environment (JRE) version 5.0 or later.

- Download the Java 2 Standard Edition Runtime Environment (JRE), release version 5.0 or later, from http://java.sun.com/j2se .
- Install the JRE according to the instructions included with the release.
- It is not essential for you to set JAVA_HOME, or JRE_HOME globally. The installation wizard will set up KonaKart to run with the selected java location regardless of the global settings of JAVA_HOME or JRE_HOME.

  The installer atempts to locate your JRE automatically but you can override the one that's found if you require. The selected JRE is validated to help you avoid typing errors when entering the JRE location manually.

Create a Database

KonaKart needs a JDBC-compliant database. For the community edition of KonaKart you must use either MySQL (with the InnoDB engine to get support for transactions), PostgreSQL, Oracle, DB2 or MS SQL Server but if you would like KonaKart to be supported on any other database please contact us. MySQL works well with KonaKart and is free so this makes a popular choice. You can obtain MySQL from http://www.mysql.com/.

Check the specific notes for each database to verify that the database you plan to use is fully supported (see below in this FAQ) or whether you might have to take a few additional manual steps to load the database objects.

Since the KonaKart database is an extension of the osCommerce database, if you already have an osCommerce database you can use that for KonaKart. If this is the case you only need to run a supplementary SQL script for KonaKart (see below). (If you wish to keep the data in your existing osCommerce database (as you probably will do) take care not to run the full database initialization script which will re-create all your tables).

Once the database is installed, create a new database user for KonaKart then either run the installation wizard which will (optionally) load up the database ready for using KonaKart, or if you prefer, execute the SQL script appropriate for your chosen database manually. The database initialization scripts are provided for all supported databases under the database directory under your KonaKart installation directory.

If you already have an osCommerce database

If you are already an osCommerce user you can use the database that you have already created. The advantage of doing this is that you will not have to load up all of your configuration parameters again (especially the product catalog!). All that you have to do in this case is run a supplementary SQL script, appropriate for your database platform (this will almost certainly be MySQL as osCommerce is currently only supported on MySQL). The supplementary script can be found under the database/MySQL directory under the KonaKart home directory (i.e. where you installed KonaKart).

Note that executing this supplementary script should not break your current osCommerce system from working, but we only recommend that you run it on a test database and not a production database.

Note that if you wish to keep the data in your existing osCommerce database (as you probably will do) take care not to run the full database initialization script which will re-create all your tables.

Upgrading the Database between releases of KonaKart

Starting with the upgrade from KonaKart v2.2.0.0 to v2.2.0.1 there will always be an upgrade script provided that can be run on your database without risking the loss of your existing data (although it is always recommended to backup your database on a regular basis). The upgrade script will apply all the database changes that are required to upgrade a database being used for a specified KonaKart version to the next.

As an example a script called upgrade_2.2.0.0_to_2.2.0.1.sql is provided that will upgrade your database being used on a KonaKart v2.2.0.0 system to one suitable for a KonaKart v2.2.0.1 system.

If you chose to skip KonaKart releases for whatever reason, you will have to apply the upgrade scripts for all intermediate releases - all upgrade scripts are planned to be shipped with all future releases.

Another option is to run the full database creation script (see above) which is always provided for every release. Note that this has the disadvantage of clearing away all of the data you may have set up for your KonaKart store (eg. your special configuration data, your catalogs etc) so will probably not be the preferred option for existing storekeepers.

Install KonaKart

Once you have java v5 installed and a database (either pre-loaded with all the necessary tables etc or ready to be loaded), you are ready to install KonaKart itself. To do this, download an installation kit, compatible with your chosen platform, and follow the installation instructions below for your platform :

Note that if the GUI or silent installers do not work on your platform you should download the zip version of KonaKart and follow the manual installation instructions.

Installing KonaKart on Windows

Run the set-up program that executes a graphical installation wizard - see Graphical Installation Wizard below. (You can use the "Silent Mode" installation if you prefer, but the graphical version is probably easier if you're installing for the first time).

Installing KonaKart on Unix/Linux

Create a terminal session on your machine and enter the following: (You may prefer to use commands to do the same thing from your X-desktop if you have one installed).

```
$# (replace 2.2.6.0 with the version you have downloaded)
$ chmod +x KonaKart-2.2.6.0-Linux-Install
$ ./KonaKart-2.2.6.0-Linux-Install
```

If you have a graphical environment on your Linux/Unix machine you will be able to run the GUI. In which case see the Graphical Installation Wizard below (identical steps to the Windows installation).

If you don't have a graphical environment you will see this warning message:

```
$ ./KonaKart-2.1.0.0-Linux-Install
This program must be run in a graphical environment
or in silent, unattended mode (with the -S option).
```

Silent Mode Installations

When running in "silent" (-S) (or "unattended") mode you are able to specify configuration parameters on the command line, for example:

```
$ ./KonaKart-2.1.0.0-Linux-Install -S \
                  -DDatabaseType mysql \
                  -DDatabaseUrl jdbc:mysql://localhost:3306/mykkdb \
                  -DDatabaseUsername kkdbusr \
                  -DDatabasePassword ikk8271
```

Silent Mode Parameters

The following parameters can be added to the command line, as in the example above, to specify default values for KonaKart at installation time:

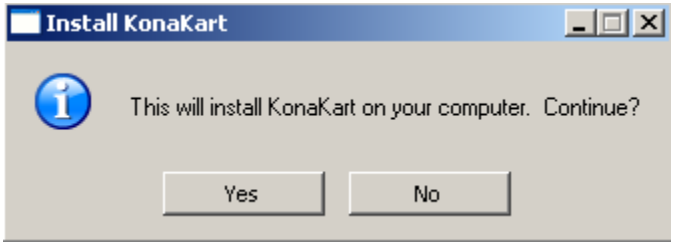
Parameter	*Default Value*	*Explanation*
DatabaseType	mysql	mysql, postgresql, db2net, oracle, mssql
DatabaseUrl		Database URL

	jdbc:mysql://localhost:3306/dbname?zeroDateTimeBehavior=convertToNull	
DatabaseUsername	root	Database User's Username
DatabasePassword		Database User's Password
DatabaseDriver	com.mysql.jdbc.Driver	Database Driver
mssqlDBO	dbo	Database Owner (only used by MS SQL Server)
InstallationDir	Windows: C:\Program Files\KonaKart *nix (as root): /usr/local *nix (as user): ~/konakart	Installation Directory
LoadDB	0	1=Load DB 0=Do not Load DB
JavaJRE		The Java runtime location
PortNumber	8780	KonaKart Port Number

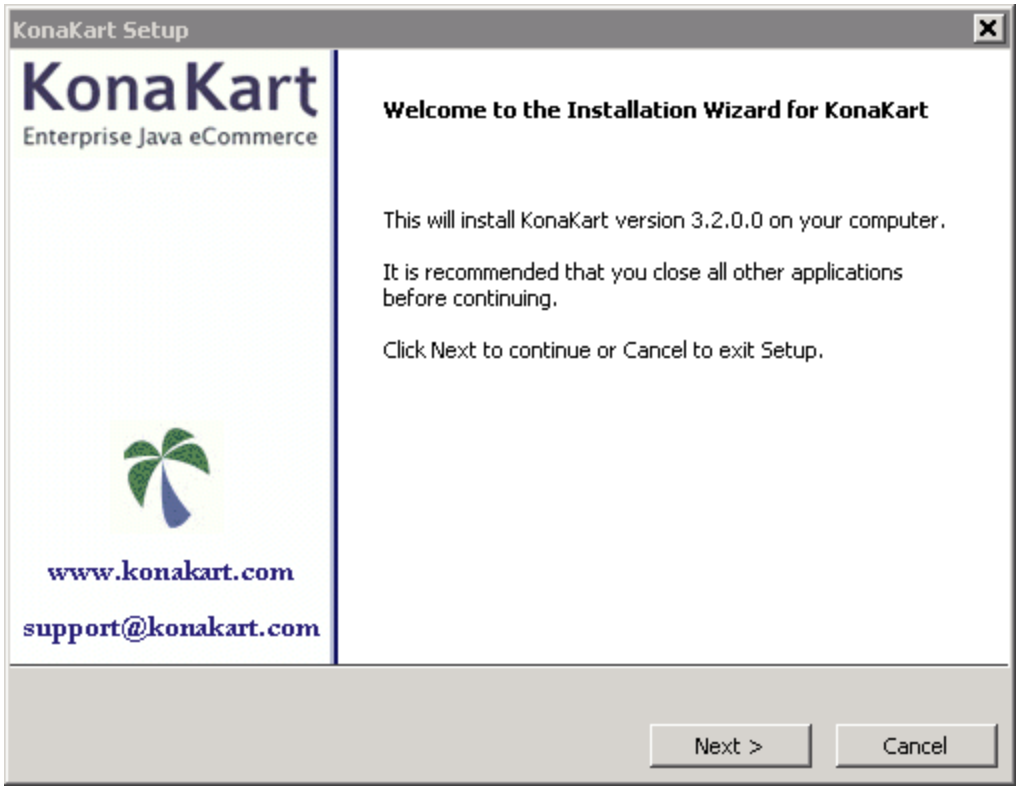
Graphical Installation Wizard

This shows a typical installation that uses the wizard:

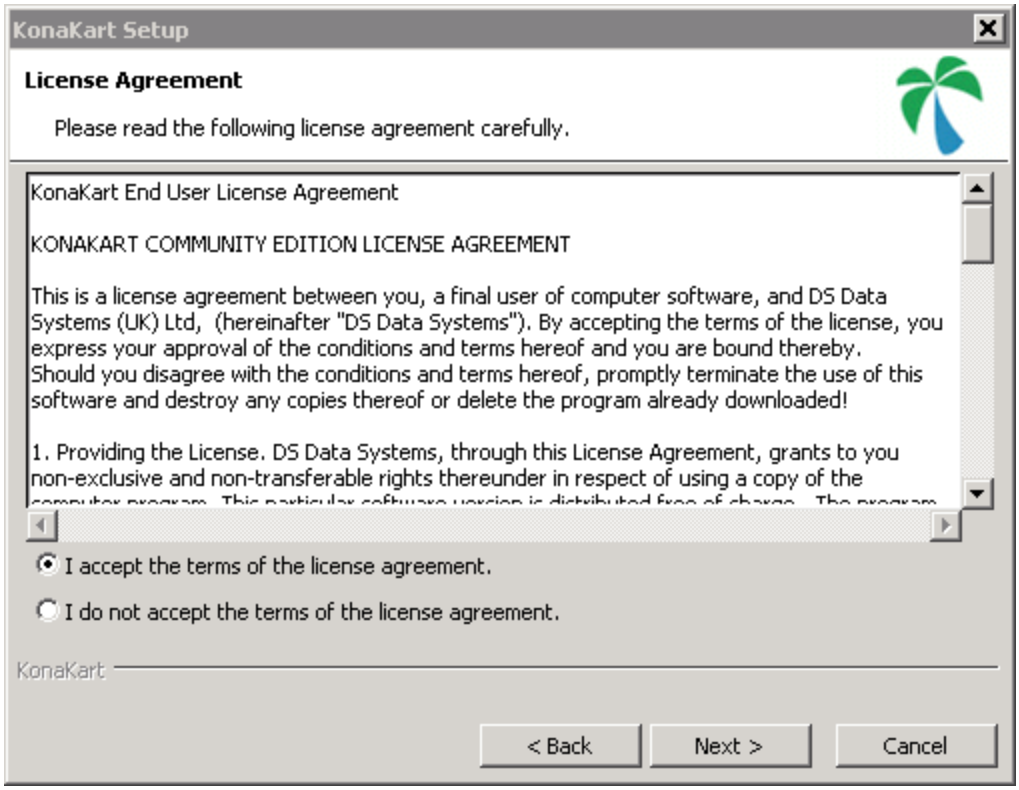
Either double-click on the installation setup program (either KonaKart-2.2.0.4-Windows-Setup.exe on Windows, or KonaKart-2.2.0.4-Linux-Install on Linux - or respective later version numbers) or run it from a command shell. You are first presented with this small window which allows you to confirm that you wish to proceed with the installation:



Click on Yes to continue to:

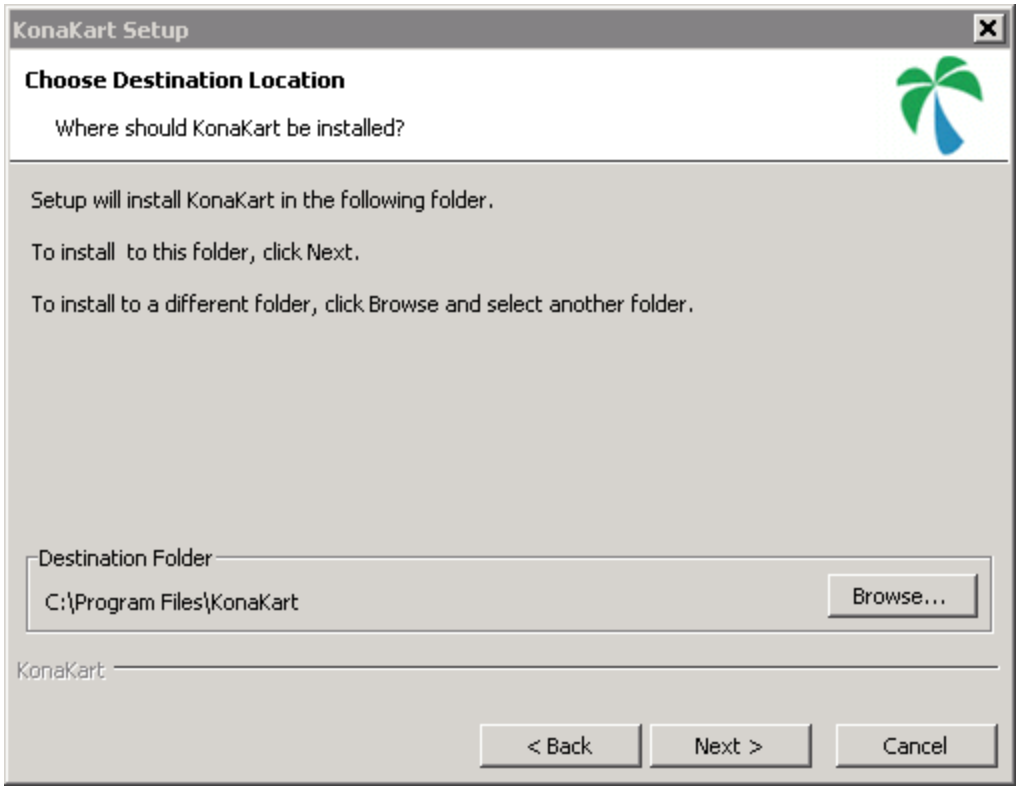


Check that you have the correct version number and click on next to get to the next screen. Note in passing the email address for support questions. Please contact us and / or search the forum if you have any difficulties at all with the installation and we will endeavour to help you as soon as possible.



Please read the license agreement carefully and if you are happy to do so under the terms of the agreement, click on the "I accept the terms of the license agreement" bullet and click next to continue. If you are not prepared to accept that license agreement please quit the installation at this point.

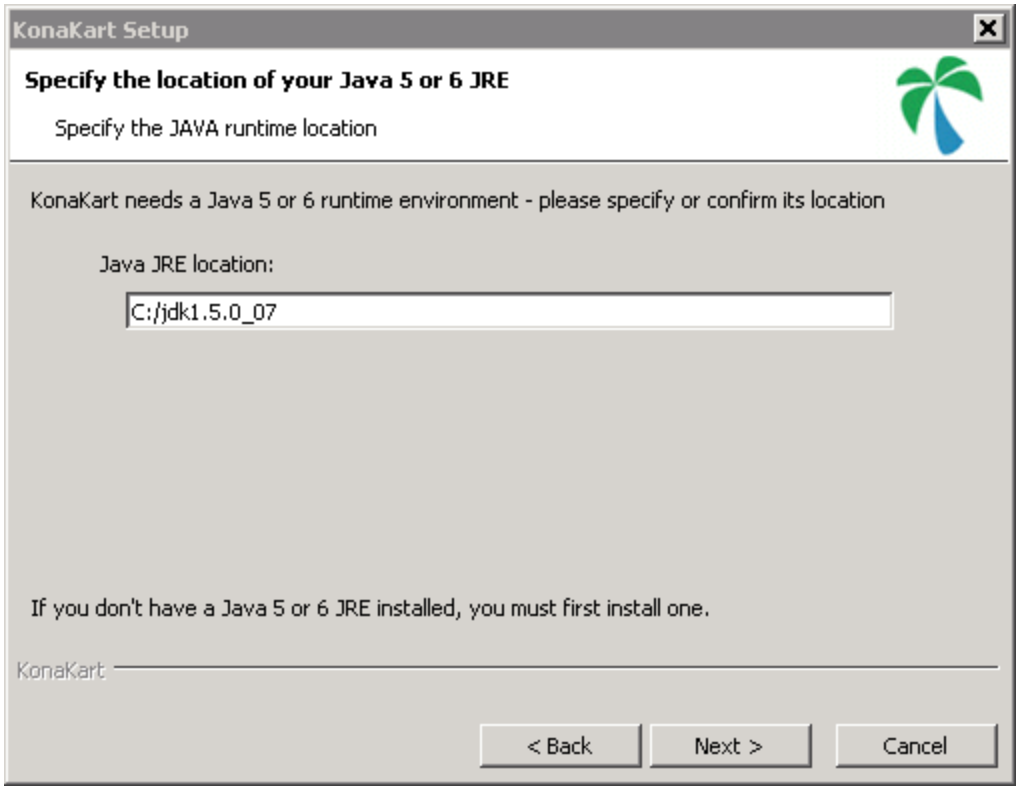
Click on next to reach:



This is where you specify where you want KonaKart to be installed. On Windows this defaults to "C:\Program Files\", on Linux this is the user's home directory (if the user is not root) or "/usr/local" (if the user is root). This can be specified in the silent mode of on the command line of the GUI version using -DInstallationDir.

It is recommended that you accept the default location, but this is not essential.

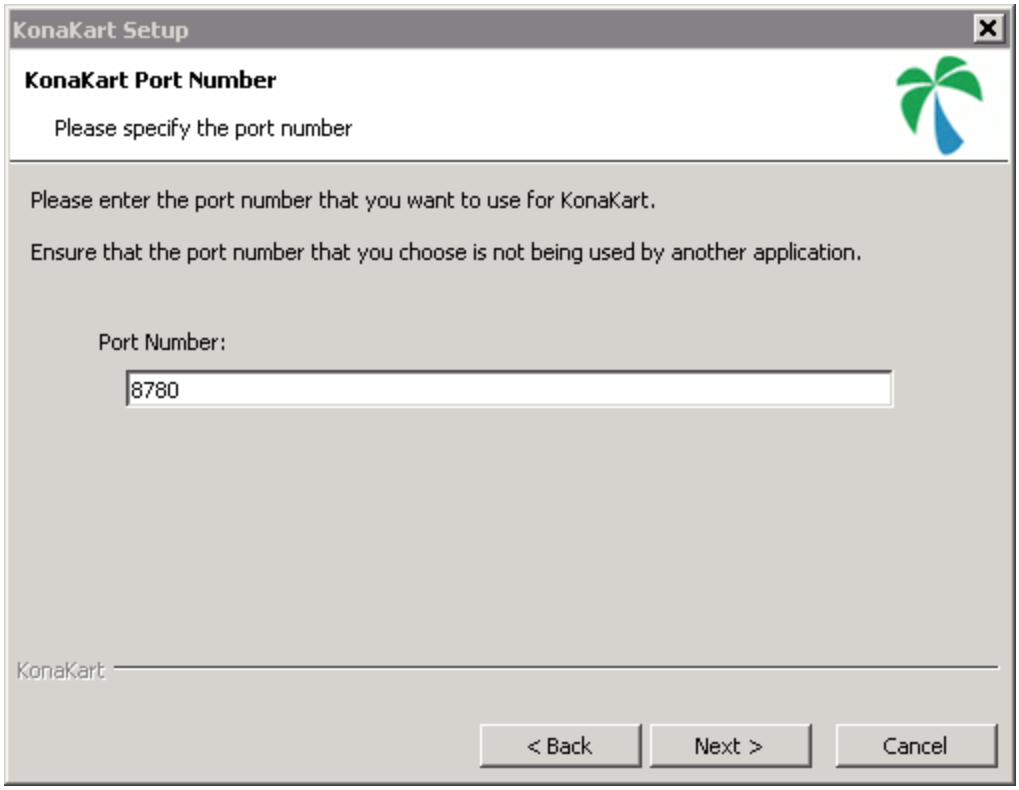
On clicking next you reach:



Here you have to confirm or specify the location of the java runtime environment. The wizard will try to find this for you but it is not always successful. In the cases where it isn't successful (or you wish to change its selection) you will have to enter the location manually. If you have installed java v5 or v6 in the default location or it appears in your environment's path, the wizard should find it for you.

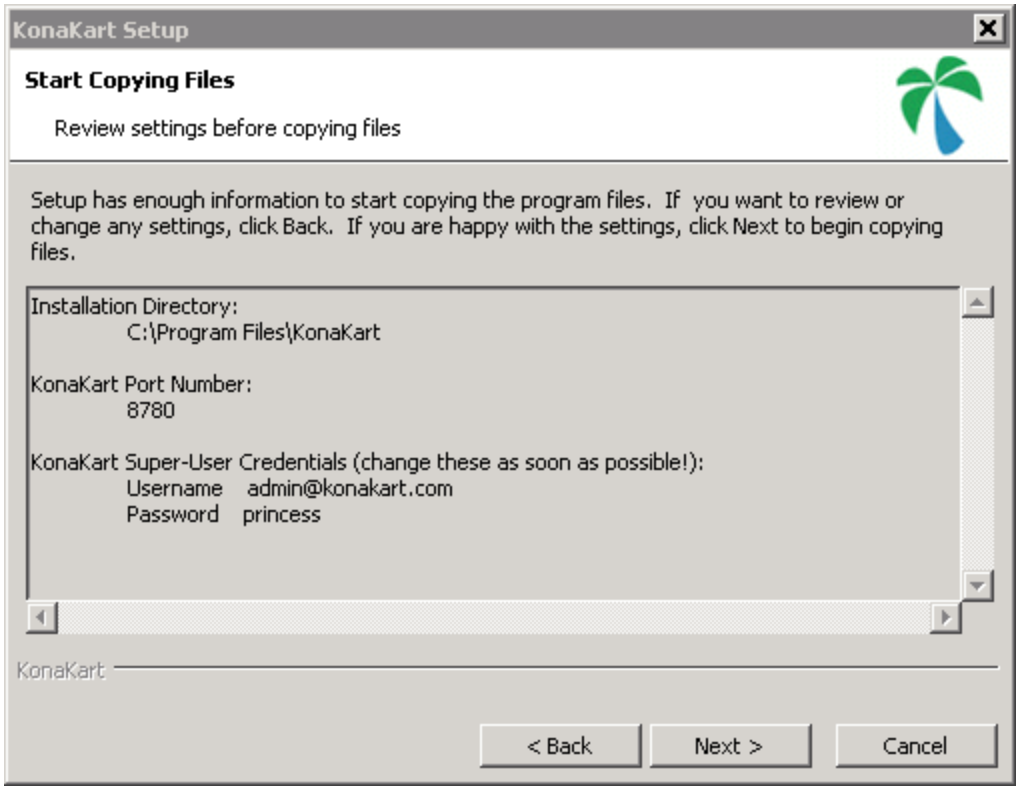
The java location selected is validated to help you avoid typing errors and will only allow you to proceed in the wizard when it validates the location successfully.

Click on next to get to:



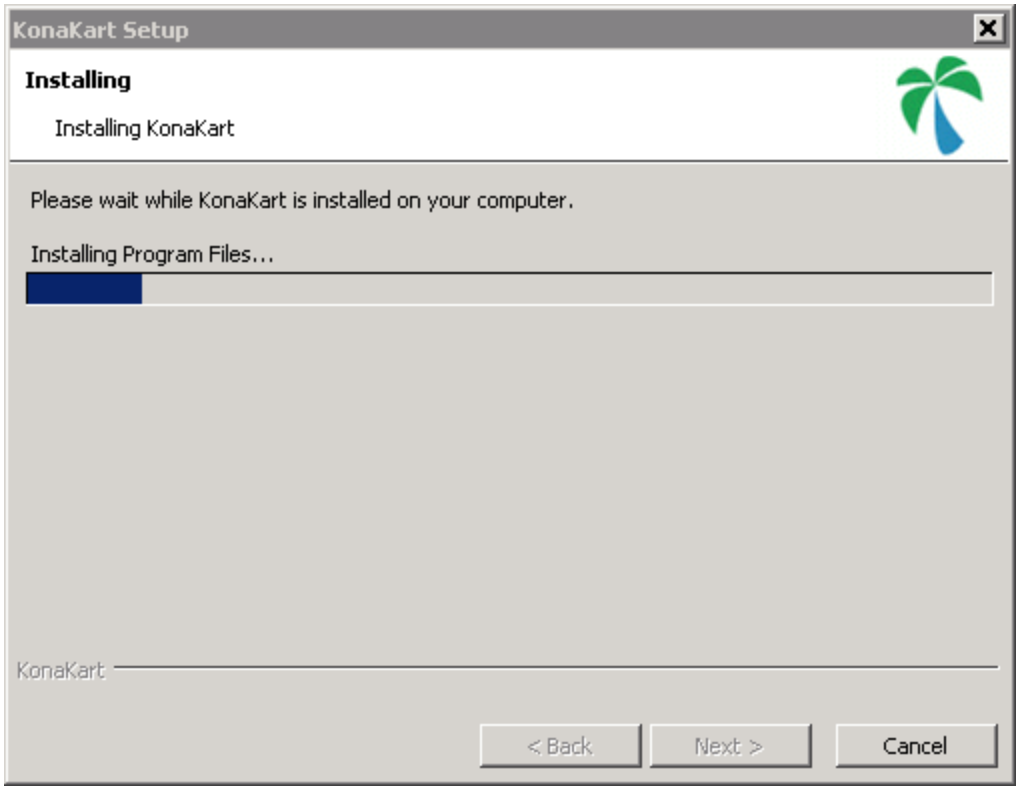
This is where you define the port number that KonaKart will run on. Actually, KonaKart uses Apache Tomcat, so this is the port number that Tomcat is configured to run on. Whilst it is certainly possible to choose another port, it's advisable to accept the default which is 8780. KonaKart will not start up if another application is using the port you select, so make sure the port you select here is not currently being used.

Clicking next moves you on to:

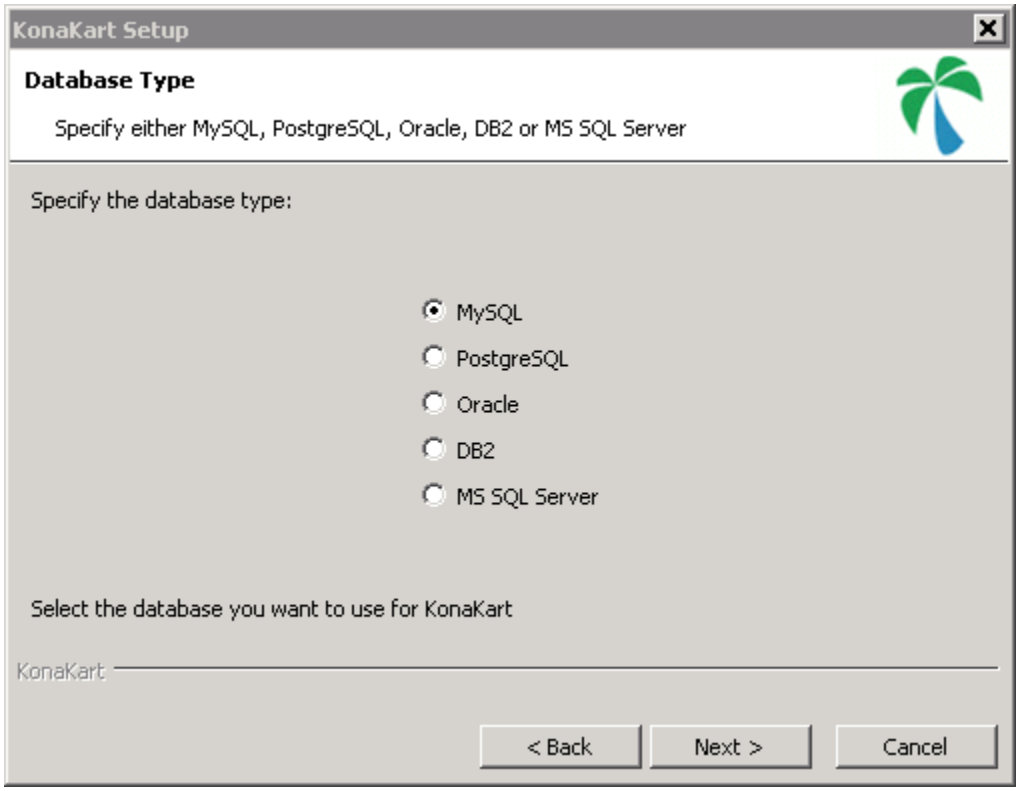


This is your final chance to check your settings before copying the files into position.

Clicking next will start the process of copying the KonaKart files into position as can be seen on the next screen:

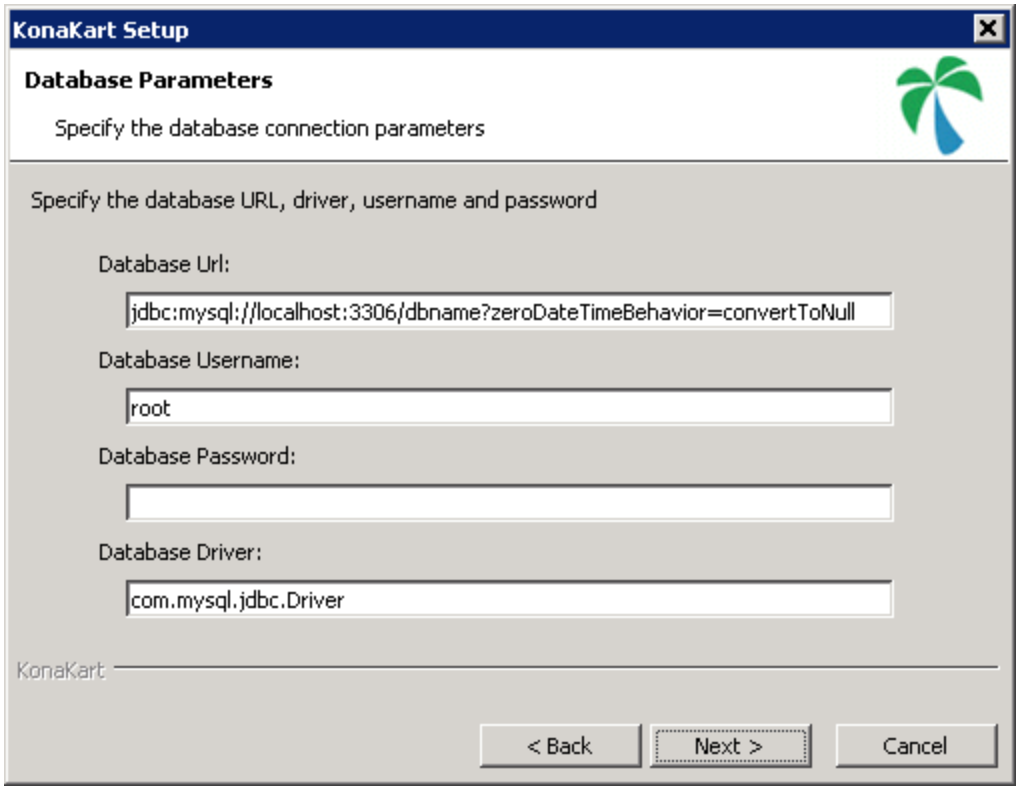


After about a minute or so the file copying will have completed and you are presented with this screen to choose the Database Type that you wish to use:



Choose your preferred database type. You must set up the database yourself - this is not done as part of the installation (see database creation).

Click next to continue to :

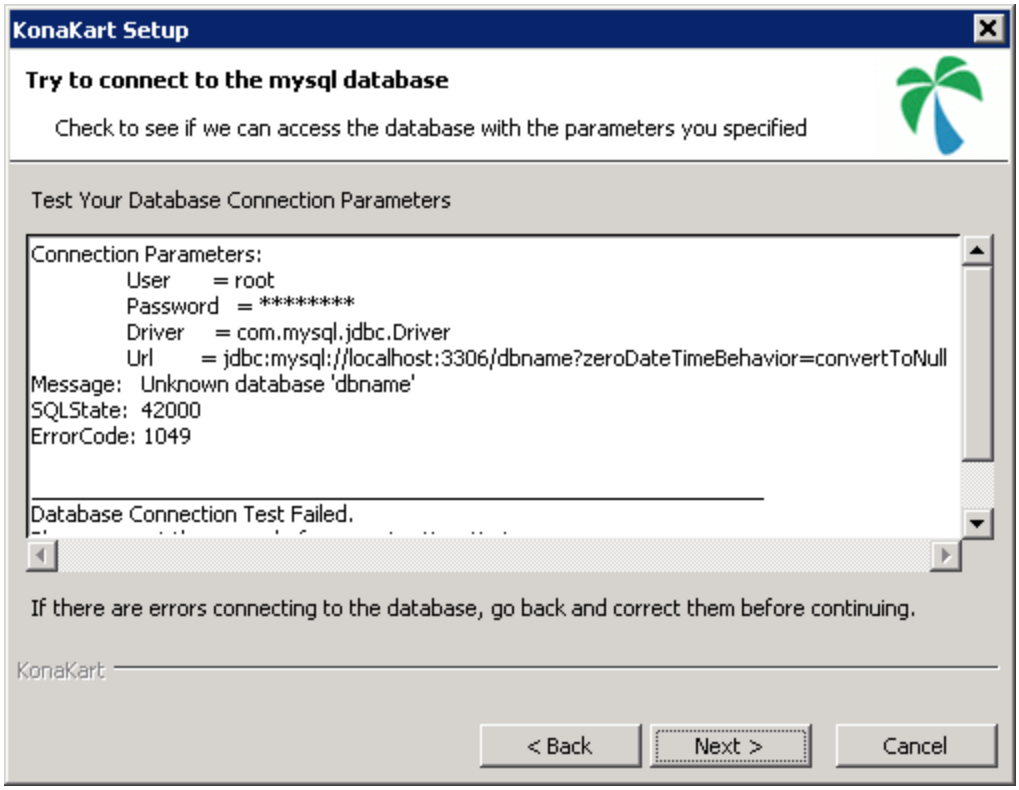


It is very likely that you will have to modify values on this screen. You have to define the database connection parameters to KonaKart for the database that you created earlier (see database creation)

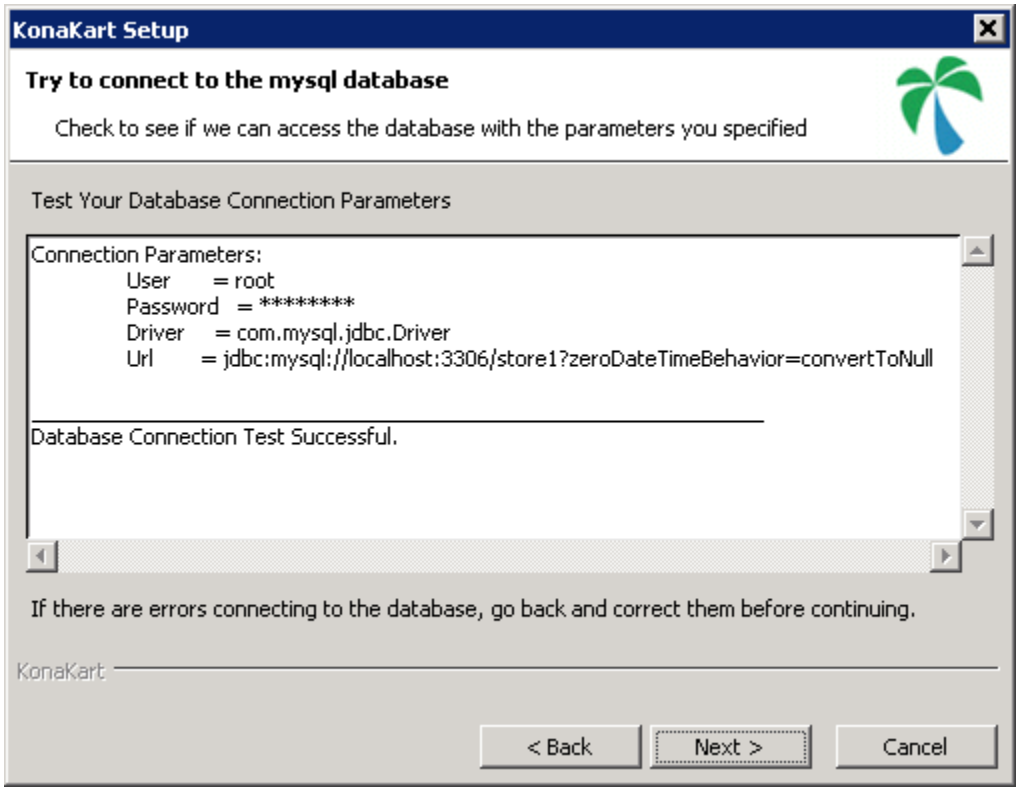
KonaKart currently supports MySQL, PostgreSQL, Oracle, DB2 and MS SQL Server and includes all the JDBC driver jars required to access these.

Note that you must append "?zeroDateTimeBehavior=convertToNull" to your Database URL if you're using MySQL. Typically, for MySQL, you will need to change "dbname" in the default URL for the name of your own database schema. A good example for such a name might be "store1" or "konakart" but you are free to choose whatever name you like.

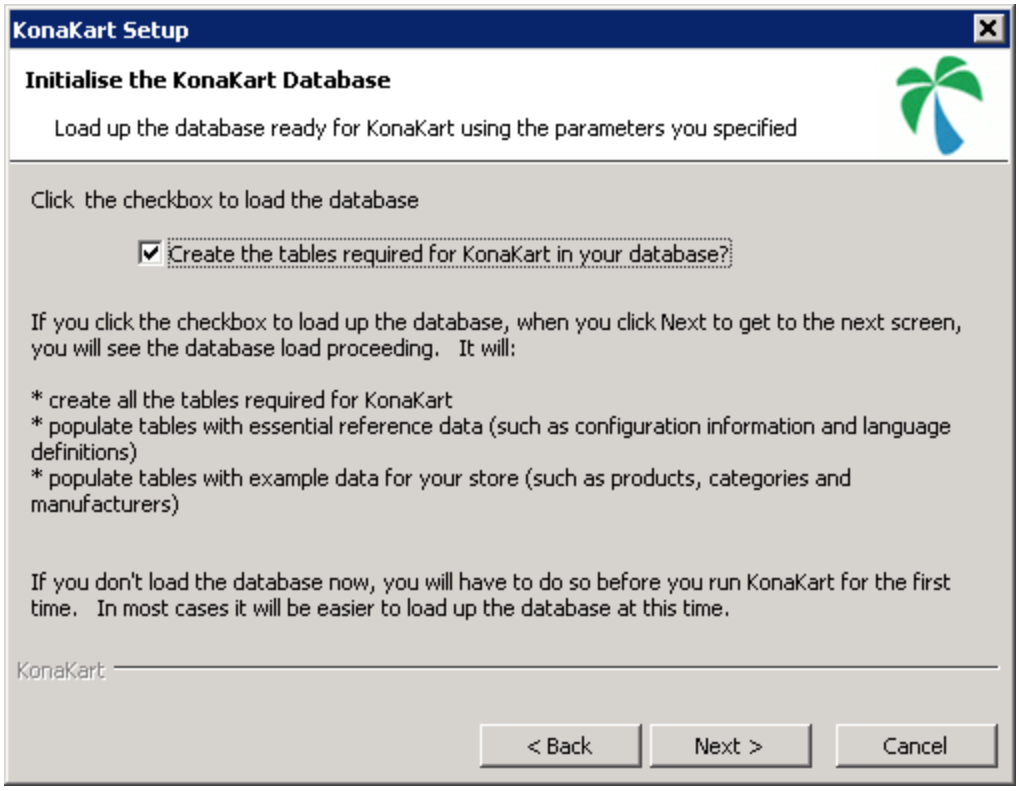
After clicking next, the installer will check the database connection and report the results on the next screen as follows. For an unsuccessful connection you will see something like this:



At this point you can go back and modify the database connection parameters and then click next to try the database connection test again. If successful you will see a screen like this:



If the database connection fails, you can choose to click on next and finish the installation without executing the database initialisation. Normally, for a fresh install, you are advised to correct your database connection parameters so that you see a successful database connection message, then proceed to the database initialisation screen which looks like this:

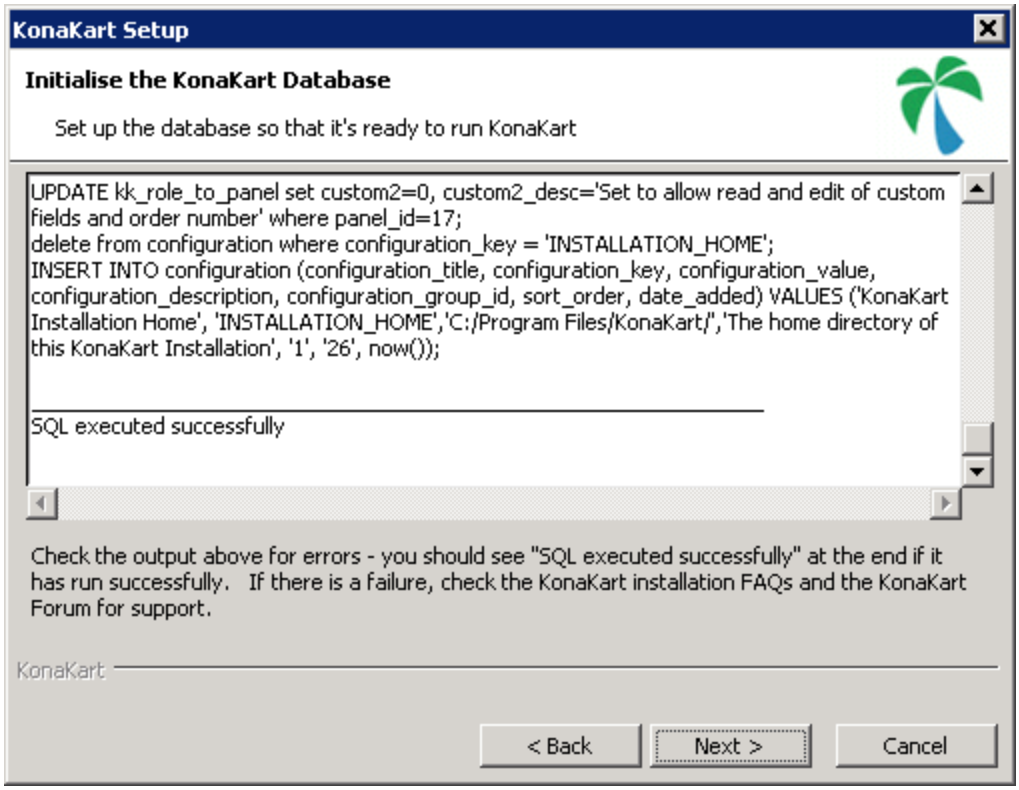


Note that the default is that the database initialisation is NOT executed. To execute it you must click on the checkbox and click next to reach the next step.

Be warned that the database initialisation script will drop and re-create all the KonaKart tables and populate them with a default set of starting data. This default starting position is ideal for users who are setting up KonaKart for the first time but this is probably not what you want to do if you already have a KonaKart database with a product catalog loaded for your store.

Note that for users who already have an existing KonaKart database (or an osCommerce database) there may be additional steps to ensure your database is suitably-configured for the version of KonaKart that you're installing. See Database Creation.

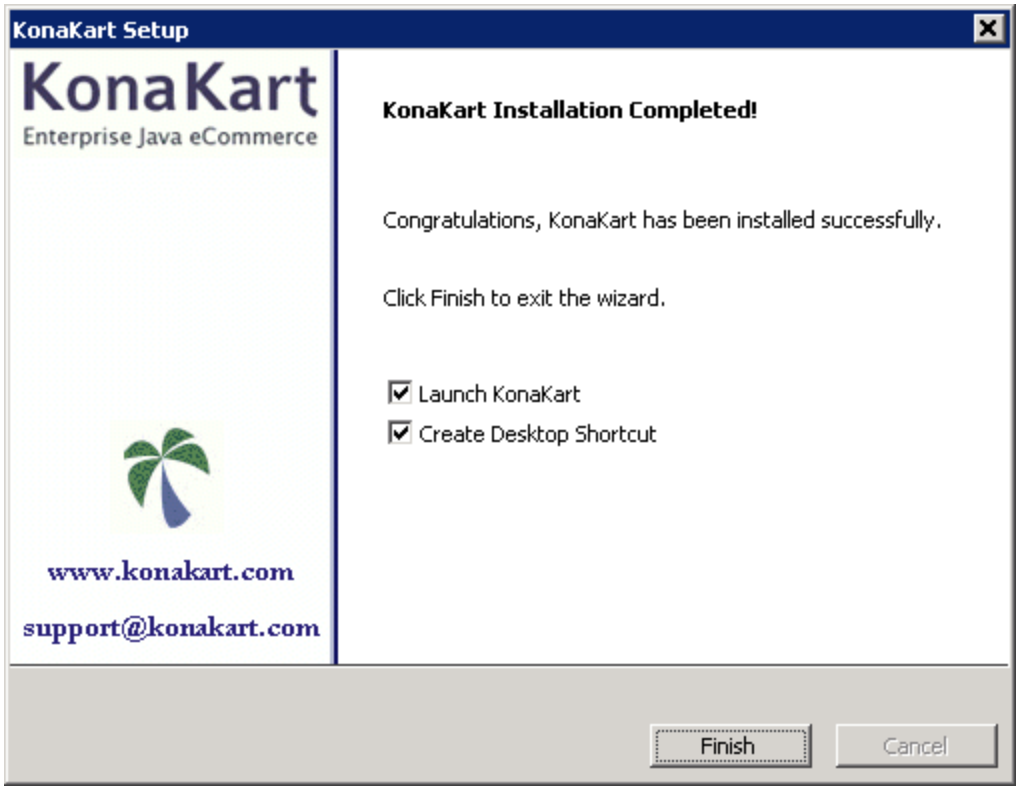
If you do not check the 'Create the tables..' box then click next you would jump to the final page of the wizard. Alternatively, if you do check the 'Create the tables...' box then click next, you will be presented with a screen that shows the loading of the database initialisation script in a scolling window which will look like this:



In the above example the script ran successfully (see last comment "SQL executed successfully" in the scrollable text area). If the script does not run successfully you will see the error message in this window.

After clicking next you reach the following screen:

Finally you are congratulated on a successful installation on the final screen of the wizard:



Finally you have the option to create a desktop icon (which is defined to start the KonaKart server and launch the GUI) and launch the application immediately after the installation has completed. The "Launch KonaKart" option executes a startup of the KonaKart server and then launches the default browser to show the KonaKart UI, and the KonaKart Administration Application.

Manual Installation

If you are installing on a platform that supports the GUI installer (Windows, Linux, Unix), it is recommended that you use that. If not, but you are on a platform that supports the silent form of the installer (again Windows, Linux, Unix), it is recommended that you use that. Otherwise, use the manual installation.

If you plan to install KonaKart in an existing servlet container, it is still advisable to run through the GUI installer if you can. The reason for this is that it will populate all the properties files for you and load your database automatically. Once you have done this you can make WARs from the GUI-installed version of KonaKart (details below) and deploy them elsewhere as you please.

These instructions for manually installing KonaKart were first provided in a post to our forum by "BoJo" (aka "Bob") and have been expanded here.

The KonaKart Installation section contains general KonaKart installation instructions (although focuses on using the GUI-driven and silent versions of the installer) and contains important information that is also relevant for the manual installation so check this before starting out.

In general, you need to follow all the documented installation instructions except for the "Install KonaKart" section which explains how to use the automated GUI and Silent versions of the installation.

Perform all the documented installation instructions for:

- A Java runtime environment

- A database loaded with KonaKart tables

For the purposes of this FAQ we'll use MySQL and a database named "konakart".

1. Populate the Database

   Make sure you have created an empty database instance in the RDBMS of choice as per the FAQ instructions: eg:

```
$ mysql> create database konakart
```

   To create the database load konakart_demo.sql for the database you have chosen. In this case:

```
$ mysql -u root -p konakart < ./konakart/database/MySQL/konakart_demo.sql
```

2. Configure the Properties Files

   a. Download the zip file

      Download the zip file for manual installation as described on the Downloads [http://www.konakart.com/downloads.php] page

   b. Set Database Parameters

      Set DB name (and other database connection parameters) in *konakart.properties* and *konakartadmin.properties* Change the string "dbname" to the name of your database (in this case "konakart") in the following files:

      {konakart}/webapps/konakart/WEB-INF/classes/konakart.properties

      {konakart}/webapps/konakartadmin/WEB-INF/classes/konakartadmin.properties

      This is documented in the "Defining the Database Parameters" section below.

3. Deployment

   Now, when it comes to deployment, there is a choice.

   Either: run KonaKart using the tomcat that was provided in the download kit or create WARs and load them into your chosen servlet container.

   a. Deploy to the tomcat provided

      i. Start tomcat using {konakart}/bin/startkonakart.sh (or, if you are working on Windows, use {konakart}\bin\StartAndLaunchKonaKart.bat).

      ii. Run KonaKart and KonaKartAdmin

         Try http://localhost:8780/konakart/ [http://localhost:8780/konakart/] and http://localhost:8780/konakartadmin/ [http://localhost:8780/konakartadmin/] in your browser.

   b. Create WARs and deploy in another servlet container

      i. Generate and deploy the war files.

```
$ cd {konakart}/custom
$ ./custom/bin/ant make_wars
```

More detailed instruction for building the war files are available in the customization section if you need them.

Deploy the generated WAR files. This is different for different servlet containers, but for tomcat, just copy the .war files in {konakart}/custom/war to your tomcat's *webapps* directory.

Restart the servlet container if necessary.

ii. Run KonaKart and KonaKartAdmin

Try http://localhost:8780/konakart/ [http://localhost:8780/konakart/] and http://localhost:8780/konakartadmin/ [http://localhost:8780/konakartadmin/] in your browser, adjusting the port as necessary if you deployed to a different port number.

Starting Up and Shutting Down KonaKart

If you are not using the default bundled tomcat refer to your chosen servlet container's startup/shutdown procedures. If you have installed the default KonaKart system with a bundled tomcat, you can follow these instructions to startup and shutdown KonaKart:

Starting up KonaKart

The KonaKart Server can be started by executing the following commands:

```
c:\> %CATALINA_HOME%\bin\startkonakart.bat                (Windows)

$ ${CATALINA_HOME}/bin/startkonakart.sh                (Unix/Linux)
```

On Windows there are also shortcuts created under the KonaKart program group that can be used to:

- start the KonaKart Server
- stop the KonaKart Server
- launch the KonaKart application in your default browser
- launch the KonaKart Administration application in your default browser
- uninstall KonaKart

Shutting down KonaKart

KonaKart can be shut down by executing the following command:

```
c:\> %CATALINA_HOME%\bin\stopkonakart.bat              (Windows)

$ ${CATALINA_HOME}/bin/stopkonakart.sh              (Unix/Linux)
```

On Windows a shortcut is created under the KonaKart program group that can be used to shut down the KonaKart server.

Default Admin App Credentials

Three users are created with different roles assigned.

Username	*Password*	*Roles*
admin@konakart.com	princess	KonaKart Super-User
root@localhost	password	Sample User
cat@konakart.com	princess	KonaKart Catalog Maintainer
order@konakart.com	princess	KonaKart Order and Customer Manager

Choose new usernames and passwords to secure the KonaKart Administration Application at the earliest opportunity.

The default users and roles are set up as examples of typical configurations of the role-based security system. You may wish to add new Admin users or adjust some of the roles as you see fit. The three users above should give you a few ideas about how the system can be configured.

The three users above are defined as "Admin Users". Note that "Admin Users" can actually log in to the KonaKart store using the same credentials. It doesn't work the other way around however: "Non Admin Users" cannot log into the Admin Application.

Although it's not recommended, it is possible to disable security completely if you wish. To configure this, see the comments inside the konakartadmin.properties file which can be found under the konakart installation directory at:

```
webapps\konakartadmin\WEB-INF\classes\konakartadmin.properties
```

(There are a number of additional configuration options that you can adjust to modify the behaviour of the KonaKart Administration Application - please refer to the comments in in the above properties file for details).

Super User

A "Super User" must be an Admin User with a role that has the super_user indicator set.

Since the "Super User" has privileges to change all the configuration settings in a KonaKart store, you must guard these credentials carefully.

Ensure that you change the password of the "Super User" account(s) as required by your Site Security policy for highly-privileged accounts.

Installation Notes for Databases

Defining the Database Parameters

You define the database parameters in two configuration files underneath your konakart installation directory at:

```
webapps\konakart\WEB-INF\classes\konakart.properties
  and
webapps\konakartadmin\WEB-INF\classes\konakartadmin.properties
```

(Therefore, the default on Windows will be at C:\Program Files\KonaKart\webapps\konakart\WEB-INF\classes\konakart.properties).

Inside these files you will find: (the url parameter is broken into two lines for readability only - you should keep it on one line)

```
# ----------------------------------------------------------------------------
#  D A T A B A S E   P R O P E R T I E S
#  Database Connection Parameters Set by Installer on 20-Jan-2009
# ----------------------------------------------------------------------------

torque.applicationRoot = .

torque.database.default                    = store1

torque.database.store1.adapter             = mysql
torque.dsfactory.store1.connection.driver  = com.mysql.jdbc.Driver
torque.dsfactory.store1.connection.url     =
               jdbc:mysql://localhost:3306/store1?zeroDateTimeBehavior=convertToNull
torque.dsfactory.store1.connection.user    = fruit
torque.dsfactory.store1.connection.password = secret

----------------------------------------------------------------------------
```

Leave the torque.database.default equal to store1.

You need to set the five parameters appropriate for your environment:

- torque.database.store1.adapter (either "mysql", "oracle", "db2net", "mssql" "postgresql")
- torque.dsfactory.store1.connection.driver (All JDBC drivers for the supported databases are on the default classpath)
- torque.dsfactory.store1.connection.url (keep the value on the same line after the equals sign)
- torque.dsfactory.store1.connection.user
- torque.dsfactory.store1.connection.password

Defining the Database Parameters - Using JNDI

It is also possible to define your data source using JNDI. (For various optional configurations not covered here please refer to the Torque Database Configuration documentation on the Apache site.)

In this example Torque is configured to create a JNDI Data Source and deploy it into JNDI:

You would modify your konakart.properties files by commenting out the connection properties used by the default SharedPoolDataSourceFactory factory and replace them as follows:

```
torque.dsfactory.store1.factory              = org.apache.torque.dsfactory.JndiDataSourceFactory
torque.dsfactory.store1.jndi.path            = jdbc/konakart
torque.dsfactory.store1.jndi.ttl             = 60000
torque.dsfactory.store1.datasource.classname = org.apache.commons.dbcp.BasicDataSource

torque.database.store1.adapter               = mysql

torque.dsfactory.store1.jndi.java.naming.factory.initial = \
                                                 org.apache.naming.java.javaURLContextFactory

torque.dsfactory.store1.datasource.driverClassName = com.mysql.jdbc.Driver
torque.dsfactory.store1.datasource.url      = \
                           jdbc:mysql://localhost:3306/store1?zeroDateTimeBehavior=convertToNull
torque.dsfactory.store1.datasource.username = fruit
torque.dsfactory.store1.datasource.password = secret

#For JNDI you also need to comment out the following line (as it has been replaced above:
#torque.dsfactory.store1.factory=org.apache.torque.dsfactory.SharedPoolDataSourceFactory
```

For the database definition for the BIRT reporting engine you need to leave the original connection properties either in a separate properties file or in konakartadmin.properties as follows:

```
# Leave these for the BIRT reports

torque.dsfactory.store1.connection.driver   = com.mysql.jdbc.Driver
torque.dsfactory.store1.connection.url      = \
                         jdbc:mysql://localhost:3306/store1?zeroDateTimeBehavior=convertToNull
torque.dsfactory.store1.connection.user     = fruit
torque.dsfactory.store1.connection.password = secret
```

Note that if you chose to use a separate file, remember to add that file name to the "var dbPropsFile" definition in the "...\webapps\birtviewer\reports\lib\konakart.rptlibrary" file.

Notes for DB2 and Oracle

In addition to the settings above, you have to set the validationQuery for DB2 and Oracle slightly differently to the others, as follows. This section is defined just below the database parameter definitions in the two properties files (konakart.properties and konakartadmin.properties):

```
# The SQL query that will be used to validate connections from this pool before
# returning them to the caller. If specified, this query MUST be an SQL SELECT
# statement that returns at least one row.
# Recommended settings:
# for MySQL/PostgreSQL/MS SQL use: SELECT 1
# for Oracle                  use: SELECT 1 from dual
# for DB2                     use: SELECT 1 FROM sysibm.sysdummy1

torque.dsfactory.store1.pool.validationQuery=SELECT 1
#torque.dsfactory.store2.pool.validationQuery=SELECT 1

-------------------------------------------------------------------
```

Notes for Postgresql

Note that the SQL that is optionally run at installation time uses the "DROP TABLE IF EXISTS TABLENAME;" command. This works fine for PostgreSQL 8.2 and above (which support "IF EXISTS") but not for earlier versions.

This is only a problem during the installation process; KonaKart performs well on versions of PostgreSQL prior to 8.2. To workaround this problem, for example for PostgreSQL 8.1, you will have to edit the database/konakart_demo.sql file and remove all the "DROP TABLE" commands then run this SQL manually. In addition to modifying the "IF EXISTS" syntax you will also have to add SQL statements to create sequences for all the SERIAL primary keys. For example, for the counter table, which is created like this:

```
CREATE TABLE counter (
  counter_id SERIAL,
  startdate char(8),
  counter integer,
  PRIMARY KEY (counter_id)
);
```

You have to create the SEQUENCEs with these conventions:

```
CREATE SEQUENCE <table>_<SERIAL column>_seq
```

for example:

.. for the counter_id column in the counter table above, you need to create a SRQUENCE like this:

```
CREATE SEQUENCE counter_counter_id_seq
  INCREMENT 1
  MINVALUE 1
  MAXVALUE 9223372036854775807
  START 1
  CACHE 1;
```

Another, preferable, alternative is to update to the latest version of PostgreSQL and run the standard GUI installation and have all the data loaded by the installer.

Notes for MySQL

Note that the SQL that is optionally run at installation time uses the "DROP TABLE IF EXISTS" syntax. This works fine for MySQL 5 and above, but not on MySQL 4.1.

This is only a problem during the installation process; KonaKart performs well on MySQL 4.1 but you have to modify the konakat_demo.sql file and run it yourself manually. You have to edit the database/konakart_demo.sql file and remove all the "DROP TABLE" commands then run this SQL manually. After successfully running this SQL you will be able to run KonaKart with MySQL 4.1.

Chapter 6. Installation of KonaKart Enterprise Extensions

This chapter explains how to install the KonaKart Enterprise Extensions.

Please read this section carefully before attempting to install the Enterprise Extensions.

Before You Begin

The KonaKart Enterprise Extensions are installed "on top of" a standard Community Edition installation of KonaKart. Therefore, before you begin, ensure that you have installed KonaKart Community Edition successfully.

The Enterprise Extensions require a Community Edition installation of the same version. Therefore, if you are using an earlier version of KonaKart, you will need to upgrade to the appropriate Community Edition version before attempting an installation of the Enterprise Extensions. There are database upgrade scripts available to help you migrate up to new versions of KonaKart - see the KonaKart installation for details.

Ensure that KonaKart has been stopped before you start the installation process.

Ensure that you have backed up your existing KonaKart data before proceeding. This is a critical step before any upgrade or installation of KonaKart.

There are no additional platform requirements for the Enterprise Extensions - so if your Community Edition of KonaKart is running successfully on your particular platform, you can have confidence that the Enterprise Extensions will also work.

Pre-requisites

The only pre-requisite is:

- A successfully installed KonaKart Community Edition

Create a Database

You will already have created a database for your Community Edition installation which should be working successfully in the standard single-store mode.

Note that when this section of the guide talks about a "database" what it means is a defined set of tables for a defined user and password. Different database suppliers implement this separation differently but so long as you set up your database so that your defined user can create and access his own tables, you can set up your database as you like. In some cases you may wish to load the KonaKart tables in an existing schema for ease of integration to other applications. So long as there are no database object (tables names etc) conflicts, this is fine.

Now you have to consider whether or not you need a new database for the Enterprise Extensions. The KonaKart Engine Mode you require will affect what databases you will have to create.

- Single Store Mode

No new databases are required. The original database set up for your existing Community Edition will be used.

- Multi-Store Shared DB Mode

  No new databases are required. All new stores will use the existing Community Edition database.

- Multi-Store Non-Shared DB Mode

  A new database ("schema", "user" etc. - see above) is required for every new store. The KonaKart Enterprise Extensions installation only supports the population of a second store (called "store2"). If you need to set up additional stores in this mode you will have to create additional databases for those and configure the konakart properties files manually. This is easy to do by following the examples that the Enterprise Extensions installation creates for "store1" and "store2".

  You will need to populate these newly created databases (that is, databases you create after "store2" which is populated by the installer). Populate them using the konakart_demo.sql SQL script which can be found for all supported databases under the database directory under your KonaKart installation directory.

Installing Enterprise Extensions

Use of the KonaKart Enterprise Extensions requires that you first sign an "End User License Agreement". Please see the KonaKart website for further details.

Once you have signed the license agreement you can proceed to install the Enterprise Extensions.

Note that if the GUI or silent installers do not work on your platform you should download the zip version of KonaKart and follow the manual installation instructions.

Take Careful Note: The installation can be configured to execute SQL commands that will change data in your database. Ensure that you have saved a backup of your database before you begin the installation just in case you have to revert.

Installing KonaKart Enterprise Extensions on Windows

Run the set-up program that executes a graphical installation wizard - see Graphical Installation Wizard below. (You can use the "Silent Mode" installation if you prefer, but the graphical version is probably easier if you're installing for the first time).

Installing KonaKart Enterprise Extensions on Unix/Linux

Create a terminal session on your machine and enter the following: (You may prefer to use commands to do the same thing from your X-desktop if you have one installed).

```
$# (replace 3.2.0.0 with the version you wish to install)
$ chmod +x KonaKart-Enterprise-3.2.0.0-Linux-Install
```

If you have a graphical environment on your Linux/Unix machine you will be able to run the GUI. In which case see the Graphical Installation Wizard below (identical steps to the Windows installation).

If you don't have a graphical environment you will see this warning message:

../../src/programlistings/PL_graphical_env.xml

Silent Mode Installations

When running in "silent" (-S) (or "unattended") mode you are able to specify configuration parameters on the command line, for example:

```
$ ./KonaKart-Enterprise-3.2.0.0-Linux-Install -S       \
                  -DDatabaseType mysql                 \
                  -DSharedCustomers True               \
                  -DEngineMode 2                       \
                  -DLoadDB 1                           \
                  -DJavaJRE "/usr/lib/jvm/java-6-sun/"
```

Silent Mode Parameters

The following parameters can be added to the command line, as in the example above, to specify default values for KonaKart at installation time:

Note that the database user, password and URL are only required when you need to define a new database (for example when creating a Multi-Store Multi-Database installation - which is Engine Mode 1).

Parameter	*Default Value*	*Explanation*
DatabaseType	mysql	mysql, postgresql, db2net, oracle, mssql
DatabaseUrl	jdbc:mysql://localhost:3306/dbname?zeroDateTimeBehavior=convertToNull	Database URL
DatabaseUsername	root	Database User's Username
DatabasePassword		Database User's Password
DatabaseDriver	com.mysql.jdbc.Driver	Database Driver
mssqlDBO	dbo	Database Owner (only used by MS SQL Server)
InstallationDir	Windows: C:\Program Files\KonaKart *nix (as root): /usr/local *nix (as user): ~/konakart	Installation Directory
LoadDB	0	1=Load DB 0=Do not Load DB
JavaJRE		The Java runtime location
EngineMode	0	KonaKart Engine Mode (0,1 or 2)
SharedCustomers	True	Share Customers (true or false)
SharedProducts	False	Share Products (true or false)

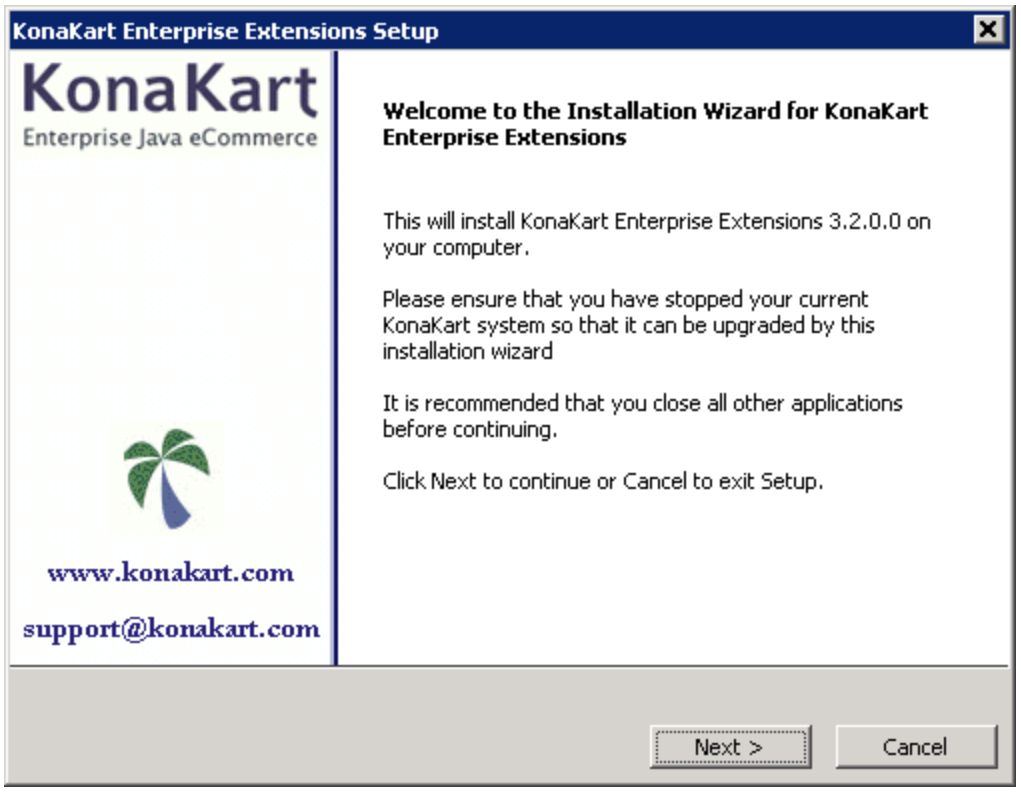
Note that currently you can only have shared Products if you also share Customers.

Graphical Installation Wizard

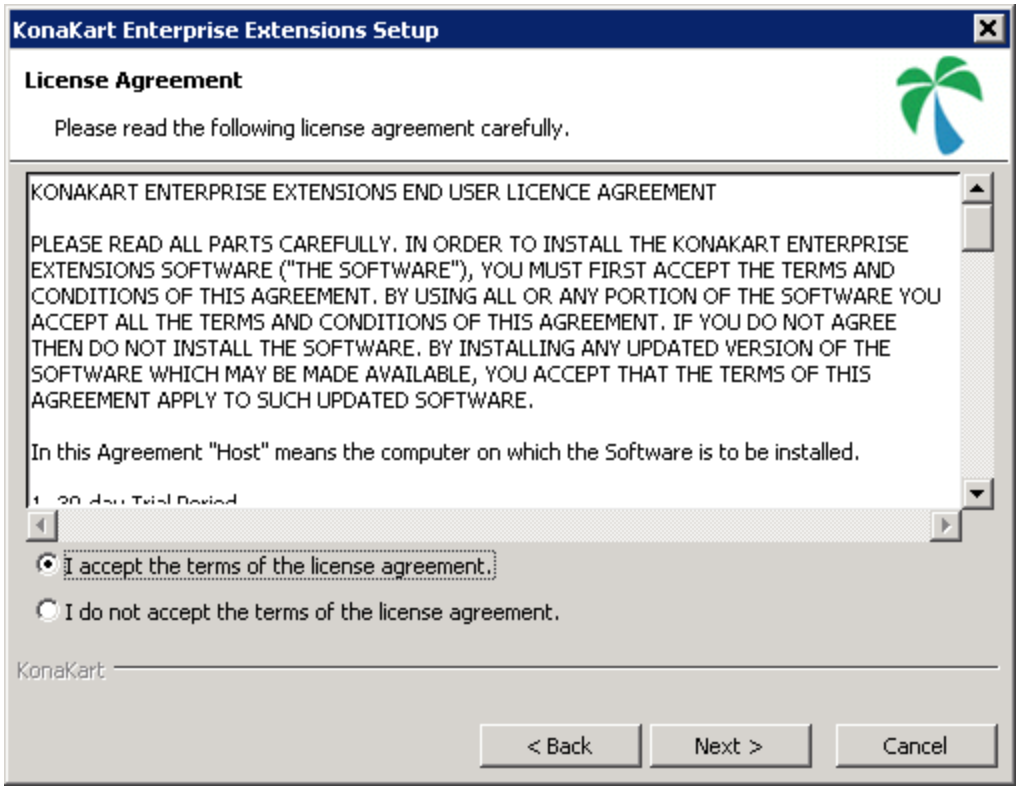
This shows a typical installation that uses the wizard:

Either double-click on the installation setup program (either KonaKart-Enterprise-3.2.0.0-Windows-Setup.exe on Windows, or KonaKart-Enterprise-3.2.0.0-Linux-Install on Linux - or respective later version numbers) or run it from a command shell. You are first presented with this small window which allows you to confirm that you wish to proceed with the installation:

Click on Yes to continue to:

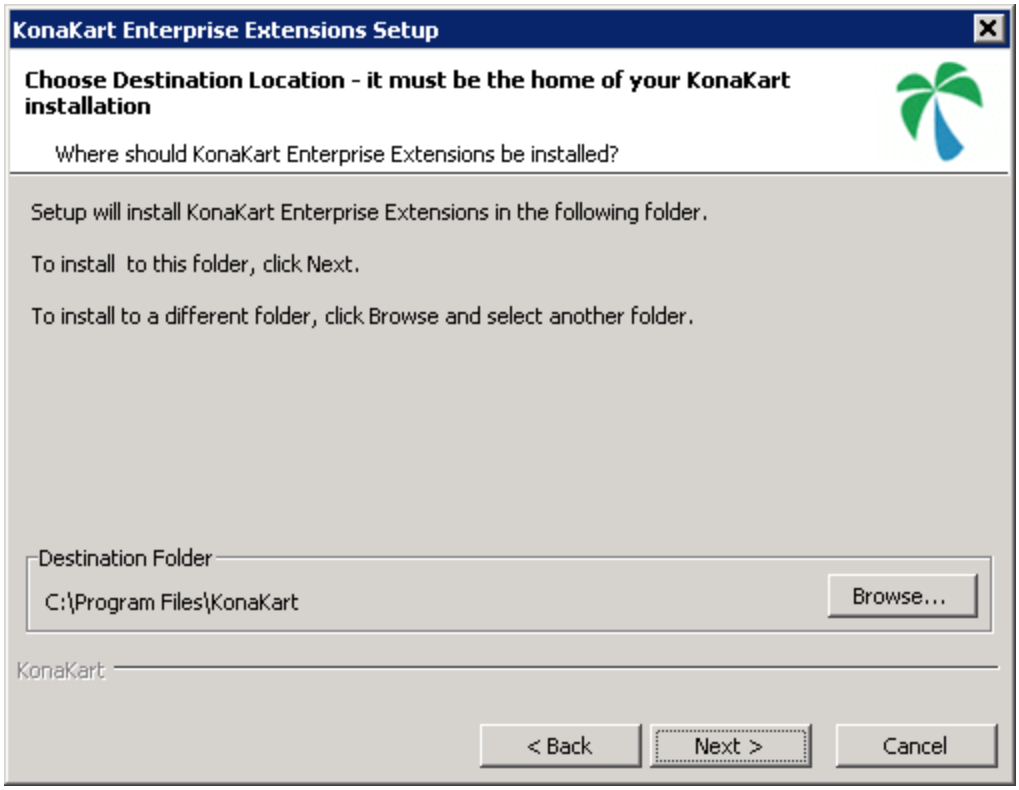


Check that you have the correct version number and click on next to get to the next screen. Note in passing the email address for support questions. Please contact us and / or search the forum if you have any difficulties at all with the installation and we will endeavour to help you as soon as possible.



Please read the license agreement carefully and if you are happy to do so under the terms of the agreement, click on the "I accept the terms of the license agreement" bullet and click next to continue. If you are not prepared to accept that license agreement please quit the installation at this point and delete all copies of the software.

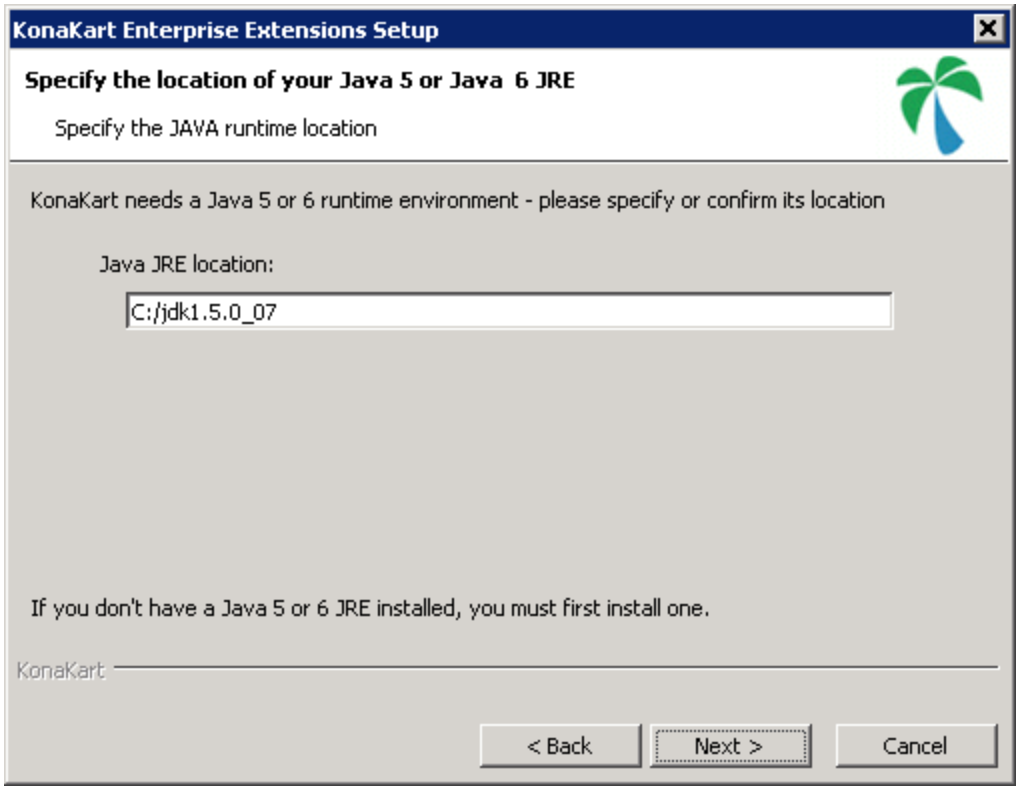
Click on next to reach:



This is where you specify where you previously installed the Community Edition of KonaKart. On Windows this defaults to "C:\Program Files\", on Linux this is the user's home directory (if the user is not root) or "/usr/local" (if the user is root). This can be specified in the silent mode of on the command line of the GUI version using -DInstallationDir.

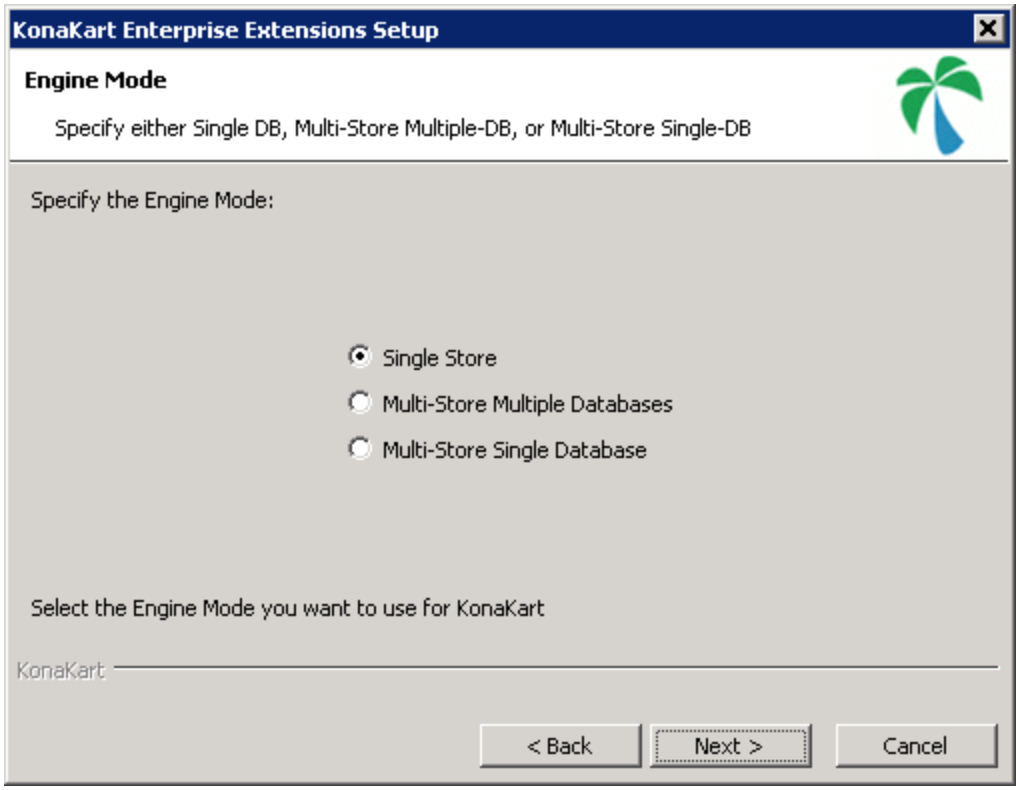
The location specified must match the location of your Community Edition installation.

On clicking next you reach:



Here you have to confirm or specify the location of the java runtime environment. The wizard will try to find this for you but it is not always successful. In the cases where it isn't successful you will have to enter the location manually. If you have installed java v5 or v6 in the default location or it appears in your environment's path, the wizard should find it for you.

Click on next to get to:



This is where you define KonaKart Engine Mode. There are three choices here:

- Single Store (Engine Mode 0)

  This is similar to the way the Community Edition works. There is one database with one store.

- Multi-Store Multiple Databases (Engine Mode 1)

  In this mode, one instance of KonaKart manages multiple stores with the data for each store being held in a separate database. This mode offers some security advantages (database credentials are not shared between stores) but is more effort to maintain as you cannot dynamically-create new stores.

- Multi-Store Single Database (Engine Mode 2)

  In Engine Mode 2 one KonaKart instance manages multiple stores in one database. This is a flexible mode that allows the creation of new stores dynamically. Within this mode there are additional options to define which KonaKart objects (products/customers) you wish to "share" between stores:

  - Shared Products Mode

    In this mode products may be shared amongst the different stores in the KonaKart "mall". Therefore, a product can be made available for sale in any subset of the stores in the mall in Shared Products Mode. To use Shared Products you must also have Shared Customers (see below).

    If some subset of the products are shared between stores, this mode can be advantageous because there is only one copy of each product so maintenance of products can be reduced. If you update the description for a shared product, this description will be available in all stores that share that product.

  - Non-Shared Products Mode

In this mode, the products are not sharable between the individual stores in the mall. The products must be maintained independently for each store. In Non-Shared Products Mode it's possible to have Shared Customers OR Non-Shared Customers (see below).

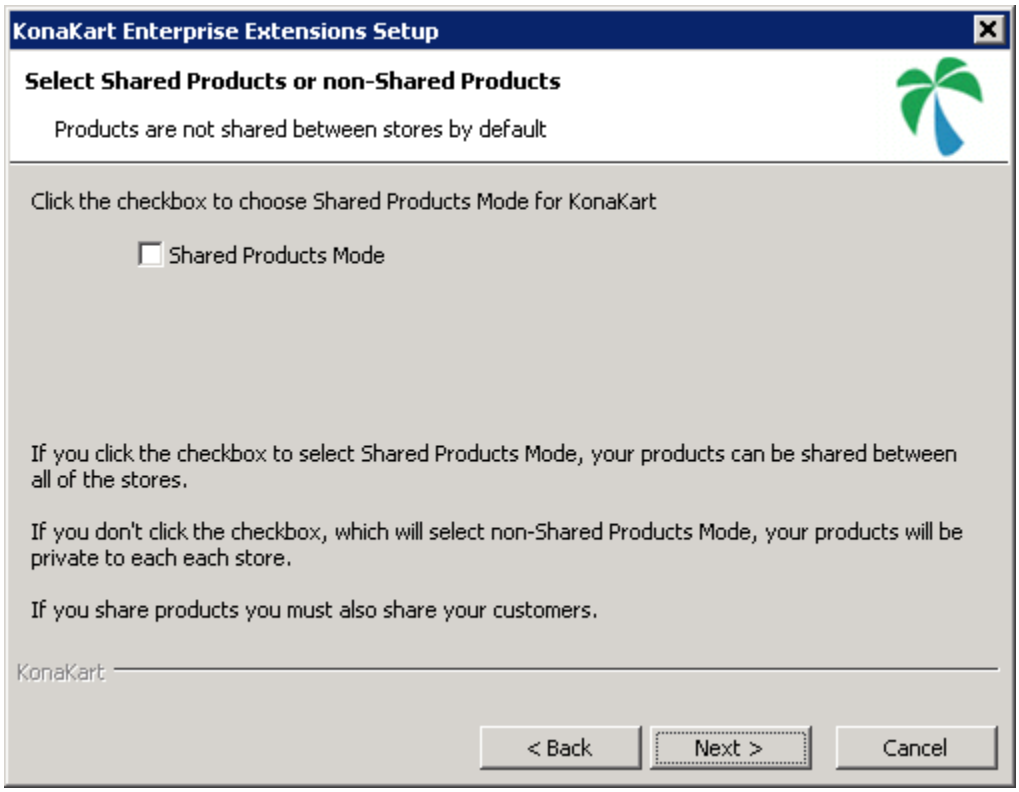
- Shared Customers Mode

  In this mode customers are shared amongst the different stores in the KonaKart "mall". Therefore, a customer who has registered an account with one of the stores in the KonaKart instance, can use the same credentials to log on to any other store managed by the KonaKart instance.

- Non-Shared Customers Mode

  In this mode, one instance of KonaKart manages multiple stores with the data for each store being held in a separate database. This mode offers some security advantages (database credentials are not shared between stores) but, if you need to create a large number of stores, requires more effort to maintain as you cannot dynamically-create new stores.

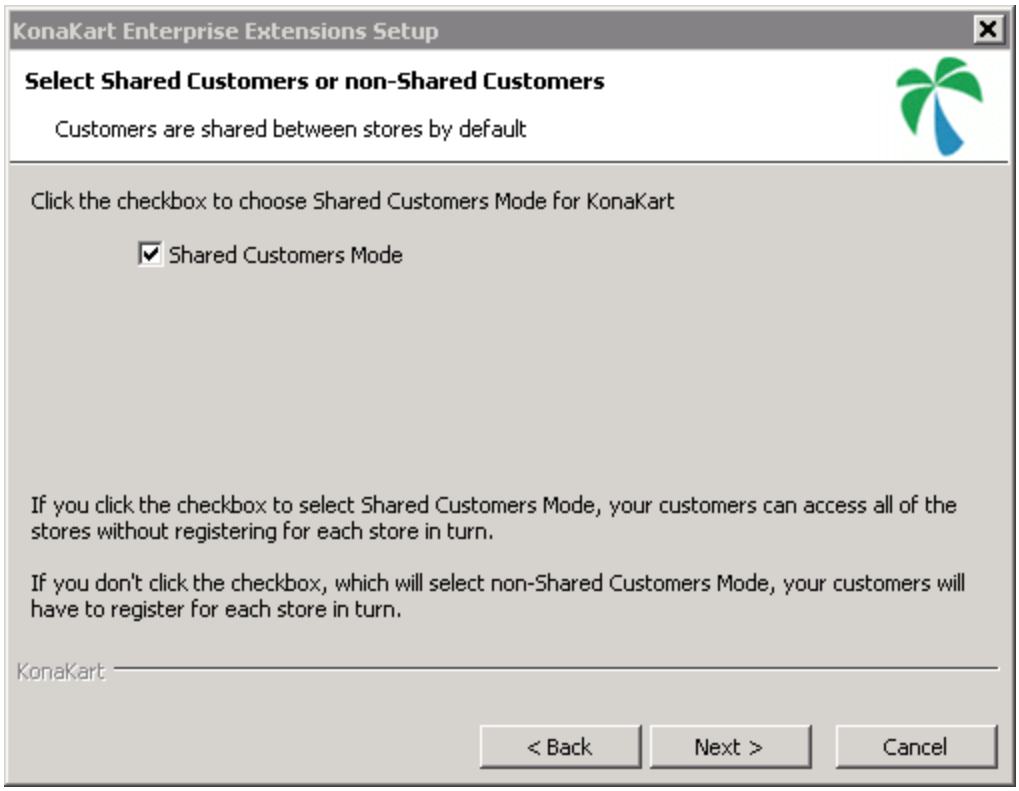
The next screen shown is dependent on which Engine Mode you select. If you select Multi-Store Single DB, you will be presented with this screen, offering you the choice of having "Shared Products" or "Non-Shared Products":



Click the checkbox to choose Shared Products Mode which will allow you to share products between the multiple stores in your mall.

When you click on the "Next" button the next screen presented to you will depend on whether you chose Shared Products or not. Since with Shared Products you must also have Shared Customers Mode, if Shared Products is selected, you will then skip the Shared Customers Choice screen and be back on the same path as if you'd chosen one of the other Engine Modes.

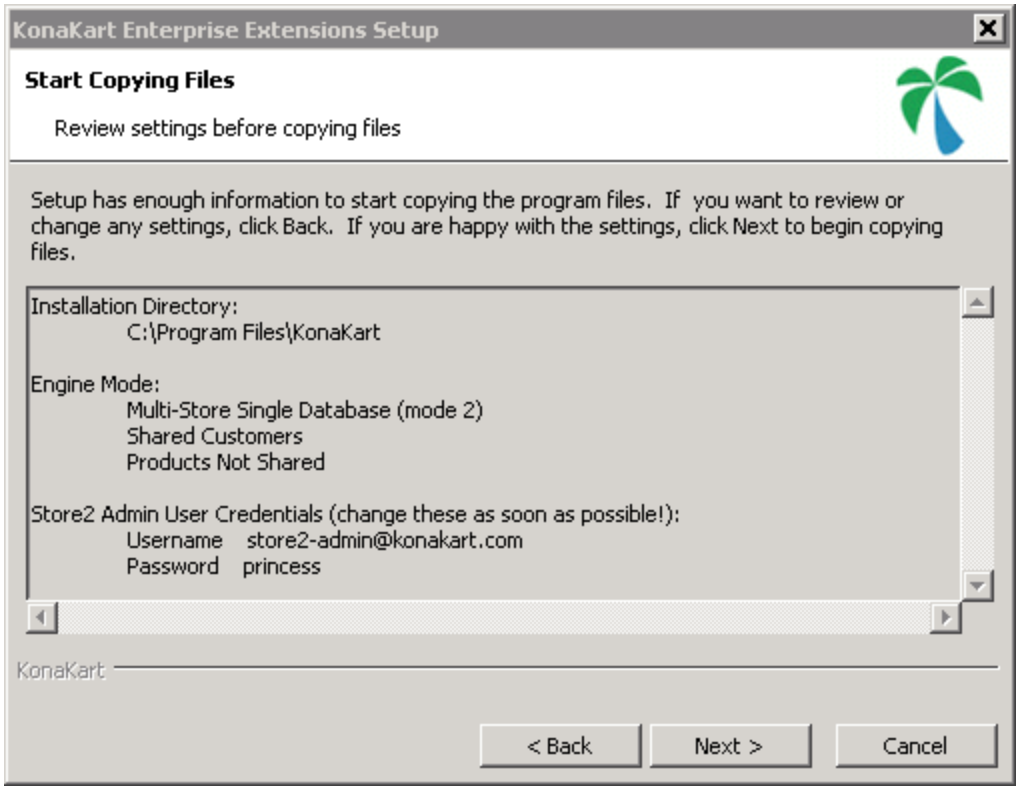
However, if you chose Non-Shared Products mode, you are presented with the following screen where you choose between Shared and Non-Shared Customers:



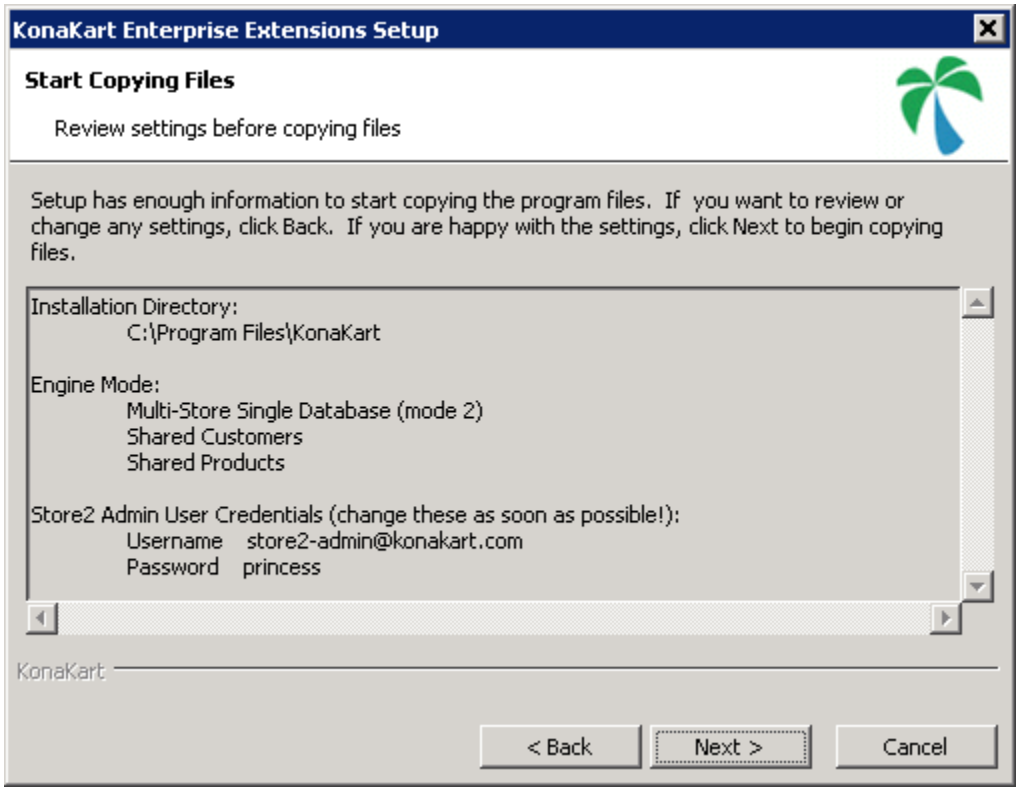
Click the checkbox to choose Shared Customers Mode which will allow customers who register in one of the stores in your KonaKart instance, to be able to log in to the other stores in the KonaKart instance using the same credentials.

When you click on the "Next" button you will be back on the same path as if you'd chosen one of the other Engine Modes on an earlier screen in the wizard.

If you had selected not to Share Products but to Share Customers the next screen will appear as follows:



If you had selected Shared Products Mode and Shared Customers Mode this screen would appear as follows:



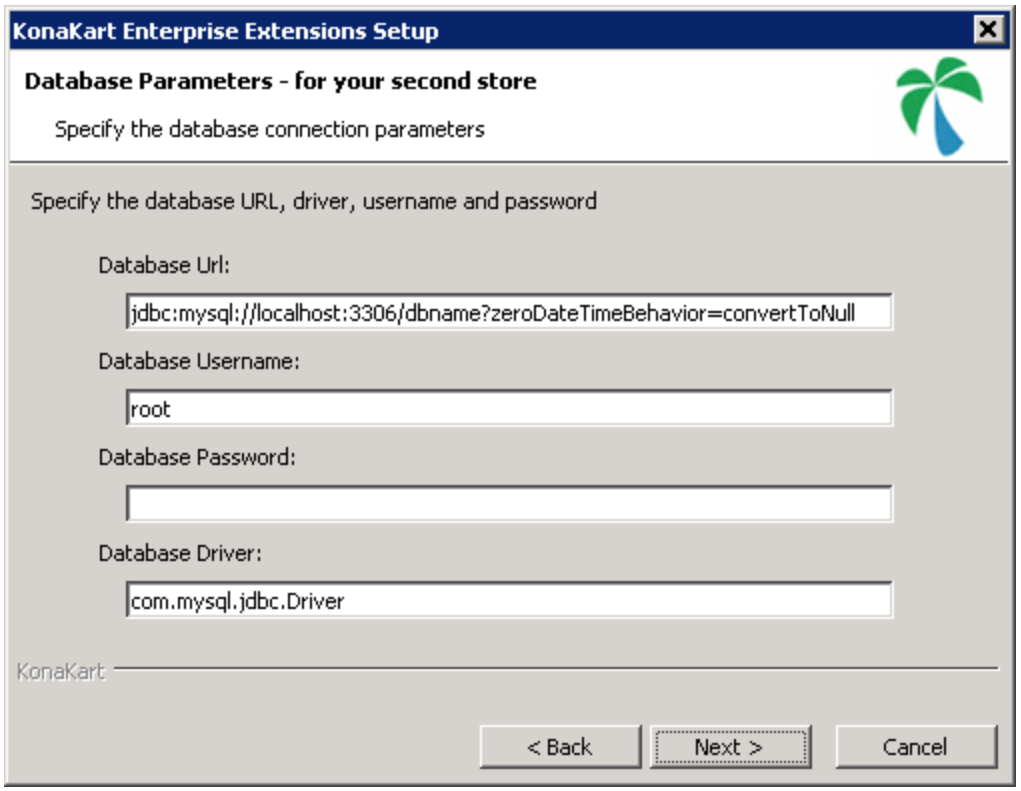
This is your final chance to check your settings before copying the files into position. (The values shown on the screen are dependent on the settings you have selected earlier in the wizard).

Clicking next will start the process of copying the KonaKart Enterprise Edition files into position. The copying of the files is shown on an "Installing Files..." window but there aren't very many files so you may find that it only flashes up for a second or two before moving forward automatically to the next screen.

The next screen in the wizard is again dependent on the selected Engine Mode.

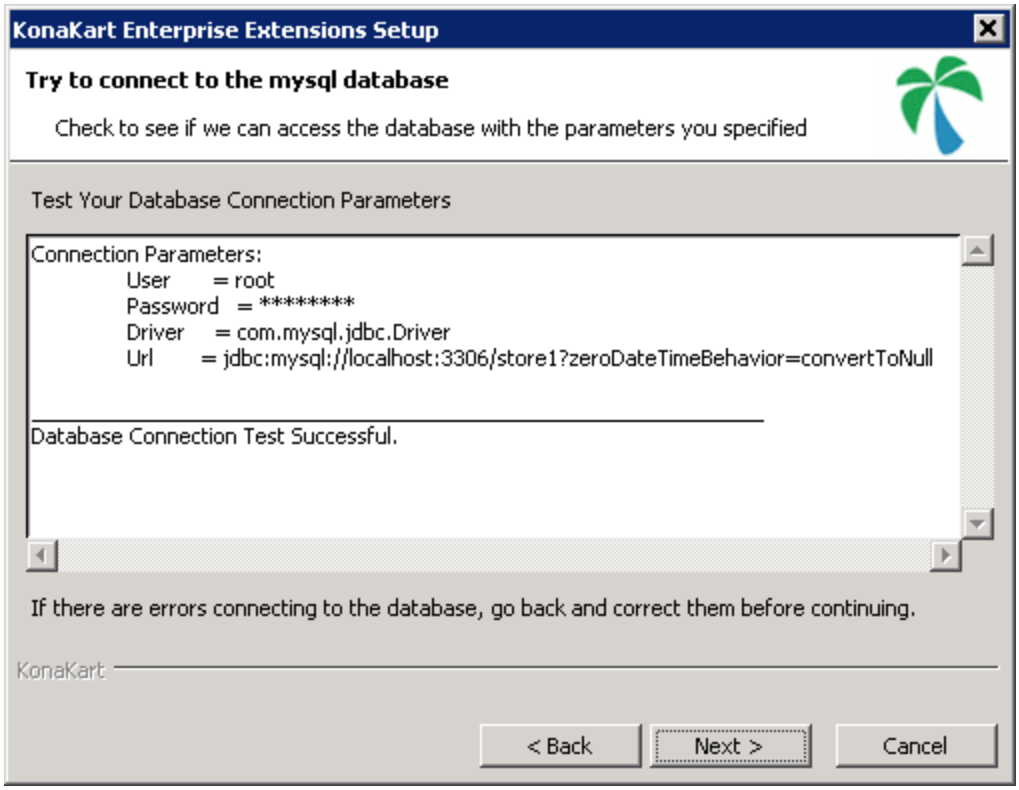
For Single Store Mode you are taken to the very last screen in the wizard which tells you whether or not the installation has been successful and gives you the option to restart KonaKart with the newly installed Enterprise Extensions.

For Multi-Store Multiple DB Mode you are taken to a screen that asks for the database connection parameters for your second store:

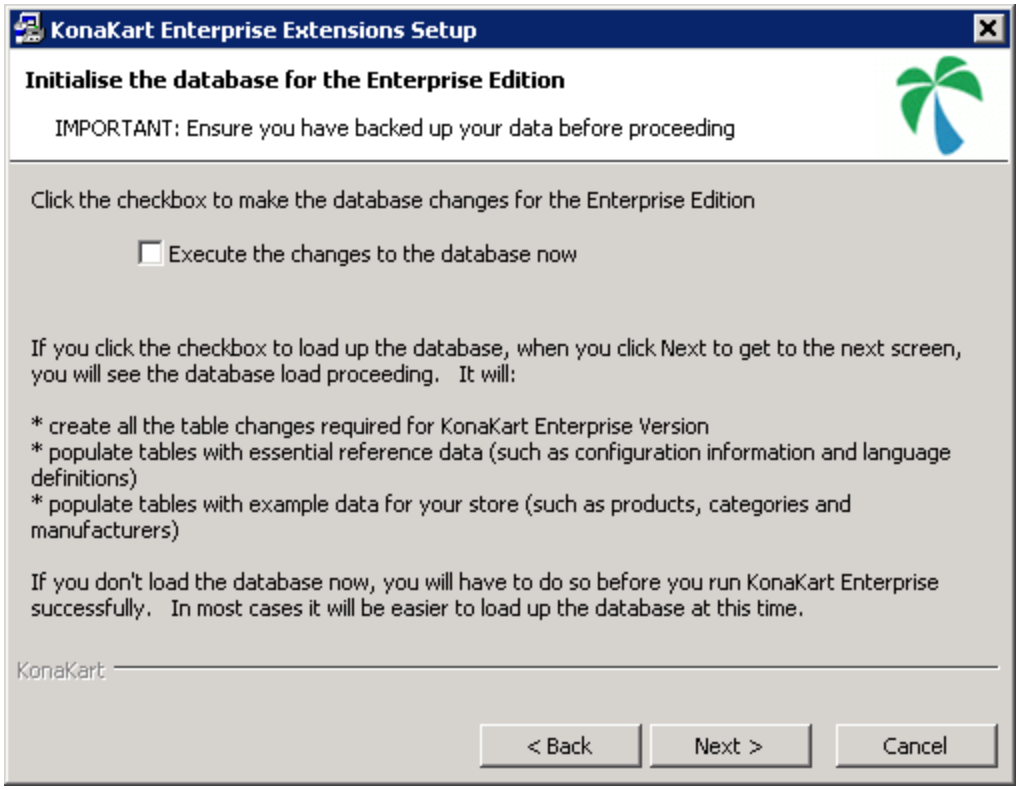


After setting these parameters and clicking on the "Next" button you are taken to a database connection test screen (as below for the Multi-Store Single Database mode)

For Multi-Store Single DB Mode you are taken to a Database Connection Test window which will check to see whether or not it can connect to the database that your existing Community Edition installation of KonaKart is using. This screen looks like this after a successful connection test:



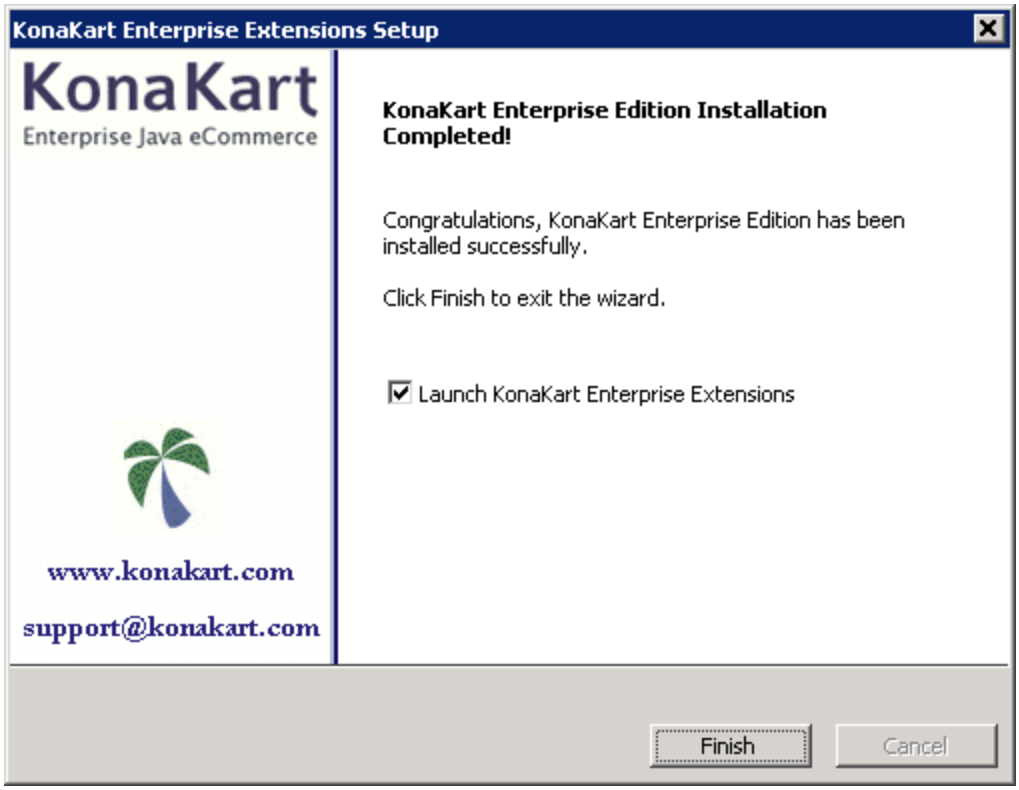
After a successful database connection test, you are asked whether or not you want to load the database with the new Multi-Store data. In most cases you will want to load the data, so click the checkbox on this screen:



After about 10 secs (Single DB mode) or about 60 secs (Multiple DB mode) you will be presented with a screen that will report the success or failure of the database load. (Naturally, the time it takes to complete the database load will depend on how fast your system operates).

If there's a problem with the database load, double-check these installation instructions, check the KonaKart forum for similar problems or, if you have a support contract, contact the KonaKart support team for assistance.

After a successful installation of the KonaKart Enterprise Extensions you will be presented with the following screen:



If you leave the checkbox as it is (the default is checked) the wizard will re-start KonaKart with the Enterprise Extensions, running in the Engine Mode you have chosen.

Click "Finish" to finish the installation.

Run KonaKart and KonaKartAdmin exactly as you did with the Community Edition by entering:

http://localhost:8780/konakart/ [http://localhost:8780/konakart/] or http://localhost:8780/konakartadmin/ [http://localhost:8780/konakartadmin/] in your browser, adjusting the port as necessary if you deployed to a different port number.

Manual Installation of the Enterprise Extensions

If you are installing on a platform that supports the GUI installer (Windows, Linux, Unix), it is recommended that you use that. If not, but you are on a platform that supports the silent form of the installer (again Windows, Linux, Unix), it is recommended that you use that. Otherwise, or if you have other requirements, use the manual installation.

The installation work required is dependent on your target environment. Follow the guidelines for manual installation for your target platform that are documented for the Community Edition. These instructions will supplement those.

However you plan to install KonaKart Enterprise Extensions, it is still advisable to run through the GUI installer if you can. The reason for this is that it will populate all the properties files for you and load your database automatically. Once you have done this you can make WARs from the GUI-installed version of KonaKart (details below) and deploy them elsewhere as you please.

The KonaKart Enterprise Extensions Installation section contains general KonaKart Enterprise Extensions installation instructions (although focuses on using the GUI-driven and silent versions of the installer) and contains important information that is also relevant for the manual installation so check this before starting out.

In general, you need to follow all the documented installation instructions except for the "Install Enterprise Extensions" section which explains how to use the automated GUI and Silent versions of the installation.

Perform all the documented installation instructions for:

- A Java runtime environment
- A database loaded with KonaKart tables
- A successfully working KonaKart Community Edition

For the purposes of this guide we'll use MySQL and a database named "store1" (and "store2" where applicable).

1. Copy the Enterprise Extensions files into position

   Unzip the package you KonaKart-Enterprise-3.2.0.0.zip file for your version on top of the existing KonaKart Community edition installation. Ensure that you unzip to the home directory of the existing KonaKart installation so that all the files are loaded into the correct positions.

2. Modify the KonaKart Configuration Files

   a. Set Database Parameters

      Modifications should only be required if you have chosen Multi-Store Multiple Database Mode (Engine Mode 1). For all other modes, the database parameters should already be set correctly.

      Set DB name (and other database connection parameters) in *konakart.properties* and *konakartadmin.properties* Change the string "dbname" in the URL for MySQL to the name of your database (in this case "konakart") in the following files:

      {konakart}/webapps/konakart/WEB-INF/classes/konakart.properties

      {konakart}/webapps/konakartadmin/WEB-INF/classes/konakartadmin.properties

      This is documented in the "Defining the Database Parameters" section of the Community Edition installation.

      For Multi-Store Single DB Modes (Engine Mode 2) there is no difference to the database definition required in the two properties files. However, if you are using the Multi-Store Multiple DBs Mode (Engine Mode 1) you will need to enter database connection credentials for each of your stores. An example of a two-store set-up is:

```
# ---------------------------------------------------------------------------
#  D A T A B A S E  P R O P E R T I E S
# ---------------------------------------------------------------------------

torque.applicationRoot = .

torque.database.default                        = store1

torque.database.store1.adapter              = mysql
torque.dsfactory.store1.connection.driver   = com.mysql.jdbc.Driver
torque.dsfactory.store1.connection.url      =
             jdbc:mysql://localhost:3306/store1?zeroDateTimeBehavior=convertToNull
torque.dsfactory.store1.connection.user     = root
torque.dsfactory.store1.connection.password =

# Enterprise Feature
torque.database.store2.adapter              = mysql
torque.dsfactory.store2.connection.driver   = com.mysql.jdbc.Driver
torque.dsfactory.store2.connection.url      =
             jdbc:mysql://localhost:3306/store2?zeroDateTimeBehavior=convertToNull
torque.dsfactory.store2.connection.user     = root
torque.dsfactory.store2.connection.password =

# ---------------------------------------------------------------------------
#  C O N N E C T I O N   P O O L   P R O P E R T I E S
# ---------------------------------------------------------------------------
# We can leave the defaults
# ---------------------------------------------------------------------------

# Using commons-dbcp

torque.dsfactory.store1.factory=org.apache.torque.dsfactory.SharedPoolDataSourceFactory
torque.dsfactory.store2.factory=org.apache.torque.dsfactory.SharedPoolDataSourceFactory

# The maximum number of active connections that can be allocated from this pool at
# the same time, or zero for no limit.

torque.dsfactory.store1.pool.maxActive=0
torque.dsfactory.store2.pool.maxActive=0

# The maximum number of active connections that can remain idle in the pool, without
# extra ones being released, or zero for no limit.

torque.dsfactory.store1.pool.maxIdle=10
torque.dsfactory.store2.pool.maxIdle=10

# The maximum number of milliseconds that the pool will wait (when there are no
# available connections) for a connection to be returned before throwing an exception,
# or -1 to wait indefinitely.

torque.dsfactory.store1.pool.maxWait=-1
torque.dsfactory.store2.pool.maxWait=-1

# The indication of whether objects will be validated before being borrowed from the
# pool. If the object fails to validate, it will be dropped from the pool, and we will
# attempt to borrow another.

torque.dsfactory.store1.pool.testOnBorrow=true
torque.dsfactory.store2.pool.testOnBorrow=true

# The SQL query that will be used to validate connections from this pool before
# returning them to the caller. If specified, this query MUST be an SQL SELECT
# statement that returns at least one row.
# Recommended settings:
# for MySQL/PostgreSQL/MS SQL use: SELECT 1
# for Oracle                  use: SELECT 1 from dual
# for DB2                     use: SELECT 1 FROM sysibm.sysdummy1

torque.dsfactory.store1.pool.validationQuery=SELECT 1
torque.dsfactory.store2.pool.validationQuery=SELECT 1
```

Notice how most of the Torque parameters are repeated for each store.

b. konakartadmin.properties

The changes required are dependent on the chosen Engine Mode.

For Multi-Store Multiple Databases Mode (Engine Mode 1) you need to define the databases that are used for each store. These parameters can be ignored for other Engine Modes. This is an example of a two database setup with databases store1 and store2:

```
# ---------------------------------------------------------------------------
# Enterprise Feature
# The databases actually used in a multi store / multi database environment
# The "used" database definitions must map to the Torque definitions above
# The "description.*" definitions are friendly names for the Stores

konakart.databases.used = store1 store2
konakart.databases.description.store1 = Store1
konakart.databases.description.store2 = Store2
```

For all Multi-Store Modes (Engine Modes 1 and 2) you need to define the Engine Mode that the web services engines will use: This is an example of a definition for Engine Mode 2:

```
# ---------------------------------------------------------------------------
# Enterprise Feature
# Engine mode that the web services engine will use
# 0 = Single Store (default)
# 1 = Multi-Store Multiple-Databases (add konakart.databases.used above as well)
# 2 = Multi-Store Single Database

konakart.ws.mode = 2
```

Note the reminder in the comment above to set the *konakart.databases.used* property for Engine Mode 1 (Multi-Store Multiple Database Mode).

For Multi-Store Single Database Mode (Engine Mode 2) you need to define whether or not you are operating in the Shared Customers Mode. This setting is not used for other engine modes. This is an example of a definition for defining that you wish to use Shared Customers:

```
# ---------------------------------------------------------------------------
# Enterprise Feature
# When in multi-store single database mode, the customers can be shared between stores

konakart.ws.customersShared = true
```

For Multi-Store Single Database Mode (Engine Mode 2) you also need to define whether or not you are operating in the Shared Products Mode. This setting is not used for other engine modes. This is an example of a definition for defining that you wish to use Shared Products:

```
# ---------------------------------------------------------------------------
# Enterprise Feature
# When in multi-store single database mode, the products can be shared between stores

konakart.ws.productsShared = true
```

c. konakartadmin_gwt.properties

Modify this file as required to set the Engine Mode and appropriate value for customersShared and productsShared. The file is deployed to *{konakart}/webapps/konakartadmin/WEB-INF/classes/* .

The following example shows a setup for EngineMode 2 with Shared Customers and Shared Products:

```
# ---------------------------------------------------------------------------
# Enterprise Feature
# Engine mode that the KonaKart Admin engine will use
# 0 = Single Store (default)
# 1 = Multi-Store Multiple-Databases (add konakart.databases.used above as well)
# 2 = Multi-Store Single Database

konakartadmin.gwt.mode = 2

# ---------------------------------------------------------------------------
# Enterprise Feature
# When in multi-store single database mode, the customers can be shared between stores

konakartadmin.gwt.customersShared = true

# When in multi-store single database mode, the products can be shared between stores

konakartadmin.gwt.productsShared = true
```

d. konakart.properties

The changes required are dependent on the chosen Engine Mode.

The database parameters should be set up in the same way as you did in the konakartadmin.properties file (see above).

For Multi-Store Multiple Databases Mode (Engine Mode 1) you need to define the databases that are used for each store. These parameters can be ignored for other Engine Modes. This is an example of a two database setup with databases store1 and store2:

```
# Enterprise Feature
# The databases actually used in a multi store / multi database environment
konakart.databases.used = store1 store2
```

Define the web services Engine Mode and the customers shared property as you did in konakartadmin.properties (see above). Here is an example of a setup that defines Engine Mode 2 without sharing customers or products:

```
# ------------------------------------------------------------------------------
# Enterprise Feature
# Engine mode that the web services engine will use
# 0 = Single Store (default)
# 1 = Multi-Store Multiple-Databases (add konakart.databases.used above as well)
# 2 = Multi-Store Single Database

konakart.ws.mode = 2

# ------------------------------------------------------------------------------
# Enterprise Feature
# When in multi-store single database mode, the customers can be shared between stores

konakart.ws.customersShared = false

# When in multi-store single database mode, the products can be shared between stores

konakart.ws.productsShared = false
```

e. struts-config.xml

A few modifications need to be made to the struts-config.xml file to set the mode of the KonaKart plugins. The Engine Mode must be set to 0 (Single Store mode), 1 (Multi-Store Multiple DBs Mode) or 2 (Multi-Store Single DB Mode). If you are using Engine Mode 2 and you have chosen Shared Customers you must also set customersShared to "true" otherwise leave that as "false". Likewise, set productsShared to true or false as appropriate.

```
<plug-in className="com.konakart.plugins.KKEngPlugin">
        <set-property property="propertiesPath" value="konakart.properties"/>
        <set-property property="mode" value="2"/>
        <set-property property="customersShared" value="true"/>
        <set-property property="productsShared" value="true"/>
        <set-property property="definitions-debug" value="2"/>
    </plug-in>

    <plug-in className="com.konakart.plugins.KKAppEngPlugin">
        <set-property property="propertiesPath" value="konakart.properties"/>
        <set-property property="appPropertiesPath" value="konakart_app.properties"/>
        <set-property property="mode" value="2"/>
        <set-property property="customersShared" value="true"/>
        <set-property property="productsShared" value="true"/>
        <set-property property="definitions-debug" value="2"/>
    </plug-in>
```

f. Populate the Database ready for the Enterprise Extensions

This is an example of a Windows BAT file that you should run for setting up a Multi-Store Single DB (Engine Mode 2) system. You need to configure the properties files (see above) before executing this program because it needs to know the chosen configuration:

```
@echo off
rem
rem  Set up database for KonaKart Enterprise Extensions
rem  - Manual Installation Only
rem
rem  Normally this is executed by the Enterprise Extensions Installation Wizard
rem

set INSTALL_DIR=C:/Program Files/KonaKart
set WEBAPPS_DIR=C:/Program Files/KonaKart/webapps
set DBDIR=MySQL
set SHARED_CUSTOMERS=True
set SHARED_PRODUCTS=True

set CP=%WEBAPPS_DIR%\konakartadmin\WEB-INF\classes
set CP=%CP%;%WEBAPPS_DIR%\konakartadmin\WEB-INF\lib\konakartadmin_multistore.jar
set CP=%CP%;%WEBAPPS_DIR%\konakartadmin\WEB-INF\lib\konakartadmin.jar
set CP=%CP%;%WEBAPPS_DIR%\konakartadmin\WEB-INF\lib\konakartadmin_multistore.jar
set CP=%CP%;%WEBAPPS_DIR%\konakartadmin\WEB-INF\lib\konakartadmin_solr.jar
set CP=%CP%;%WEBAPPS_DIR%\konakartadmin\WEB-INF\lib\konakartadmin_publishproducts.jar
set CP=%CP%;%WEBAPPS_DIR%\konakart\WEB-INF\lib\konakart.jar
set CP=%CP%;%WEBAPPS_DIR%\konakart\WEB-INF\lib\konakart_utils.jar
set CP=%CP%;%WEBAPPS_DIR%\konakart\WEB-INF\lib\konakart_torque-3.3-RC1.jar
set CP=%CP%;%WEBAPPS_DIR%\konakart\WEB-INF\lib\velocity-1.5.jar
set CP=%CP%;%WEBAPPS_DIR%\konakart\WEB-INF\lib\konakart_village-2.0.jar
set CP=%CP%;%WEBAPPS_DIR%\konakart\WEB-INF\lib\commons-pool-1.2.jar
set CP=%CP%;%WEBAPPS_DIR%\konakart\WEB-INF\lib\commons-dbcp-1.2.2.jar
set CP=%CP%;%WEBAPPS_DIR%\konakart\WEB-INF\lib\commons-configuration-1.1.jar
set CP=%CP%;%WEBAPPS_DIR%\konakart\WEB-INF\lib\commons-beanutils-1.7.0.jar
set CP=%CP%;%WEBAPPS_DIR%\konakart\WEB-INF\lib\commons-lang-2.1.jar
set CP=%CP%;%WEBAPPS_DIR%\konakart\WEB-INF\lib\commons-collections-3.1.jar
set CP=%CP%;%WEBAPPS_DIR%\konakart\WEB-INF\lib\commons-logging-1.0.4.jar
set CP=%CP%;%WEBAPPS_DIR%\konakart\WEB-INF\lib\log4j-1.2.12.jar
set CP=%CP%;%WEBAPPS_DIR%\konakart\WEB-INF\lib\mysqljdbc.jar
set CP=%CP%;%WEBAPPS_DIR%\konakart\WEB-INF\lib\ojdbc14.jar
set CP=%CP%;%WEBAPPS_DIR%\konakart\WEB-INF\lib\postgresql-8.2-504.jdbc3.jar
set CP=%CP%;%WEBAPPS_DIR%\konakart\WEB-INF\lib\jtds-1.2.2.jar
set CP=%CP%;%WEBAPPS_DIR%\konakart\WEB-INF\lib\db2jcc.jar
set CP=%CP%;%WEBAPPS_DIR%\konakart\WEB-INF\lib\db2jcc_license_cu.jar

"%JAVA_HOME%\bin\java" -cp "%CP%"                              ^
 com.konakartadmin.utils.CreateEnterpriseDB       ^
 -p  "%WEBAPPS_DIR%/konakartadmin/WEB-INF/classes/konakartadmin.properties" ^
 -h  "%INSTALL_DIR%"                              ^
 -db %DBDIR%                                      ^
 -ps %SHARED_PRODUCTS%                            ^
 -c  %SHARED_CUSTOMERS%

rem
rem  The "-d" parameter can be added to enable debugging.  This is useful if you
rem  have problems.
rem
```

Users created by the Enterprise Extensions Installation

This section describes the users that are created by default during the standard KonaKart installations. For more details on creating new stores and defining new users for these new stores, see the section in this User Guide on Multi-Store Configuration .

When you install the Community Edition, the following users are automatically created:

Three users are created with different roles assigned.

Username	*Password*	*Roles*

admin@konakart.com	princess	KonaKart Super-User
root@localhost	password	Sample User
cat@konakart.com	princess	KonaKart Catalog Maintainer
order@konakart.com	princess	KonaKart Order and Customer Manager

The above users remain after installing the KonaKart Enterprise Extensions but additional users are created for use with the second store (if one of the Multi-Store Modes is chosen). The above users remain with the same privileges they had originally and can log in to both the Application and the Admin App for store1 as before.

In addition, if and only if, the Multi-Store Single Database with Shared Customers Mode is selected, these users will be able to log on to the Applications for other stores managed by the KonaKart instance. Note that only the Super User user above (*admin@konakart.com*) is granted privileges to log on to the Admin App for the other stores This is the standard behavior when you opt to allow Shared Customers.

Single Store Mode

No new users are created.

Multi-Store Multiple DB Mode

If Multi-Store Multiple Databases Mode is selected, the users created in store2 match those for store1 since the same data load is performed. In case you need to execute it manually, the SQL file executed is called *konakart_demo.sql* and can be modified (carefully!) to suit local requirements. A *konakart_demo.sql* SQL script file is provided for each of the supported databases under the *database* directory under your KonaKart home directory. In Multi-Store Multiple Databases Mode there is no support for shared customers so the users created are only authorized to log in to their own stores.

Multi-Store Single DB Mode with Shared Customers

If Multi-Store Single Database Mode with Shared Customers is selected, the following user is created:

One user is created with the Store Administrator's role.

Username	*Password*	*Roles*
store2-admin@konakart.com	princess	KonaKart Store Administrator

By default the "Store Administrator" role allows the created user to administer the more business-related aspects of a specific store, but not the configuration settings. By "business-related" it means the store administrator user can maintain the products, manufacturers, categories (etc) and administer orders. The "Store Administrator" can log on to the application of any the stores managed by the KonaKart instance, but is not granted any privileges to administer any store other than the one assigned (which is store2 in this case).

In this mode there is no need to create a new "Super User" user as the original "Super User" created for the Community Edition, called *admin@konakart.com* , has sufficient privileges to Administer all other stores in a Shared Customer environment. Note the power of the "Super User"! Ensure that you change all the user passwords as soon as possible and deny access to the "Super User" account to all who who should not be able to use it.

Multi-Store Single DB Mode NON-Shared Customers

If Multi-Store Single Database Mode without Shared Customers is selected, the following users are created by the installer:

One user is created with the Store Administrator's role.

Username	*Password*	*Roles*
store2-admin@konakart.com	princess	KonaKart Store Administrator
store2-super@konakart.com	princess	KonaKart Store Super User
store2-root@localhost	password	Sample User
store2-cat@konakart.com	princess	KonaKart Catalog Maintainer
store2-order@konakart.com	princess	KonaKart Order and Customer Manager

By default the "Store Administrator" role allows the created user to administer the more business-related aspects of a store, but not the configuration settings. By "business-related" it means the store administrator user can maintain the products, manufacturers, categories (etc) and administer orders. This user can administer only the store he has been assigned and no others, because he isn't a "Super User".

In this non-customer shared mode, the "Store Administrator" cannot log in to the application of any other store (than the one that he is assigned to) managed by the KonaKart instance because the users aren't shared.

Also, in this mode, a new "Super User" user (*store2-super@konakart.com*) is created for administering the more-technical configuration settings of the new store. Note that this new user will have broad Super-User privileges by default. By default, this user will be able to log on and administer all of stores in the mall by virtue of being a "Super User". Some customers may decide not to disclose the credentials of this newly-created "Super User" account, whereas others may decide to change the role that is assigned to this "Super User". You can define the role to be assigned in the Multi-Store Configuration - see details on configuring Multi-Store.

Chapter 7. Installation of KonaKart on other Application Servers

By default, KonaKart is provided with Tomcat, but it is actually designed to be usable on any compliant J2EE Application Server. This section provides some notes to help you install and configure KonaKart on a selection of other leading Application Servers.

Most Application Servers give users a variety of choices for application deployment. Some like to import EARs, others prefer WAR files. Some Application Servers accept "exploded" directory structures as the source for deployment whereas others require "un-exploded" EAR or WAR files.

There is nothing in KonaKart that should prevent you from choosing the deployment system you prefer for your chosen Application Server.

In most cases the best way to begin is to run a complete installation of KonaKart from the GUI installer (or silent mode if you prefer), verifying and populating the database as part of this process. It can save you some time if you select the port number the target Application Server will use as the KonaKart port number during this installation process so that there is less configuration to do later on (for example, if your target Application Server is BEA WebLogic, you would choose to install KonaKart at port 7001).

Once KonaKart is installed you have the choice to use the expanded webapps for deployment or use the included ant build files to produce WAR and EAR files as you require.

In most cases, the easiest approach will be to use the ant scripts to produce an EAR file containing the 3 KonaKart webapps (*konakart* , *konakartadmin* and *birtviewer*). It can be advantageous to produce an EAR file as the whole application can be deployed in one go, rather than 3 separate WAR installations (which is, of course, perfectly possible, and may even be more-appropriate in some situations - see JBoss notes below).

To produce the EAR, (and the 3 WARs as a by-product), run the " *ant make_ear* " command in the " *custom* " directory of your KonaKart installation as in the example below:

```
C:\Program Files\KonaKart\custom>.\bin\ant make_ear
Buildfile: build.xml

clean_wars:
     [echo] Cleanup WARs...
     [echo] Cleanup EARs...

make_wars:
    [mkdir] Created dir: C:\Program Files\KonaKart\custom\war
     [echo] Create konakart.war
      [war] Building war: C:\Program Files\KonaKart\custom\war\konakart.war
     [echo] Create konakartadmin.war
      [war] Building war: C:\Program Files\KonaKart\custom\war\konakartadmin.war
     [echo] Create birtviewer.war
      [war] Building war: C:\Program Files\KonaKart\custom\war\birtviewer.war

make_ear:
    [mkdir] Created dir: C:\Program Files\KonaKart\custom\ear
     [echo] Create konakart.ear
      [ear] Building ear: C:\Program Files\KonaKart\custom\ear\konakart.ear
     [echo] Create exploded version of konakart.ear
    [mkdir] Created dir: C:\Program Files\KonaKart\custom\konakart.ear
    [unzip] Expanding: C:\Program Files\KonaKart\custom\ear\konakart.ear into
                C:\Program Files\KonaKart\custom\konakart.ear
     [move] Moving 1 file to C:\Program Files\KonaKart\custom\konakart.ear
     [move] Moving 1 file to C:\Program Files\KonaKart\custom\konakart.ear
     [move] Moving 1 file to C:\Program Files\KonaKart\custom\konakart.ear
    [unzip] Expanding: C:\Program Files\KonaKart\custom\konakart.ear\birtviewer.war.tmp into
                       C:\Program Files\KonaKart\custom\konakart.ear\birtviewer.war
    [unzip] Expanding: C:\Program Files\KonaKart\custom\konakart.ear\konakart.war.tmp into
                       C:\Program Files\KonaKart\custom\konakart.ear\konakart.war
    [unzip] Expanding: C:\Program Files\KonaKart\custom\konakart.ear\konakartadmin.war.tmp into
                       C:\Program Files\KonaKart\custom\konakart.ear\konakartadmin.war

BUILD SUCCESSFUL
Total time: 1 minute 0 seconds
```

In the following sections you will find guidance notes for installing KonaKart on selected Application Servers.

General Notes on Installing KonaKart on Application Servers

These general notes apply to installations on most application servers. Note any specific exceptions below in the sections dedicated to each Application Server.

Edit Config Files - Admin Application Functionality

In the KonaKart Admin Application there is a feature that allows you to define a set of files to view and edit from the Admin App. The files that are made available to view and edit are defined in the XML file called *konakart_config_files.xml* . This control file must be available on the classpath of the KonaKart Admin Application. In the default installation that includes Tomcat, this file is set up with relative paths to various properties files. This is hardly ever appropriate for other application servers so if this feature is required, the control file must be updated to suite your environment.

Rather than use relative pathnames for these files, it is often easier to use full path names.

Some examples of file references are: (note that on Windows you must use forward rather than backward slashes)

WebSphere:

```
<file>
 <displayName>KonaKart Properties File</displayName>
  <fileName>
   C:/Program Files/IBM/WebSphere/AppServer/profiles/AppSrv01/
    installedApps/swindonNode01Cell/KonaKart.ear/konakart.war/WEB-INF/
    classes/konakart.properties
  </fileName>
</file>

(file name shown split over 3 lines but leave it on one line in the file)
```

WebSphere Community Edition:

```
<file>
 <displayName>KonaKart Properties File</displayName>
  <fileName>
   C:/Program Files/IBM/WebSphere/AppServerCommunityEdition/repository/default/
        Application_KonaKart/1216389520400/Application_KonaKart-1216389520400.car/
        konakart.war/WEB-INF/classes/konakart.properties
  </fileName>
</file>

(file name shown split over multiple lines but leave it on one line in the file)
```

JBoss: (for exploded deployments only)

```
<file>
 <displayName>KonaKart Properties File</displayName>
  <fileName>
   C:/jboss-4.2.2.GA/server/default/deploy/konakart.war/WEB-INF/
        classes/konakart.properties
  </fileName>
</file>

(file name shown split over 2 lines but leave it on one line in the file)
```

WebLogic: (for exploded deployments only)

```
<file>
 <displayName>KonaKart Properties File</displayName>
  <fileName>
   C:/Program Files/KonaKart/custom/konakart.ear/konakart.war/
   WEB-INF/classes/konakart.properties
  </fileName>
</file>

(file name shown split over 2 lines but leave it on one line in the file)
```

Glassfish:

```
<file>
 <displayName>KonaKart Properties File</displayName>
  <fileName>
   C:/glassfish/domains/domain1/applications/j2ee-apps/konakart/
        konakart_war/WEB-INF/classes/konakart.properties
  </fileName>
</file>

(file name shown split over 2 lines but leave it on one line in the file)
```

Email Properties File

If you use additional email properties (most people will not need to) you place these in a properties file called *konakart_mail.properties* . You have to define this filename in the KonaKart Admin Application under the *Configuration > Email Options* panel. You have to specify the full path name here (for the *KonaKart mail properties filename* field.

Some examples of mail properties file references are: (note that on Windows you must use forward rather than backward slashes)

Tomcat Default:

C:/Program Files/KonaKart/conf/konakart_mail.properties

JBoss:

C:/jboss-4.2.2.GA/server/default/conf/konakart_mail.properties

Reporting Port Numbers and Report Location

1. Set the port number for reporting as required (set these using the KonaKart Admin App under the *Configuration > Reports* section). Use the standard HTTP port for your application server, eg. 8080 (Tomcat/JBoss), 7001 (WebLogic), 9080 (WebSphere) etc..

2. Set the location (the " *Report definitions base path* ") of the reports to your chosen location. This can be anywhere on the disk that's accessible to your application server. This could be the location where you first installed KonaKart in order to produce the EAR files. If so, you can leave the default for this field.

Configuring Parameters for Images

1. Set the port number for the image base URL as required (set these using the KonaKart Admin App under the *Configuration > Images* section). Use the standard HTTP port for your application server, eg. 8080 (Tomcat/JBoss), 7001 (WebLogic), 9080 (WebSphere) etc..

2. In a similar fashion to the above, set the image base path to the appropriate location for your environment. Typically, this will be the images directory under your konakart webapp. Some examples:

   Tomcat Default:

   C:/Program Files/KonaKart/conf/konakart_mail.properties

   JBoss:

   C:/jboss-4.2.2.GA/server/default/deploy/konakart.war/images

Setting the Optimum Memory Values

If you find that you run out of memory you will need to define more memory for your Application Server. This can be done in a variety of ways, so check the documentation for your chosen Application Server for setting memory flags.

When setting memory settings by defining values for CATALINA_OPTS or JAVA_OPTS you might need to set values such as these:

-XX:PermSize=256m -XX:MaxPermSize=256m -Xms512m -Xmx1024m

(You may find you need different settings for your particular environment).

Some Application Servers allow you to define JVM parameters from within their Administrative Consoles. An example of this is WebSphere where you need to navigate to *Server > Server Infrastructure > Java & Process Management > Process Defn* then set your values for Maximum Heap Size (eg. 1024) and Initial Heap Size (eg. 512). (You may need require different settings to suit your own environment).

Installing KonaKart on BEA's WebLogic Application Server

Verified on WebLogic 10.0 MP1 on Windows Vista

Refer to the general notes for installing KonaKart on all Application Servers .

Installation

Use the deployment method of choice. If you want to be able to edit KonaKart configuration files (eg konakart.properties) without having to re-deploy the application you will have to install using exploded directories. If you don't need this functionality, you can simply deploy KonaKart as an EAR file.

Deploying using WebLogic's *Install Application Assistant* in the Administration Console is particularly straightforward but WebLogic has a variety of deployment options you could also use (such as the autodeploy facility or their command-line driven deploy tool.

Follow these steps when using the Administration Console for deployment:

"Lock and Edit" then choose "Install", then browse to your EAR file (for non-exploded deployments) or to the directory (a directory called konakart.ear under the custom directory of your KonaKart installation) where your exploded version of the EAR is located (for exploded deployments).

If you used the ant build file to create the EAR file and the exploded EAR file these will be located under your KonaKart installation directory at:

1. /custom/ear/konakart.ear (the non-exploded EAR file)

2. /custom/konakart.ear (the exploded EAR file directory)

Once selected, proceed through the wizard. For "Targeting style" choose "Install this deployment as an application". Accept all other defaults, click on "Finish", then finally click on "Activate Changes" when successful.

Eventually, you should see the message *"All changes have been activated. No restarts are necessary."* and there should be no errors in the WebLogic log.

Next, click on the checkbox next to konakart and start the application by choosing "Start Servicing All Requests" from the "Start" dropdown list. Confirm this action on the next screen and check theWebLogic log for any errors.

Configuration

1. Set the port numbers (7001) for the reporting configuration variables as required (set these using the KonaKart Admin App under the *Configuration > Reports* section)

2. To set-up KonaKart to use SSL you need for set it up in the KonaKart Admin App and the BEA WebLogc Administration Console as follows:

   Set the HTTP (7001) and HTTPS (7002) port numbers as required (set these using the KonaKart Admin App under the *Configuration > HTTP/HTTPS* section)

   To enable SSL in WebLogic first click the 'Lock and Edit' button under the Change Center. Under the "Domain Structure" navigate through "Environment" then "Servers" then click on your server listed under the "Servers" table on the right hand side. (The default server will be called "AdminServer").

   On the General Configurations panel, check the "SSL Listen Port Enabled" checkbox. Leave the port number for SSL as 7002 and ensure this matches the port number specified above in the KonaKart Admin Application.

   Click on the "Save" button, then click on "Activate Changes" to save these changes in your WebLogic environment.

3. Set the memory parameters to suit your environment. Set your memory arguments inside the setDomainEnv.cmd (Windows) or setDomainEnv.sh (Unix/Linux) files.

   Set a new USER_MEM_ARGS environment variable with your chosen memory flags, or modify the existing MEM_FLAGS environment variable assignment to suit your requirements. Take note of the code that follows the assignment to MEM_FLAGS - you might find that then your values are overridden.

   Restart WebLogic for the changes to take effect and double-check the beginning of the WebLogic log to see what memory settings you actually achieved!

Installing KonaKart on JBoss

Verified on JBoss 4.2.2 GA on Windows XP and Vista

Refer to the general notes for installing KonaKart on all Application Servers .

Installation

For JBoss we recommend that you deploy KonaKart as an exploded EAR file, or exploded WAR files so that you can guarantee the full path names of the various configuration files. This is useful so that you can define these full path names and subsequently edit these files from within the comfort of the KonaKart Admin Application.

1. The KonaKart applications can be deployed in the 'server configuration' directory of your choice. In this example we will use the 'default' configuration. In this example we also assume a Windows installation in the *C:\jboss-4.2.2.GA* directory.

2. Here we follow the procedure for the 3 WAR installation (but for the exploded EAR procedure follow an almost identical path). Create three new directories under *C:\jboss-4.2.2.GA\server\default\deploy* :

   1. konakart.war

   2. konakartadmin.war

   3. birtviewer.war

3. Expand konakart.war into the konakart.war directory and do the same for konakartadmin and birtviewer.

4. Start JBoss.

5. Check the JBoss log to ensure that there are no errors.

If you do not deploy as 3 separate exploded WAR files, JBoss generates its own temporary directories to hold these deployments. This wouldn't be so bad except that JBoss creates *new* temporary directories *every* time you restart JBoss.

It's still possible to deploy KonaKart into JBoss using an "unexploded" konakart.ear file but you will not be able to use the "Edit Config Files" functionality in the KonaKart Admin Application. If you wish to deploy using the EAR file you simply drop it into the deploy directory of your JBoss installation for automatic deployment. Check your JBoss server log; there should be no errors during this deployment.

Configuration

1. Set the port numbers (8080) for reporting as required (set these using the KonaKart Admin App under the *Configuration* > *Reports* section)

2. Set the HTTP (8080) and HTTPS (8443) port numbers as required (set these using the KonaKart Admin App under the *Configuration* > *HTTP/HTTPS* section). You will also have to setup SSL in JBoss if you haven't already done so (refer to JBoss documentation to find out how to do this). A quick way to do this if you don't have a keystore already (and for development purposes only) is to copy the *conf/.keystore* file from your KonaKart installation to the *C:\jboss-4.2.2.GA\server\default\conf* directory of JBoss, then edit your *C:\jboss-4.2.2.GA\server\default\deploy\jboss-web.deployer\server.xml* file as follows:

```
<!-- Define a SSL HTTP/1.1 Connector on port 8443
     This connector uses the JSSE configuration, when using APR, the
     connector should be using the OpenSSL style configuration
     described in the APR documentation -->

<Connector port="8443"
           protocol="HTTP/1.1"
           SSLEnabled="true"
           clientAuth="false"
           sslProtocol="TLS"
           keystoreFile="conf/.keystore"
           keystorePass="kkpassword" />
```

3. Set the memory parameters to suit your environment (eg. I set *JAVA_OPTS=-XX:PermSize=256m -XX:MaxPermSize=256m -Xms512m -Xmx1024m*).

Installing KonaKart on IBM's WebSphere Application Server

Verified on WebSphere 6.1 on Windows Vista

Refer to the general notes for installing KonaKart on all Application Servers .

Usage Limitation: Reports with embedded charts produced using EMF 2.2 cannot be run in the default WebSphere 6.1 installation due to a conflict between versions of EMF (WebSphere 6.1 uses 2.1 whereas KonaKart/BIRT use EMF 2.2). If reports with embedded charts are important to you, you can either write new, compatible, reports using EMF 2.1 or modify the class-loading mode of the KonaKart application to parent last (as described in various reports on the subject on the Internet).

Note that the default download kit of KonaKart contains code compiled with a java 1.5 target therefore it will not work on WebSphere 6.0 which uses a 1.4 JRE. If you need us to create a version of KonaKart built for a java 1.4 target please contact us at *support@konakart.com* .

Installation

Use the deployment method of choice. Loading using an EAR is probably the simplest by navigating to Enterprise Applications in the Administrative Console, "Install" application, browse to your EAR file, then proceed through the wizard accepting all the defaults.

Configuration

1. If you are not using a Sun JRE for WebSphere, you will need to add two jars *jsse.jar* and *jce.jar* from your Sun JRE to support some SSL and mail functionality of KonaKart. Either package these in the WARs of konakart.war and konakartadmin.war, or place them in the lib directories of these applications once deployed.

2. Set the port numbers (9080) for the reporting configuration variables as required (set these using the KonaKart Admin App under the *Configuration > Reports* section)

3. Set the HTTP (9080) and HTTPS (9443) port numbers as required (set these using the KonaKart Admin App under the *Configuration > HTTP/HTTPS* section)

4. Set the memory parameters to suit your environment. Use the WebSpehere Administrative Console to set the JVM parameters. Navigate to *Server > Server Infrastructure > Java & Process Management > Process Defn* then your values for Maximum Heap Size (eg. 1024) and Initial Heap Size (eg. 512). (You may need require different settings to suit your own environment).

Installing KonaKart on IBM's WebSphere Application Server Community Edition

Verified on WebSphere ASCE 2.0.0.2 on Windows Vista

Refer to the general notes for installing KonaKart on all Application Servers .

Installation

Load the KonaKart EAR using the Administrative console, accepting all defaults. (Some XML descriptor validation warnings appear in the console log but these can be ignored - there are no *geronimo-web.xml* files included).

Configuration

1. Set the port numbers (8080) for reporting as required (set these using the KonaKart Admin App under the *Configuration > Reports* section)

2. Set the HTTP (8080) and HTTPS (8443) port numbers as required (set these using the KonaKart Admin App under the *Configuration > HTTP/HTTPS* section)

3. Set the memory parameters to suit your environment (eg. I set *JAVA_OPTS=-XX:PermSize=256m -XX:MaxPermSize=256m -Xms400m -Xmx700m*)

Installing KonaKart on GlassFish

Verified on GlassFish v2 UR2 b04 on Windows XP (also known as Sun Java System Application Server 9.1_02 b04-fcs)

Refer to the general notes for installing KonaKart on all Application Servers .

Installation

Assuming a vanilla installation of Glassfish, simply place the KonaKart EAR in the *domains/domain1/autodeploy/* directory of the GlassFish installation. The KonaKart EAR is loaded automatically by GlassFish. Check the GlassFish server log to ensure there are no errors.

Alternatively you can deploy the EAR file by using the GlassFish admin console (typically at http://loaclhost:4848)

Configuration

1. Set the port numbers (8080) for reporting as required (set these using the KonaKart Admin App under the *Configuration* > *Reports* section)

2. Set the HTTP (8080) and HTTPS (8181) port numbers as required (set these using the KonaKart Admin App under the *Configuration* > *HTTP/HTTPS* section). You can use the default SSL setup of GlassFish for development purposes.

3. If you find you run out of memory, adjust the JVM memory parameters to suit your environment. The easiest way to do this with GlassFish is by using the Admin Console under *Configurations* > *server-config* > *JVM Settings*

4. Configure the image locations in the Admin App under *Configuration* > *Images* . Set the image base url to http://localhost:8080/konakart/images/ and the image base path to something like *C:/glassfish/domains/domain1/applications/j2ee-apps/konakart/ konakart_war/images* (or the equivalent in your installation).

Installing KonaKart on JOnAS with Tomcat

Verified on JOnAS v4.9.2 / Apache Tomcat v5.5.26 on Windows Vista

Refer to the general notes for installing KonaKart on all Application Servers .

Installation

Place the KonaKart EAR in the *apps/autoload* directory of the JOnAS installation. The KonaKart EAR is loaded automatically by JOnAS (some warnings about the use of DTDs can be ignored: "konakart.ear is using DTDs, WsGen needs Schema only : WEB-INF/web.xml use a DTD").

Configuration

1. Set the port numbers (9000) for reporting as required (set these using the KonaKart Admin App under the *Configuration* > *Reports* section)

2. Set the HTTP (9000) and HTTPS (9043)port numbers as required (set these using the KonaKart Admin App under the *Configuration* > *HTTP/HTTPS* section). You will also have to setup SSL in JOnAS/Tomcat if you haven't already done so (refer to JOnAS and Tomcat documentation to find out how to do this). A quick way to do this if you don't have a keystore already (and for development purposes only) is to copy the *conf/.keystore* file from your KonaKart installation to the *conf* directory of JOnAS, then add to your server.xml file as follows:

```
<!-- Define a SSL Coyote HTTP/1.1 Connector on port 9043 -->

<Connector port="9043"
           maxHttpHeaderSize="8192"
           maxThreads="150"
           minSpareThreads="25"
           maxSpareThreads="75"
           enableLookups="false"
           disableUploadTimeout="true"
           acceptCount="100"
           scheme="https" secure="true"
           clientAuth="false"
           sslProtocol="TLS"
           keystoreFile="conf/.keystore"
           keystorePass="kkpassword" />
```

3. Set the memory parameters to suit your environment (eg. I set *JONAS_OPTS=-XX:PermSize=256m -XX:MaxPermSize=256m -Xms400m -Xmx700m*). ("Your mileage may vary").

4. Configure the image locations in the Admin App under *Configuration* > *Images* . Set the image base url to http://localhost:9000/konakart/images/ and the image base path to something like *C:/JOnAS-4.9.2/tomcat/work/webapps/jonas/ear/konakart/konakart/images* (or the equivalent in your installation).

Installing KonaKart on JOnAS with Jetty

Verified on JOnAS v4.9.2 / Jetty v5.1.10 on Windows Vista

Refer to the general notes for installing KonaKart on all Application Servers .

Installation

Place the KonaKart EAR in the *apps/autoload* directory of the JOnAS installation. The KonaKart EAR is loaded automatically by JOnAS (some warnings about the use of DTDs can be ignored: "konakart.ear is using DTDs, WsGen needs Schema only : WEB-INF/web.xml use a DTD").

Configuration

1. Set the port numbers (9000) for reporting as required (set these using the KonaKart Admin App under the *Configuration* > *Reports* section)

2. Set the HTTP (9000) and HTTPS (9043)port numbers as required (set these using the KonaKart Admin App under the *Configuration* > *HTTP/HTTPS* section). You will also have to setup SSL in JOnAS/Jetty if you haven't already done so (refer to JOnAS and Jetty documentation to find out how to do this). A quick way to do this if you don't have a keystore already (and for development purposes only) is to copy the *conf/.keystore* file from your KonaKart installation to the *conf* directory of JOnAS, then add to edit your jetty5.xml file as follows:

```
<!-- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -->
<!-- Add a HTTPS SSL listener on port 9043                           -->
<!-- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -->
<!-- UNCOMMENT TO ACTIVATE -->
<Call name="addListener">
  <Arg>
    <New class="org.mortbay.http.SunJsseListener">
      <Set name="Port">9043</Set>
      <Set name="MinThreads">5</Set>
      <Set name="MaxThreads">100</Set>
      <Set name="MaxIdleTimeMs">30000</Set>
      <Set name="LowResourcePersistTimeMs">2000</Set>
      <Set name="Keystore"><SystemProperty name="jetty.home" default="."/>
          ./../../conf/.keystore</Set>
      <Set name="Password">kkpassword</Set>
      <Set name="KeyPassword">kkpassword</Set>
    </New>
  </Arg>
</Call>
```

3. Set the memory parameters to suit your environment (eg. I set *JONAS_OPTS=-XX:PermSize=256m -XX:MaxPermSize=256m -Xms400m -Xmx700m*). ("Your mileage may vary").

4. Configure the image locations in the Admin App under *Configuration* > *Images* . Set the image base url to http://localhost:9000/konakart/images/ and the image base path to something like *C:/JOnAS-4.9.2/jetty/work/webapps/jonas/ear/konakart/konakart/images* (or the equivalent in your installation).

Chapter 8. Administration and Configuration

This chapter seeks to explain the many different ways in which KonaKart can be configured.

Most of the Administration and Configuration of KonaKart can be carried out using the KonaKart Administration Application.

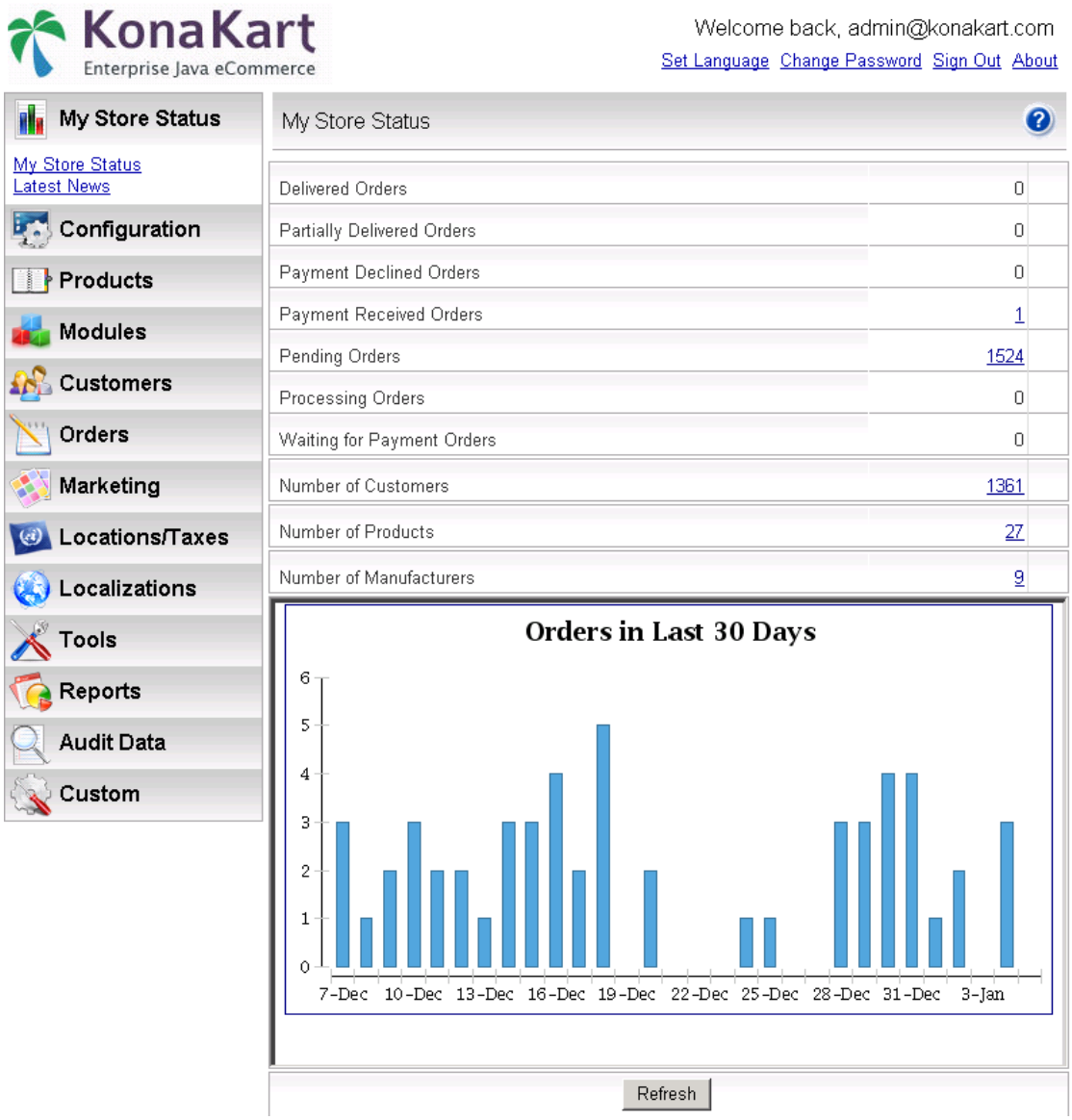
KonaKart Administration Application

KonaKart includes a sophisticated browser based administration application. It uses AJAX technology to provide a snappy user interface while the maintaining the advantages of running the application from a browser. Each application window has an on-line help facility which is the first place to look in order to understand the available functionality.

It incorporates a security subsystem with role based security. Each user can be assigned one or more roles that determine access to the available functionality with read / insert / edit and delete granularity. The user name / password based access, has the facility to block users for a programmable period after a number of unsuccessful login attempts.

Auditing may be enabled for all Admin App API calls with two levels of detail. All audit data is stored in the KonaKart database and may be browsed and filtered through the Admin App.

The admin application is fully internationalized and can be translated via a message catalog. Each panel has an online help facility that explains the functionality available.



KonaKart Admin Application - Status View

The main features of the admin app are:

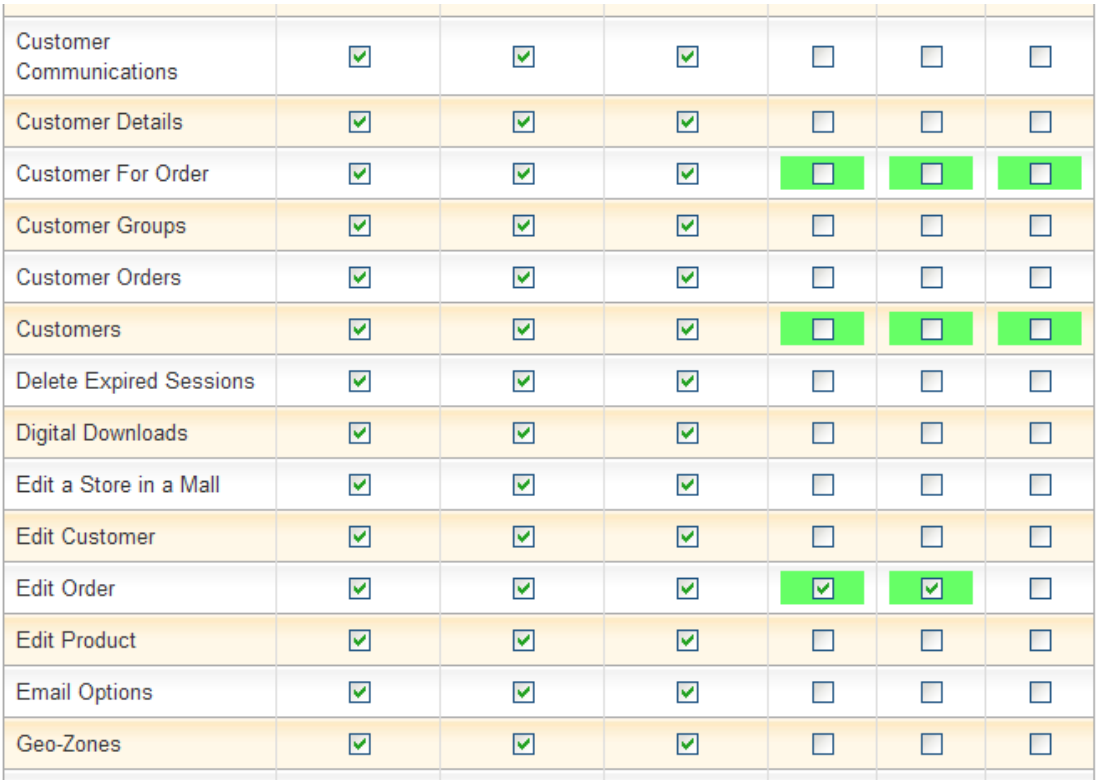
- Store status summary (i.e. number of orders, number of products etc.)
- Store maintenance
  - Create new stores
  - Edit existing stores
  - Change state of stores (i.e. enable / disable, maintenance mode)
  - Delete stores
- Maintenance of configuration variables

- Product maintenance
- Product Category maintenance
- Product Manufacturer maintenance
- Product Review maintenance
- Product Option maintenance
- Promotion maintenance
- Coupon maintenance
- Tag group and Tag maintenance
- Installation and removal of modules (payment, shipping and order total modules)
- Customer maintenance
  - Send email
  - Role maintenance
  - Reset Password
  - Login to eCommerce application on behalf of a customer. Useful for call center applications.
- Customer Group maintenance
- Customer communications
  - You can send template based eMails to all customers, to all customers who have requested to receive the newsletter, to customers that have asked to be notified about any updates for a particular product and to customers belonging to a particular group..
- Orders
  - Generate invoice (template based)
  - Generate packing slip (template based)
  - Change state of order and send email
  - View all payment gateway notifications associated with order
  - Manage returns
- Country maintenance>
- Zone maintenance
- Tax Area maintenance
- Tax Class maintenance
- Tax Rate maintenance
- Currency maintenance

- Language maintenance
- Order Status maintenance
- Address Format maintenance
- Reports
- View Audit Data
- Tools
  - Delete expired sessions
  - Refresh caches
  - Manage SOLR search engine
  - Publish products to Google Base
- Custom panels - Add custom panels that implement your custom business logic.

The KonaKart admin application provides powerful reporting functionality through integration with BIRT [http://www.eclipse.org/birt/phoenix/] , the very popular open source Business Intelligence and Reporting Tool. Although an ever expanding list of useful reports is provided in the KonaKart download, the integration is done in such a way that allows users and system integrators to develop and customize their own reports by using the BIRT Eclipse based development environment.

Many panels in the admin application may be configured to display or hide certain fields and buttons. The configuration is set by selecting a role in the Maintain Roles panel and then by clicking on the Privileges button on the same panel. A pop-up panel should appear similar to the image shown below:



Role Privileges

Each panel has a number of checkboxes to assign privileges. The standard privileges are Insert, Edit and Delete, although some panels have custom privileges which are highlighted in green. In order to understand what a green highlighted checkbox refers to, a yellow popup will appear when you move your mouse over it. For example the Edit Order panel has a couple of configuration options which are:

- Enable the read and edit of credit card details.
- Enable the read and edit of custom fields, order number and tracking number.

Launching the Admin App

Normally, whenever the Admin App is launched using the standard URL (http://localhost:8780/konakartadmin/), the administrator is presented with a login panel where he must enter his credentials in order to gain access to the application. In a multi-store environment there is also a drop list of store names so that the administrator may choose the store that he wants to log in for.

By using a Launcher servlet, the startup process of the Admin App may be modified as follows:

The store id may be passed to the launcher servlet so that the administrator is not given the possibility to choose a store from the drop list. The drop list is no longer shown on the login panel. An example of calling the launcher for storeId = store1:

http://localhost:8780/konakartadmin/launcher?storeId=store1

In order to achieve Single Sign On, credential checking may be delegated to the AdminAppAuthenticationMgr class. This class has a method to authenticate the request and a method that returns a URL that may redirect to an SSO login screen if the administrator isn't logged in. If the authentication method determines that the customer is already logged in, then the Admin App will start without displaying the login screen at all. Note that the user identified by the userId returned by the authentication method, must exist in the KonaKart database as an Admin User.

The source code of the launcher and authentication manager are supplied in the /KonaKart/custom/adminappn/src/com/konakartadmin/servlet directory.

Configuring KonaKart for HTTPS / SSL

SSL can be enabled and configured in the *Configuration>>HTTP/HTTPS* section of the Admin App. When SSL is enabled and the port numbers are correctly defined, KonaKart will automatically switch between HTTP and HTTPS depending on whether the customer is logged in or not. Whenever the customer is logged in, a session id is passed back and forth, so the protocol is set to HTTPS. Whenever the customer isn't logged in, the protocol is set to HTTP.

Editing the KonaKart Configuration Files

The configuration files can be found under your KonaKart installation directory at:

```
webapps\konakart\WEB-INF\classes\konakart.properties
  and
webapps\konakartadmin\WEB-INF\classes\konakartadmin.properties
```

They can be edited using any text editor. Alternatively, they can be edited from the *Configuration>>Configuration Files* section of the Admin Tool. Note that most changes will not take effect until KonaKart is restarted.

Changing the Editable File List in the Admin App

In the *Configuration Files* section of the Admin Tool a list of files is shown that can be edited. By default these are the main KonaKart properties and logging files.

You can add any files you like to that list so long as they are accessible to the KonaKart server - wherever that's running in your configuration.

There's a simple XML file (called *konakart_config_files.xml*) where the files that are shown are defined. It looks like this:

```
<?xml version="1.0" encoding="ISO-8859-1"?>

<konakart-config-files>
  <file>
    <displayName>
       KonaKart Properties File
    </displayName>
    <fileName>
       ../webapps/konakart/WEB-INF/classes/konakart.properties
    </fileName>
  </file>

  <file>
    <displayName>
       KonaKart Admin Properties File
    </displayName>
    <fileName>
       ../webapps/konakartadmin/WEB-INF/classes/konakartadmin.properties
    </fileName>
  </file>

  <file>
    <displayName>
       KonaKart Logging Properties File
    </displayName>
    <fileName>
       ../webapps/konakart/WEB-INF/classes/konakart-logging.properties
    </fileName>
  </file>

  <file>
    <displayName>
       KonaKart Admin Logging Properties File
    </displayName>
    <fileName>
       ../webapps/konakartadmin/WEB-INF/classes/konakart-logging.properties
    </fileName>
  </file>
</konakart-config-files>
```

You'll find this file under *webapps/konakartadmin/WEB-INF/classes* . In the default installation on Windows that is: *C:\Program Files\KonaKart\webapps\konakartadmin\WEB-INF\classes\konakart_config_files.xml* .

You'll see that you define a path to the file and a "display name" which is the name you see in the list in the Admin Tool.

A point to note if no files are listed:

Depending on your configuration (eg. if you are not using the default tomcat container supplied in the download kit) you may find that the default definitions of the relative paths in the supplied konakart_config_files.xml will not work - you will have to amend these to suit your environment.

Internationalization of KonaKart

KonaKart is completely multi-lingual both at the database level and at the UI level.

Translating the KonaKart Application

The data within the database such as product descriptions and category names etc. may exist in different languages. The database contains a languages table that contains information about each of the supported languages. When a new product is added to the database through the administration tool, it is possible to enter a description in multiple languages.

There is also a message catalog for each language. These can be found in the WEB-INF/classes directory of the application server. The default message catalog is called Messages.properties. This is defined as the default catalog in the struts-config.xml file in the WEB-INF directory using the following syntax:

```
<message-resources parameter="Messages" null="false" />
```

In order to change a language, the following steps must be taken (An example can be seen in the class SetLocaleAction.java):

Struts must be informed of the new language by calling the method setLocale() from within the Struts action. If Struts is passed a locale of en_GB, it looks for a message catalog called Messages_en_GB.properties. If it can't find that, it looks for Messages_en.properties. If it cannot find that, it defaults to Messages.properties which was set as the default in the struts-config.xml file.

The KonaKart client engine must be informed of the new locale by calling the setLocale() method on it. This call configures the engine so that all subsequent calls will retrieve data from the KonaKart database in the appropriate language.

Translating the KonaKart Admin Application

The KonaKart Administration Application can be completely translated simply by creating two message catalogs for your chosen language.

Whichever language you use this is also a handy way to re-label the "custom" fields that appear on many of the important objects within KonaKart to reflect the meaning in your particular system.

Your new message catalogs must be called:

```
// contains all the strings except the help page text
AdminMessages_[language-code].properties

// contains just the text on the help pages
AdminHelpMessages_[language-code].properties
```

For [language_code] you should use the 2-character language code that you have set up in the languages section of the admin application. For example, you might have "fr" for French, "zh" for Chinese, "de" for German, "ja" for Japanese etc.

You should place your completed message catalogs in this directory:

webapps/konakartadmin/WEB-INF/classes

Since there are quite a large number of messages to translate, you might choose to do this over a period of time. A recommended approach is to start your new message catalogs with copies of the default (English) catalogs (called AdminMessages.properties and AdminHelpMessages.properties) then translate the messages that are most important to you first and complete the rest as time permits.

There are also a number of strings in the database that need to be translated. These are used by the Admin App to label some of the configuration parameters and provide helpful comments. If you issue a: "SELECT configuration_title, configuration_description FROM configuration;" SQL query, you will see the values that you can update.

Also, you may wish to include translations for the velocity templates (eg. EmailNewPassword, OrderDetails, OrderInvoice, OrderPackingList and OrderStatusChange).

Once you have completed the message catalogs, velocity templates and a sql update script for your language, please contribute these to the KonaKart Community by posting them to the contributions section of our forum for the benefit of other users.

Changing the Date Format in the KonaKart Application

This has to be changed in two places:

In WEB-INF/validation.xml it must be set in this section towards the top of the file. This is used to validate any dates that are input through the UI.

```
<constant>
 <constant-name>DATE_PATTERN</constant-name>
 <constant-value>dd/MM/yyyy</constant-value>
</constant>
```

In the WEB-INF/classes/Messages.properties file it must be changed under the date.format key. i.e. date.format=dd/MM/yyyy

Formatting of Addresses

In the admin app under Localizations >> Address Formats, there are a number of templates which can be associated to countries, in order to format addresses correctly for the country. Valid template key words are:

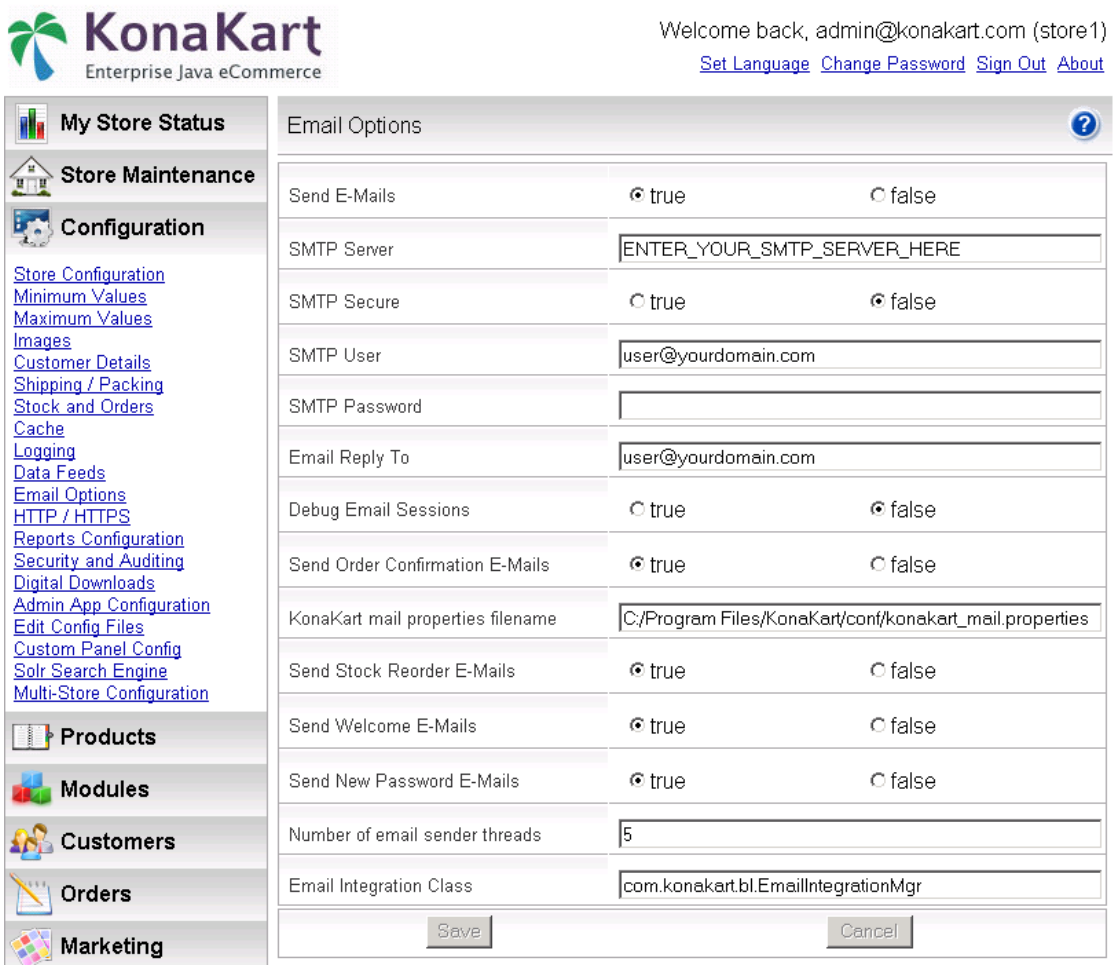
- $cr - Carriage return (new line)
- $firstname
- $lastname
- $streets = $street + line break + $suburb
- $street

- $suburb
- $city
- $postcode
- $state
- $telephone
- $telephone1
- $email
- $country

The formatting is performed by substituting the above keywords with the actual values within the address object. A typical template could be : $company$cr$firstname $lastname$cr$streets$cr$city, $postcode$cr$state, $country$crtel: $telephone$crtel1: $telephone1$creMail: $email .

Email Configuration

In most cases email can be configured completely within the KonaKart Admin App in the *Configuration>>Email Options* section (see image below). Here you can set up your SMTP server host, your SMTP username, SMTP password and whether or not the SMTP server requires authentication:



KonaKart Admin Application - Email Configuration

As with all fields in the Admin App, use the floatover text on each label to find out more about each configuration option.

For more advanced users there is a *konakart_mail.properties* file in which you can define additional mail properties. (In fact, you can rename this file if you wish and change its location - so long as you define the filename holding these values in the Admin App - see "KonaKart mail properties filename in the image above)). A common example of the use of this *konakart_mail.properties* file is for setting up access to the Google Mail SMTPS server (this uses a non-standard port (465), requires authentication and uses encryption. An example of the parameters to set to use the Google SMTPS mail gateway is provided in the default *konakart_mail.properties* file.

Modifying the Email Templates

If configured to do so, KonaKart will send out emails after registration, to confirm orders and to distribute new passwords. The emails are generated using Velocity [http://velocity.apache.org] templates which can be found in the /WEB-INF/classes directory of both the App and the Admin App. The current templates are all files following the pattern *.vm. Note that the file name must end with an underscore followed by a two letter country code (i.e. OrderConfirmation_en.vm).

When the state of an order is changed through the Admin App, an eMail may be sent to the customer based on the template called *OrderStatusChange_xx.vm* where xx is the two letter country code. A different template may be defined for each order state where the naming convention is *OrderStatusChange_stateId_xx.vm* . For example if the order changes state from state 1 to state 2, it will use the template called OrderStatusChange_2_xx.vm if it exists. If it doesn't exist, KonaKart will use the default OrderStatusChange_xx.vm template.

Enabling / Disabling One Page Checkout

In the *Configuration>>My Store* section of the Admin App there are two configuration variables that control "One Page Checkout". When the *Enable* variable is set to *true* , the application automatically uses One Page Checkout. When set to false, the original shipping, payment and checkout screens are used.

There is another variable for enabling checkout without registration. If One Page Checkout is enabled and this variable is also set to *true* , then a customer doesn't have to complete a separate registration process before checking out. He can just enter the shipping address during the checkout process.

Search Engine Optimization (SEO) Features

The SEO features can be configured through the message catalogs with the attributes beginning with "seo." (e.g seo.default.meta.description or seo.meta.keywords.template). The catalogs contain multi-lingual templates in order to write product information (name, model, manufacturer, category) into:

- The URL
- The window title
- The meta description
- The meta keywords

The templates may contain the following placeholders : $category, $manufacturer, $name, $model which are substituted by real data depending on what is being viewed at the time. Each attribute within the message catalog has a description which explains how it is used.

Adding Custom Functionality to the Admin App

From version 2.2.6.0 the Admin App allows you to define custom panels and custom buttons in defined areas, to allow you to extend the Admin App by adding your own administration functionality outside the standard Admin App.

Adding Panels

There are 10 custom panels that display a predefined URL in a frame. The urls are defined in the *Configuration>>Custom Panel* Config section of the Admin App and the labels of the panels can be changed by editing the message catalog. The panel links can be rendered visible / invisible by configuring the role based security. The session id of the logged in user is appended to the URL so that the custom application can control security using the Admin Engine API. The string appended to each url is similar to the following, except that the session id will be random:

sess=6596bd465a824bb9cdfa6080af07e02f

The urls defined in the admin app should always end in "?" or "&". For example:

http://www.mycustom.com/custom1.do?

or

http://www.mycustom.com/custom1.do?parm1=abc&

Each custom panel may have its own online help. The text for the online help is defined in the file *AdminHelpMessages.properties* under the keys, help.customPanel1 to help.customPanel10.

Adding Buttons

The buttons will call pre-defined urls and will normally pass some parameters to allow you to check security and/or operate on selected objects. The button labels are defined in the Configuration>>Admin App Configuration section of the Admin App and the buttons remain invisible until the button labels are set with some text. The buttons and parameters available are in the following panels:

- Customer Panel
  - *id* - the customer id
  - *sess* - the session id of the admin user
- Returned Products Panel
  - *order_return_id* - id of the OrderReturn object
  - *order_id* - id of the Order object
  - *total_inc_tax* - total amount of the Order
  - *sess* - session id

- *tx_id* - gateway transaction

Searching with wildcards

In version 5.0.0.0 of KonaKart, the search constraints for most objects are paired with a search rule that can be configured in order to determine whether a wildcard is added before, after or before and after the search string. These "rule" attributes can be set when making the API call that searches for products, orders, customers etc.

The admin application has a new properties file called *AdminSearchRules.properties* which is used to configure the search rules for the various panels of the Admin App.

```
#
# ----------------------------------------------------------------------
# Default wild card settings for the Admin GWT Application
# ----------------------------------------------------------------------
#
# Allows you to set wild card settings when searching
# for data using the admin app. The accepted values are :
#
#    SEARCH_EXACT = 0;
#    SEARCH_ADD_WILDCARD_BEFORE = 1;
#    SEARCH_ADD_WILDCARD_AFTER = 2;
#    SEARCH_ADD_WILDCARD_BEFORE_AND_AFTER = 3;
#    SEARCH_USE_GLOBAL_CONFIG = 4;
#
# When set to 4, the search parameters will use the global settings
# defined by the configuration variables: ADMIN_APP_ADD_WILDCARD_BEFORE
# and ADMIN_APP_ADD_WILDCARD_AFTER . The global settings will also be used if
# this file is missing.
#-------------------------------------------------------------------------------

address.format    = 4
address.summary.format  = 4

country.iso2    = 4
country.iso3    = 4
country.name    = 4

coupon.code     = 4
coupon.name     = 4

currency.name    = 4

customer.email    = 4
customer.city    = 4
customer.first.name   = 4
customer.last.name   = 4
customer.postcode   = 4
customer.street    = 4

etc. etc.
```

As can be seen in the example above, there are various rules such as SEARCH_EXACT and SEARCH_ADD_WILDCARD_BEFORE etc. which map to integer values. If for example I want to be able to search for customers using the customer last name with a trailing wildcard, I must set:

customer.last.name = 2

Before version 5.0.0.0, there were global configuration variables for the admin app called:

- ADMIN_APP_ADD_WILDCARD_BEFORE

- ADMIN_APP_ADD_WILDCARD_AFTER

These variables still exist and will be used when the rules are set to the value SEARCH_USE_GLOBAL_CONFIG, which is the default case for backwards compatibility.

Making something happen when a product needs to be reordered

When the number of products in stock hits the reorder level defined by the configuration property STOCK_REORDER_LEVEL, KonaKart instantiates a class defined by the property STOCK_REORDER_CLASS. If this property isn't set, the class that is instantiated is com.konakart.bl.ReorderMgr. If you write a custom class it must implement the interface com.konakart.bl.ReorderMgrInterface which contains only one method:

```
public void reorder(int productId, String sku, int currentQuantity) throws Exception;
```

After the class is instantiated, the reorder method is called and information regarding the productId, the SKU and current product quantity is passed to the method so that it can use this information to trigger an event. This mechanism is a useful generic way to interface KonaKart to external systems since the custom class could write data to a database, call a web service or write data to a file etc.

If the configuration variable STOCK_REORDER_EMAIL is set, then KonaKart will also send an eMail alert using the *LowStockAlert* template.

All of the configuration variables can be edited in the *Configuration>>Stock and Orders* section of the Admin App.

Making something happen when the state of an order changes

When an order is saved in the database or the status of an order is changed (i.e. through the callback of a payment gateway), KonaKart instantiates a class defined by the property ORDER_INTEGRATION_CLASS. If this property isn't set, the class that is instantiated is com.konakart.bl.OrderIntegrationMgr. If you write a custom class it must implement the interface com.konakart.bl.OrderIntegrationMgrInterface which contains some methods:

```
    /**
     * Called just after an order has been saved. The order details are passed to the method so that
     * all the information should be available in order to integrate with external systems.
     *
     * @param order
     */
    public void saveOrder(OrderIf order);

    /**
     * Called just before an order has been saved. This method gives the opportunity to modify any
     * detail of the order before it is saved. If null is returned, then no action is taken. If a
     * non null Order is returned, then this is the order that will be saved.
     *
     * @param order
     * @return Returns an order object which will be saved
     */
    public OrderIf beforeSaveOrder(OrderIf order);

    /**
     * Called just after an order status change
     *
     * @param orderId
     * @param currentStatus
     * @param newStatus
     */
    public void changeOrderStatus(int orderId, int currentStatus, int newStatus);

    /**
     * This method allows you to introduce a proprietary algorithm for creating the order number for
     * an order just before the order is saved. It is called by the saveOrder() method.
     * The value returned by this method populates the orderNumber attribute of the
     * order when it is saved.
     * If a null value is returned, then the order number of the order is left unchanged.
     * If an exception is thrown, the exception will be also thrown by the saveOrder() method and
     * the order will not be saved.
     *
     * @param order
     * @return Return the order number for the new order
     * @throws Exception
     */
    public String createOrderNumber(OrderIf order) throws Exception;

    /**
     * This method allows you to generate a tracking number for an order just before the order is
     * saved. It is called by the saveOrder() method. The value returned by this method
     * populates the trackingNumber attribute of the order when it is saved.
     * If a null value is returned, then the tracking number of the order is left unchanged.
     * If an exception is thrown, the exception will be also thrown by the saveOrder() method and
     * the order will not be saved.
     *
     * @param order
     * @return Return the tracking number for the new order
     * @throws Exception
     */
    public String createTrackingNumber(OrderIf order) throws Exception;
```

The state of an order may be changed manually through the Admin App. In this case KonaKart instantiates a class defined by the property ADMIN_ORDER_INTEGRATION_CLASS. If this property isn't set, the class that is instantiated is com.konakartadmin.bl.AdminOrderIntegrationMgr. If you write a custom class it must implement the interface com.konakartadmin.bl.AdminOrderIntegrationMgrInterface which contains the method:

```
/**
 * Called just after an order status change
 *
 * @param orderId
 * @param currentStatus
 * @param newStatus
 */
public void changeOrderStatus(int orderId, int currentStatus, int newStatus);
```

This mechanism is a useful generic way to interface KonaKart to external systems since the custom classes could write data to a database, call a web service or write data to a file etc.

The ORDER_INTEGRATION_CLASS and ADMIN_ORDER_INTEGRATION_CLASS properties can be edited in the Configuration>>Stock and Orders section of the Admin App.

PDF Invoices

PDF invoices can be created by KonaKart for a variety of different purposes including:

- To send to customers as email attachments in order confirmation emails.
- For internal record-keeping - some store owners may wish to save all their invoices in PDF format.
- For display and download from both the store front (under the customer's "My Account" page) and the Admin Application. In order to activate the download links, you must set the "Enable" configuration variable in the *Configuration >> PDF Configuration* section of the Admin App.

By default, no PDF invoices are created by KonaKart. They can be created in a number of different ways:

- The application code can be modified to create the PDF invoices typically at the point when an order is confirmed or when payment is received. The methods that need to be modified are getEmailOptions() in CheckoutConfirmationSubmitAction.java (for when an order is confirmed) and sendOrderConfirmationMail() in BaseGatewayAction.java (for when payment is received).
- A batch job is provided that can be executed from Quartz (using standard KonaKart job scheduling) that will create invoices for orders that haven't yet had invoices created. This batch job can be modified to suit your particular requirements - for example you may only want invoices to be created when an order reaches a certain order status. Full source code is provided for the batch jobs to enable you to make any modifications required. By default the batch job is not scheduled to execute. To schedule it to run you need to uncomment the cron-expression tag for the CreateInvoicesTrigger in your konakart_jobs.xml Quartz job definition file.
- Invoices can be created by calling a "createInvoice()" method from the OrderIntegrationMgr and/or the AdminOrderIntegrationMgr. This call is commented out in the supplied versions of these two order integration managers making it easy to modify to create the invoices at this stage. As in the batch job, it would also be easy to code logic here that only created invoices when the order reached a certain specified order status if that was required.
- Invoices can be created "on-the-fly" by calling the GetPDF servlet. This is useful when you don't ever want to create a permanent record of the PDF file on the file system (possibly for Data Protection restrictions). The GetPDF servlet will return the PDF invoice if it already exists or, if it doesn't exist, create the PDF invoice dynamically and then return the contents of this.

By default, KonaKart stores the created invoices in a hierarchical structure on the file system. The directory structure is deep to distribute the files evenly across multiple directories to avoid the possibility of creating too many files in a single directory. The root location is defined in the "PDF_BASE_DIRECTORY"

configuration variable. This can be set to any location accessible to the KonaKart code that creates the invoices.

An example PDF invoice filename, on Linux, is: "/home/greg/konakart/pdf/store1/2/2010/3/199-547b759d-735c-48bb-a23d-4cf526be9c3a.pdf"

In turn, the directories used are:

- "store1" - the storeId
- "2" - 2 is the code for an Invoice (other document types are packing slips (3) and order details (1))
- "2010" - the year at the time the invoice was created (YYYY)
- "3" - the month at the time the invoice was created (M)
- "199-547b759d-735c-48bb-a23d-4cf526be9c3a.pdf" - the filename has the format: orderId + "-" + UUID + ".pdf"

Activating a Promotion

You must follow these steps :

- Ensure that the promotion module that you want to use, is installed. All promotion modules can be found in the *Modules>>Order Total* section of the Admin App.
- Create a new promotion in the *Products>>Promotions* section of the Admin App. The online help provides extra information and most attributes have floatover text with a more detailed description. When creating the promotion, you must select which promotion module to use from the *Promotion Type* drop list. The configuration data required, depends on the promotion type. Once the promotion has been saved, it is immediately active as long as the *Active* check box was ticked and the current date lies between the promotion start and end dates.
- Rules may be added to the promotion by clicking on the *Rules* button. When a rule is selected, a pop-up window opens where the rule can be configured (e.g. Activate promotion for products belonging to a certain category). When the pop-up window is closed, the rule is saved and the *Promotion Rules* window shows a summary of the rules that have been set.
- If the promotion needs to be activated through a coupon, you can create a coupon by clicking the *Coupons* button. The coupon must be given a name and a code (the text entered by the customer to activate the coupon). The coupon may also be programmed so that it can only be used a defined number of times. The final step is to enable the coupon entry field in the UI during checkout. To do this you must set the "Display Coupon Entry Field" to true in the *Configuration>>My Store* section of the Admin App.

Displaying Coupon Entry Fields in your Store

You must set the "Display Coupon Entry Field" to *true* in the *Configuration>>My Store* section of the Admin App.

Configuring Digital Downloads

KonaKart supports digital downloads which can be downloaded from the KonaKart on line store, as soon as payment is received for the products. A new section appears on the customer's Account page, with a link for each downloadable product in the order.

To configure KonaKart for selling digital downloads, the following steps must be taken :

- Using the Admin App, ensure that the "Product Type" attribute of all downloadable products is set to "Digital Download". You must also enter the "File Path" and the "Content Type"
  - File Path : The File Path will be concatenated to the "Base Path" defined by a configuration variable. For example, if the Base Path is set to "C:/images/" and the File Path is set to "cities/london.jpg", then the downloaded file will be C:/images/cities/london.jpg . If the Base Path is left empty (default value) then the File Path must be set to the full name, i.e. C:/images/cities/london.jpg . Note that if the Base Path ends with a "/" then the file path should not start with a "/" because the two strings are concatenated to create the full path for the digital product.
  - Content Type : The Content Type describes the content of the file. Examples are "image/jpeg" or "application/pdf". A list of Content Types may be found here.
- Using the Admin App in the section Configuration>>Configure Digital Downloads you may configure some parameters regarding the digital download functionality. These are:
  - Base Path : The base path of the downloadable files as explained above.
  - Max Number of Downloads : The maximum number of times that the file can be downloaded. -1 for an unlimited number of downloads.
  - Number of days link is valid : The number of days that the download link is valid for. -1 for an unlimited number of days.
  - Delete record on expiration : When the download link expires, the database table record defining the link will be automatically deleted. Setting this to true avoids having to do manual cleanup of the database.
  - Download as an attachment : When set to true, the digital download is downloaded as an attached file that can be saved on disk. When set to false, the browser attempts to display or run the file.
- The digital downloads shipping module must be installed in the Modules>>Shipping section of the Admin App. This shipping module activates automatically when the whole of the order consists of digital downloads and displays a $0 shipping cost. Any other shipping module should not return a shipping quote in the case of a digital download order.

Import/Export of KonaKart Data

Two tools are provided for import/export of KonaKart data. KKImporter allows the import and export of product data only whereas the much more sophisticated XML_IO import/export tool, allows you to import/export almost every data item stored in KonaKart's database.

Import/Export of Product Data using KKImporter

KKImporter is a tool, provided in all KonaKart download packages, that allows you to load the KonaKart database with product information contained in a file. It also allows you to create a file from product data present in a KonaKart database.

Instructions on how to use KKImporter can be found in the KKImporter user's guide which is provided as part of the download package.

Import/Export of KonaKart Data using XML_IO

XML_IO is a tool, provided in the Enterprise Extensions of KonaKart, that allows you to import and export KonaKart data in XML files.

It can be found in the xml_io directory which is located directly under the KonaKart installation directory.

The XML_IO utility can be configured to backup KonaKart systems, transfer product data from one system to another (e.g. from some kind of staging system to the live system), or any other use you can think of involving the import and export of XML data!

For some users it may be a useful way to export products or orders in XML format for subsequent communication with other systems. Indeed it could also be a useful way to import customers or products into KonaKart that are defined in other systems that can produce compatible XML files.

These are merely examples and it is expected that users will end up using the XML_IO utility in many different ways to suit their own specific requirements.

Configuration of XML_IO

A properties file allows you to define which KonaKart data objects you would like to be imported or exported providing tremendous flexibility of usage.

The properties file allows you to define the following:

```
When not modified, the default setting is true.

#accessoryProducts     = false
#addressFormats        = false
#audit                 = false
#bundledProducts       = false
#categories            = false
#categoriesToTagGroups = false
#configurationGroups   = false
#configurations        = false
#countries             = false
#coupons               = false
#crossSellProducts     = false
#customerGroups        = false
#customerTags          = false
#customerTagsForCusts  = false
#currencies            = false
#customers             = false
#dependentProducts     = false
#digitalDownloads      = false
#expressions           = false
#geoZones              = false
#ipnHistory            = false
#languages             = false
#manufacturers         = false
#productOptions        = false
#orders                = false
#orderStatuses         = false
#productCategories     = false
#productOptionValues   = false
#products              = false
#productsToStores      = false
#reviews               = false
#subZones              = false
#tagGroups             = false
#tagGroupToTags        = false
#tags                  = false
#taxClasses            = false
#taxRates              = false
#upSellProducts        = false
#wishLists             = false
#zones                 = false
```

The properties file allows you to define the data to be imported/exported using the Xml_IO import/export utility in KonaKart. You can call the properties file anything you like as its name is specified as an argument to the XML_IO command line utility (for details of the "usage" of the command line utility, see below).

If no properties are defined (or a properties file is not specified to the XML_IO utility) the default import/export configuration is used. By default all values are set to true. This means that by default all data is imported/exported. ** Note that this may take a long time if if you have a lot of data!

If you define properties in this configuration properties file the values in it will override the default settings of the XML_IO utility.

A sample file is provided in the download kit for you to modify for your own purposes. Uncomment only the fields you want to define for import/export.

If you leave them commented out "true" is used by default.

If you are planning to import your exported data into another system where the Ids of the data are different, you should ensure that you export the appropriate dependent data objects (see below for some warnings about mapping of Ids). If, on the other hand, you are planning to import the exported data into a system where you know the Ids of the referenced objects will be the same, you can improve the performance of the export/import process by choosing only the higher level objects for export and import. If in doubt, you should export and import all the data objects so that you know you have a complete set of data for the site.

XML_IO Usage

You can discover the parameters for the XML_IO command line utility by issuing a "-?" as your argument as follows (example from a Linux system):

```
summersb@luton:~/konakart/xml_io$ . ./setClasspath.sh
summersb@luton:~/konakart/xml_io$ ${JAVA_HOME}/bin/java -cp ${IMP_EXP_CLASSPATH} \
                                  com.konakart.importer.xml.Xml_io -?
Usage: Xml_io
     (-i|-o)              Import or Export
     [-b bootstrapFile]   Bootstrap file - an sql file run prior to importing
                          data to initialise the DB. If not set no bootstrap
                          is executed.
     [-e emptyDBFile]     An sql file used that's run prior to importing data
                          to empty the DB. If not set no empty DB is executed.
     [-r xmlRootDir]      Root directory of the XML data files on disk.
                          Default: ./xml_io
                          The directory is created if it doesn't exist.
     [-prop propsFile]    Konakart Admin properties file name which must be
                          on the classpath. Default:
                          konakartadmin.properties
     [-conf confFile]     Configuration file that defines which parts of the
                          KonaKart database are imported/exported.
     [-usr userName]      User name to access the Konakart Admin engine.
                          Default: admin@konakart.com
     [-pwd password]      Password to access the Konakart Admin engine.
                          Default: princess
     [-s storeId]         The store to import to or export from.
                          Default: store1
     [-m engineMode]      KonaKart Engine Mode
                          0 = Single Store (default)
                          1 = Multi Store MultipleDB
                          2 = Multi Store SingleDB
     [-c (true|false)]    Shared customers (only relevant in Engine Mode 2).
                          Default is false.
     [-ps (true|false)]   Shared products (only relevant in Engine Mode 2).
                          Default is false.
     [-soap]              Use SOAP to access the Admin Engine.
                          Default is to use direct java calls
     [-ws url]            The endpoint for the Admin Web Services. Default:
                          http://localhost:8780/konakartadmin/services/KKWSAdmin
                          Only relevant when -soap is specified
     [-d]                 to enable debug
     [-h|-?]              to show usage information
```

Warning

A *word of warning* when using the XML_IO utility! Loading data from one system to another can be a very complicated process so proceed with extreme caution. It is suggested that you backup your systems before executing XML_IO imports in the event that an import doesn't function the way you expect.

Complications arise in a number of different areas. One is in the case where exported Ids (and keys) from one system do not match those on the target system to import into. The XML_IO utility does have the "intelligence" necessary to "map" these ids during the import process and does this in a number of different ways. One way to ensure the mappings are correct is to include the necessary reference data in the XML_IO export so that this can be used during the import process by XML_IO to figure out the correct mappings. An example is to include the languages export when you export the products so that when the products are subsequently loaded into a different system (where languages could easily be defined with different Ids) the language Ids can be mapped on the imported products.

Nevertheless, it is important to note that even when you include all the necessary reference data there are, unavoidably, occasions when XML_IO cannot calculate a mapping successfully. This can occur, for example, when it tries to locate a language by name in the target system (in order to figure out the mapping of Ids) but fails to find exactly one match. In such cases the XML_IO utility will report the mapping failure as a "Warning" in the log.

Therefore, it is strongly advised that you check your import/export processes carefully before unleashing in production. XML_IO is a very powerful utility but if used incorrectly can lead to duplicate records and in some cases a loss of integrity in your database.

Examples

In the xml_io directory, located under the KonaKart installation home directory, you will find some example scripts for running XML_IO either directly using the "engine" or via SOAP. These may be useful as they stand or they could be used as templates for your own XML_IO scripts that are tailored for your own particular environment.

Multiple Prices for Products

Each KonaKart product object has 4 price fields that can be used to store 4 different prices. For example, these may be retail price, wholesale price, MRP, employee price etc.

The prices may be stored just for reporting purposes since whenever a product is added to an Order and an OrderProduct object is created which becomes an attribute of the Order object, this OrderProduct contains all of the product prices. This means that whenever documentation is generated from the order, you can show customers information such as the discount from the MRP etc.

The prices may also be used to display different prices to different customers based on what customer group they belong to.

In order to have an unlimited number of prices, they may be stored in a separate database table and referenced by a catalog id. The database table is called kk_product_prices. In order to pick up the external prices, the Application Engine must be configured with the correct catalog id. The catalog id can be calculated in a number of ways and is application specific. For example, it may depend on the country that the customer is accessing from, or the URL or the type of customer etc. One way of configuring the application engine is in the KKAppEngCallouts class as shown below:

```
/**
 * Callouts to add custom code to the KKAppEng
 */
public class KKAppEngCallouts
{
    /**
     * Called at the start of startup
     *
     * @param eng
     */
    public void beforeStartup(KKAppEng eng)
    {
        System.out.println("Set product options for current customer");
        FetchProductOptionsIf fpo = new FetchProductOptions();
        fpo.setCatalogId("cat1");
        fpo.setUseExternalPrice(true);
        eng.setFetchProdOptions(fpo);
    }

    /**
     * Called at the end of startup
     *
     * @param eng
     */
    public void afterStartup(KKAppEng eng)
    {
    }
```

Note that when using the API directly, this functionality is available on all of the API calls that accept an Options object such as FetchProductOptions or AddToBasketOptions. Note also that the functionality is only available when the Enterprise Extensions are installed.

Tax Configuration

KonaKart includes a powerful tax calculation system containing the following entities:

- Zone: A physical area and is normally a state or region within a country.
- Tax Area: An area defined for tax purposes and can be mapped to a zone or a country.
- Tax Class: Defines a type of product for tax purposes because products within the same tax area may be taxed differently depending on their tax class. For example, children's clothes or basic necessities such as milk, may be taxed differently to luxury goods.
- Tax Rate: A percentage number used to actually calculate the tax on a product. It has to be associated with a tax area and a tax class.

To start, you should define all of the zones for the country that you are interested in. Our database comes pre-populated with zones for a few countries. Even if the tax rate doesn't change between zones, it is still a good idea to populate them since this helps customers when entering addresses because they can be displayed in a drop down list.

Next, you should define the tax areas which may map directly to the zones. For example, the state of Texas may map directly to a tax area. Once you've defined all of you tax areas, you should map them to the zones using the Admin App.

The following step is to define the tax classes which are needed before entering any products. Once these are defined, the final step is to insert all of the tax rates that could be applied and map them with a tax area and a tax class.

If for some reason you need to look up the tax rate to be applied for a product from an external system, this rate can be applied to the order before saving it. In order to do this you must loop through all of the

OrderProduct objects contained in the order and call the setTaxRate() method to set the tax rate. Once this has been done, you can call the getOrderTotals() engine call which re-calculates the order for the new tax rates.

Default Sort Order for Products

To set the default sort order for products retrieved using the client API you must use the *setDefaultOrder-By()* call on the com.konakart.al.ProductMgr. This sets the default sort order used by the following calls:

- fetchProductsPerCategory()
- fetchAllSpecials()
- searchForProducts()
- fetchProductsPerManufacturer()
- fetchAlsoPurchasedArray()
- fetchRelatedProducts()

setDefaultOrderBy() should be called in the struts action class prior to making the API call that actually fetches the data from the DB. The parameter accepted by setDefaultOrderBy() must be an attribute of *com.konakart.app.DataDescConstants* such as ORDER_BY_NAME_ASCENDING or ORDER_BY_MANUFACTURER etc.

Bundle Configuration

From version 2.2.6.0, KonaKart supports bundled products. To define a bundle, the following steps must be taken using the Admin App:

- When inserting or editing a product, select a product type of "Bundle" or "Bundle with free shipping".
- Using the "Select Products" button which appears next to the Product Type drop list, open a pop-up window to select the bundled products.
- When you return to the main window after having selected the bundled products, you can get the Admin App to calculate the price and the weight of the bundle. When calculating the price, a percentage or total discount may be configured. The calculated values can be overridden before saving. The quantity is read only and is always a calculated value based on the quantity of bundled products in stock.

Within the application, bundle products are treated in the same way as other products. The products that make up the bundle (bundled products) can be retrieved through the API using the getRelatedProducts() API call. ProductDetailsBody.jsp has been modified to display description information for each bundled product when it exists. Just like other products, the quantity in stock of a bundle product is retrieved using the updateBasketWithStockInfo() method. The quantity returned is calculated based on the availability of the bundled products and when a bundle product is sold, the stock info of the bundled products is modified.

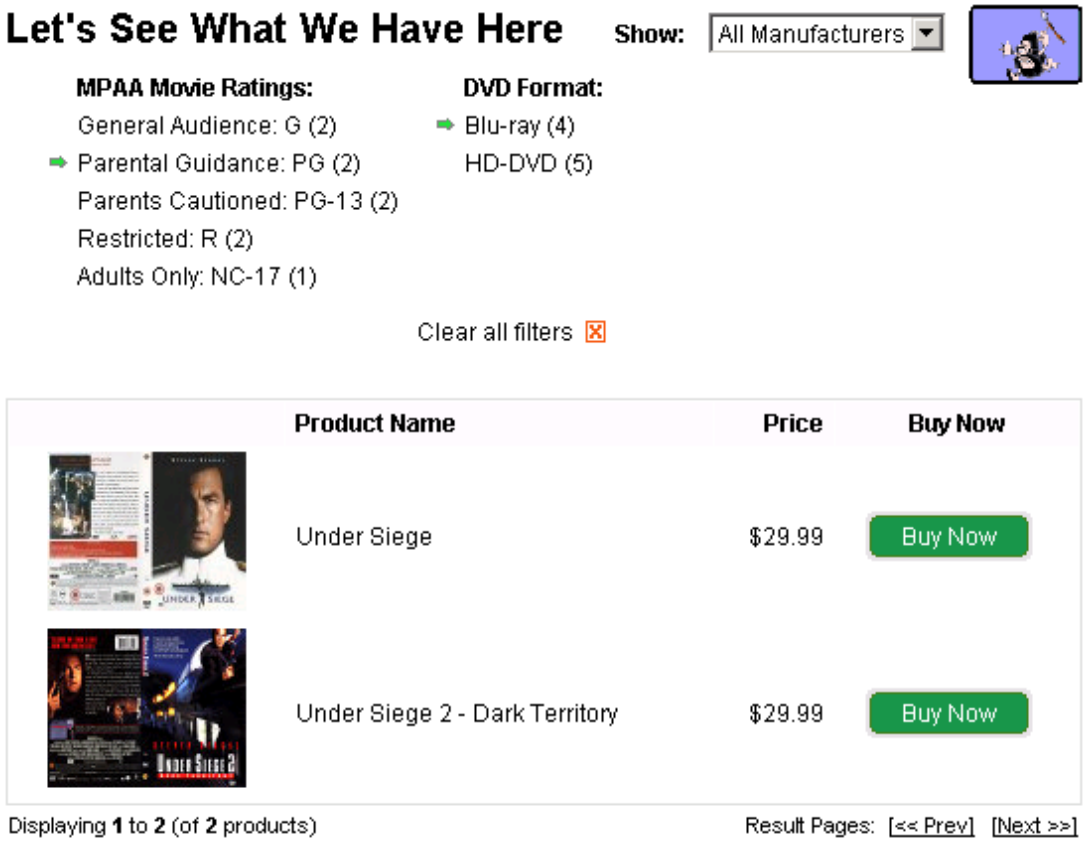
Product Tags

From version 2.2.6.0, KonaKart supports product tags. Tags are attributes that can be associated to a product and can be used to refine product searches. For example, in the case of a digital camera the tags could be arranged as follows:

MegaPixels	*Optical Zoom*	*Weight*
6.0	3x	less than 100g
8.0	4x	between 100g and 200g
10.0	5x	greater than 200g

The Optical Zoom tags (3x,4x and 5x) are contained within a tag group called Optical Zoom. All tags must belong to a tag group and a tag may belong to multiple groups. The purpose of a tag group is to organize tags and a tag group may be associated to a category so that it can be automatically displayed in a context sensitive fashion when a customer is viewing products belonging to a specific category.

For example, the image below shows that the *MPAA Movie rating* and the *DVD Format* tag groups are displayed in the *DVD Movie>>Action* category . When a customer clicks on a tag , he refines the search to only show products that include that tag information. Multiple tags may be selected . When within the same tag group, they are OR'ed together. e.g. I want to see all movies with rating PG or PG-13. When within different groups they are AND'ed together. e.g. Show me all movies that have a PG *or* PG-13 rating *and* are available in Blu-ray format.



Tag functionality is available through the application API. The ProductSearch object has been enhanced to include an array of Tag Group objects, each of which may contain a number of tags. There is also a new API call *getTagGroupsPerCategory()* to enable you to determine which tag groups have been associated to a category. The Product object now has a tags attribute which is populated in the *getProduct()* method with an array of tags, so that you may see which tags have been associated to a product.

Credit Card Refunds

The actual process involved depends on the payment gateway being used. In version 2.2.6.0 a custom button has been introduced in the panel that processes returns. This feature allows you to extend the Admin App by adding your own administration functionality outside the standard Admin App. The following parameters are added to your defined URL to allow you to check security and/or operate on selected objects:

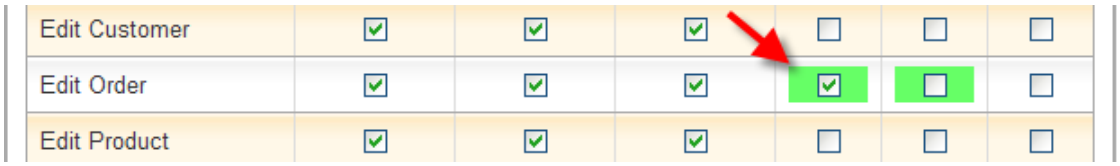
- *order_return_id* - id of the OrderReturn object
- *order_id* - id of the Order object
- *total_inc_tax* - total amount of the Order
- *sess* - session id
- *tx_id* - gateway transaction id

Note that this button will not be visible unless you define the label to be non-empty in the Admin App Configuration Panel.

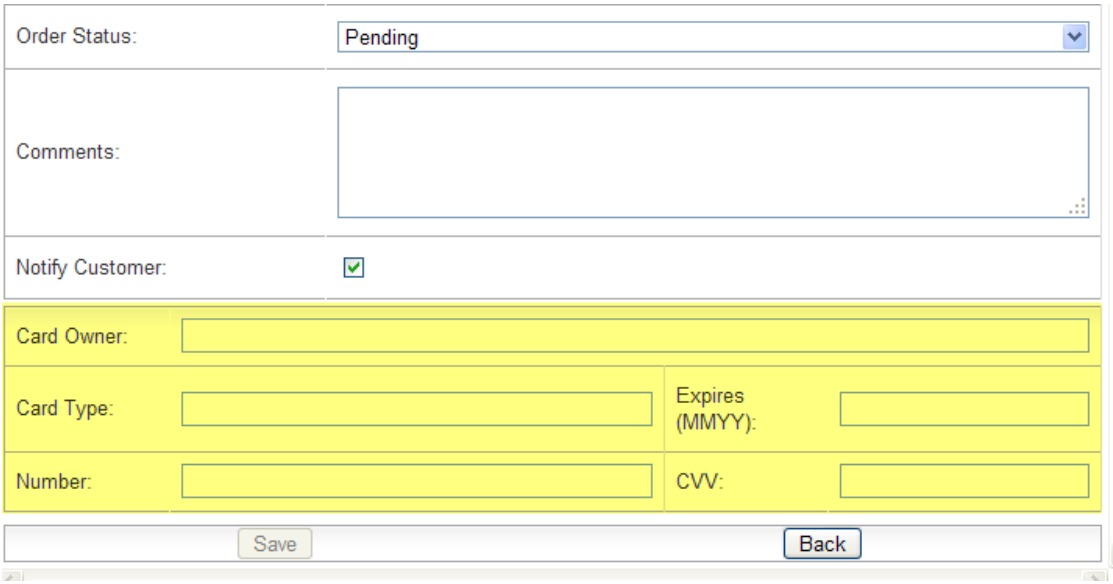
Saving and Editing of Credit Card details

Configuration of Admin Application

The admin app now allows you to enter and/or edit credit card details for any order using the "edit order" panel, which is opened by selecting an order and clicking the edit button. This functionality is only available if the role allows it. In order to set privileges you must navigate to *Customers>>Maintain Roles* and select a role. Once the role has been selected you must click the Privileges button and set the check box on the Edit Order panel shown below.



In order for the new role information to be picked up, you must log out and log in again, at which point in the edit order screen you should see the following fields (see below) which can be modified and saved. The information is saved in the database in fields e1 to e6 of the orders table in an encrypted format.

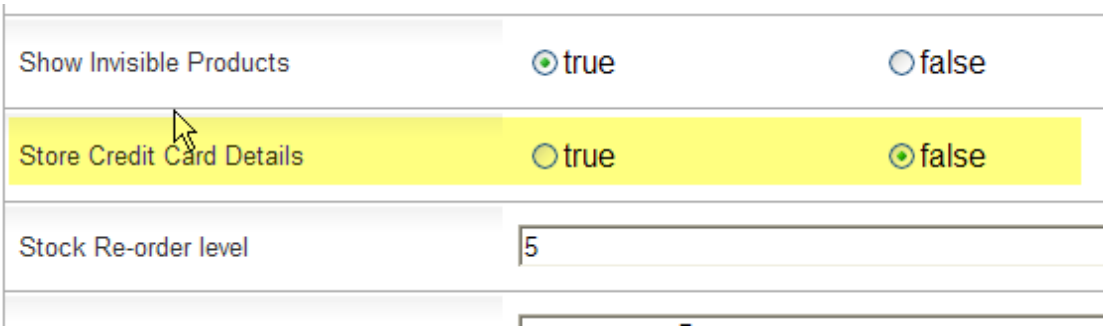


Configuration of Store Front Application

A new API call has been introduced in order to set the credit card details on an order.

```
/**
 * The credit card details in the CreditCard object passed in as a parameter, are saved in the
 * database for an existing order. Before being saved, this sensitive information is encrypted.
 * No update or insert is done for attributes of the CreditCard object that are set to null. The
 * credit card details are mapped as follows to attributes in the order object:
 *
 * e1 - Credit Card owner
 * e2 - Credit Card number
 * e3 - Credit Card expiration
 * e4 - Credit Card CVV
 * e5 - Credit Card Type
 *
 *
 * @param sessionId
 *            The session id of the logged in user
 * @param OrderId
 *            The numeric id of the order
 * @param card
 *            CreditCard object containing the credit card details
 * @throws KKException
 */

public void setCreditCardDetailsOnOrder(String sessionId, int orderId, CreditCardIf card)
        throws KKException;
```

This API call can be integrated into the application where you see fit. i.e. You could write a simplified payment gateway that just collects the credit card information and saves it rather than sending it to a payment gateway. A configuration variable has been added which can be set in the admin app under *configuration>>Stock and Orders* .

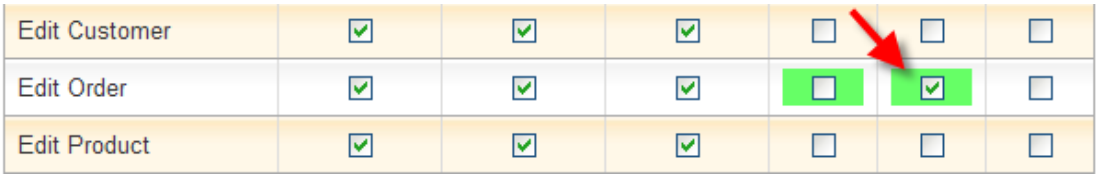


This config variable could be used in your code to determine whether or not to save the credit card details. Using AuthorizenetAction as an example :

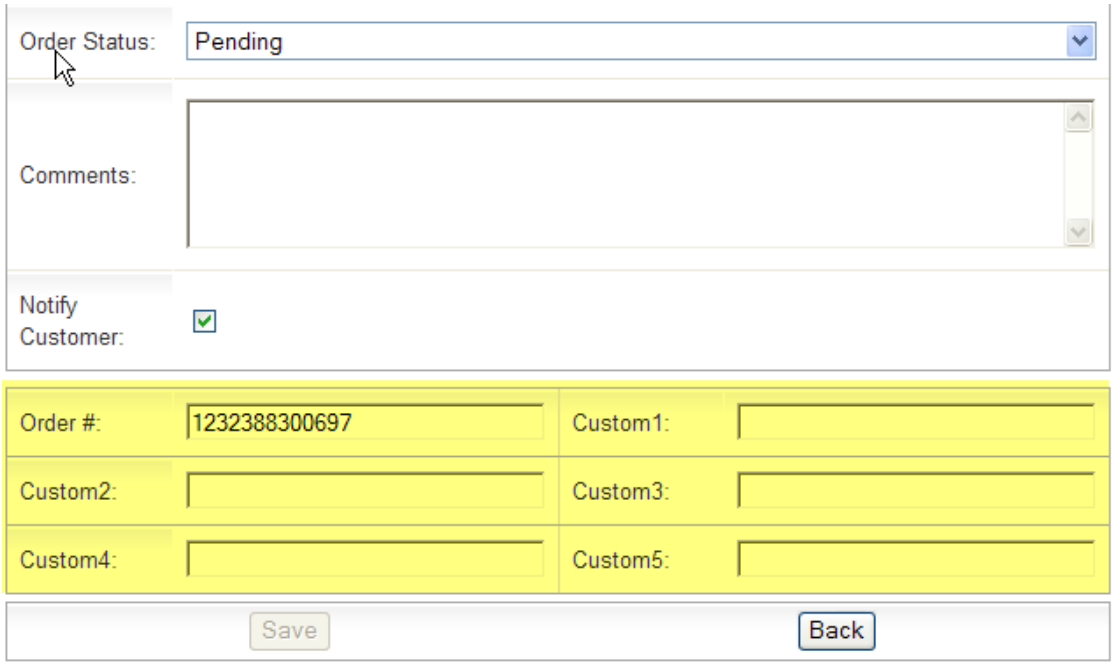
```
// Create a parameter list for the credit card details.
PaymentDetailsIf pd = order.getPaymentDetails();

String saveCCDetails = kkAppEng.getConfig(ConfigConstants.STORE_CC_DETAILS);
if (saveCCDetails != null && saveCCDetails.equalsIgnoreCase("true"))
{
    CreditCardIf cc = new CreditCard();
    cc.setCcOwner(pd.getCcOwner());
    cc.setCcExpires(pd.getCcExpiryMonth() + pd.getCcExpiryYear());
    cc.setCcNumber(pd.getCcNumber());
    cc.setCcCVV(pd.getCcCVV());
    cc.setCcType(pd.getCcType());

    kkAppEng.getEng().setCreditCardDetailsOnOrder(kkAppEng.getSessionId(),
            order.getId(), cc);
}
```

Edit Order Number and Custom Fields

The admin app now allows you to enter and/or edit the order number and custom fields for any order using the "edit order" panel, which is opened by selecting an order and clicking the edit button. This functionality is only available if the role allows it. In order to set privileges you must navigate to *Customers>>Maintain Roles* and select a role. Once the role has been selected you must click the Privileges button and set the check box on the Edit Order panel shown below.



In order for the new role information to be picked up, you must log out and log in again, at which point in the edit order screen you should see the following fields (see below) which can be modified and saved.



Wish Lists

Wish List functionality can be enabled in the *Configuration>>Store Configuration* section of the Admin App. Once enabled, the store front application will display an "Add to Wish List" button when viewing product details, and a Wish List tile containing products that have been added to the wish list.

There is a Wish List screen that allows a customer to remove products from the list and also to transfer them directly to the shopping cart.

Gift Registries

Gift Registry functionality can be enabled in the *Configuration>>Store Configuration* section of the Admin App. Once enabled, the store front application will display Wedding List functionality. Note that it is relatively straightforward to customize the store front application to handle other types of gift registries such as birthday lists.

Only a registered customer can create a wedding list after logging into the application by clicking a link in the Wedding List section of the My Account page. The wedding list can be made public or private and once created, the shipping address and other details may be modified by clicking the edit link that will appear in the Wedding List section of the My Account page.

Products can be added to the wedding list by navigating to the product details page and clicking on the add to wedding list link. Note that you will see a link for each wedding list that you have created and the link will contain the name of the list. Once a product has been added to the list, you may modify the priority and the quantity desired attribute.

Any shopper can search for a public wedding list by clicking the Wedding Lists link at the top of the screen next to the Cart Contents and Checkout links. If no constraints are entered, all wedding lists are found and can be paged through. Otherwise constraints such as the wedding date or name of bride etc. can be used to narrow down the search. Once a wedding list has been found, you may click on it's name

in order to see the list of gifts sorted by priority. You may select one or more gifts and add them to the cart, ready for checkout. When gifts are added to the cart from this screen, the system will ensure that the wedding list is updated with quantity received (once the order has been paid for) and the default shipping address will be the address of the wedding list. During the checkout process, you can change the shipping address if you desire.

Gift Certificates

In KonaKart, a Gift Certificate is a product of type gift certificate, that can be bought by a customer and delivered as a digital download, through eMail or even regular mail. The gift certificate contains a promotion code which is usable only once to obtain a discount on an order.

Behind the scenes, a gift certificate object needs to be related to a promotion which can only be activated through the use of a coupon code. When an order containing one or more gift certificates is paid for, a coupon code and document must be created for each gift certificate. For example, the document could be a stylish pdf file containing the coupon code which the customer can download. The generation of the actual document is a customization that needs to be carried out, since the example source code just generates a simple txt file containing only the coupon code.

com.konakart.bl.OrderIntegrationMgr and *com.konakartadmin.bl.AdminOrderIntegrationMgr* are the two files that contain the code that is run when an order changes state after payment is received. The application code is run when the state is changed through the application (i.e. when a customer pays using a credit card) and the admin app code is run when the state is changed through the admin app. The actual method to look at is called *manageGiftCertificates()* . As you can see from the source code, this method implements the following tasks:

- Find the promotion attached to the gift certificate.
- Create a coupon code.
- Create a coupon with the new code.
- Attach the coupon to the promotion.
- Insert the coupon code into a downloadable product that can be downloaded by the customer. This becomes the gift certificate that the customer can forward on to the receiver of the gift..

Depending on your requirements, the method can be customized. For example, you may not wish the file to be made available as a digital download or you may wish to generate a more simple coupon code. An almost obligatory customization is the *getGiftCertificateFilePath()* method which at the moment produces a simple txt file just containing the coupon code. For production usage it should create maybe a pdf or html document that resembles a real gift certificate.

Enable Gift Certificates

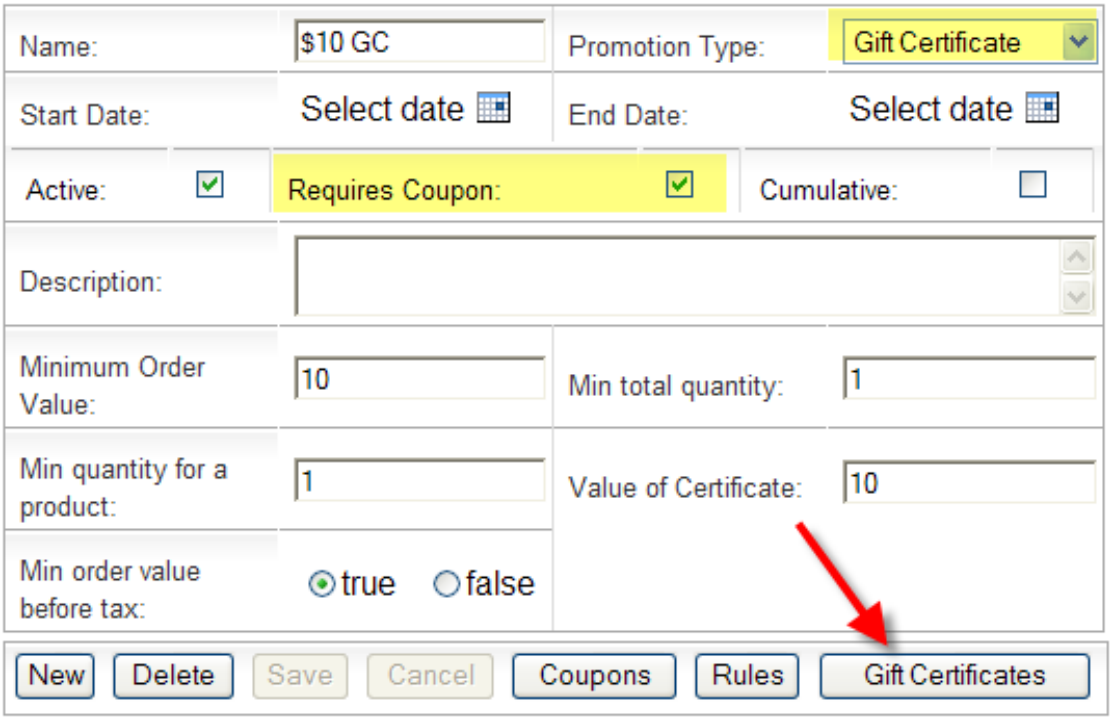
In order to enable the gift certificate entry field in the store-front application, the configuration variable must be set in the Configuration>>Store Configuration section of the admin app.

Creating a Gift Certificate

The following steps must be taken to create a gift certificate:

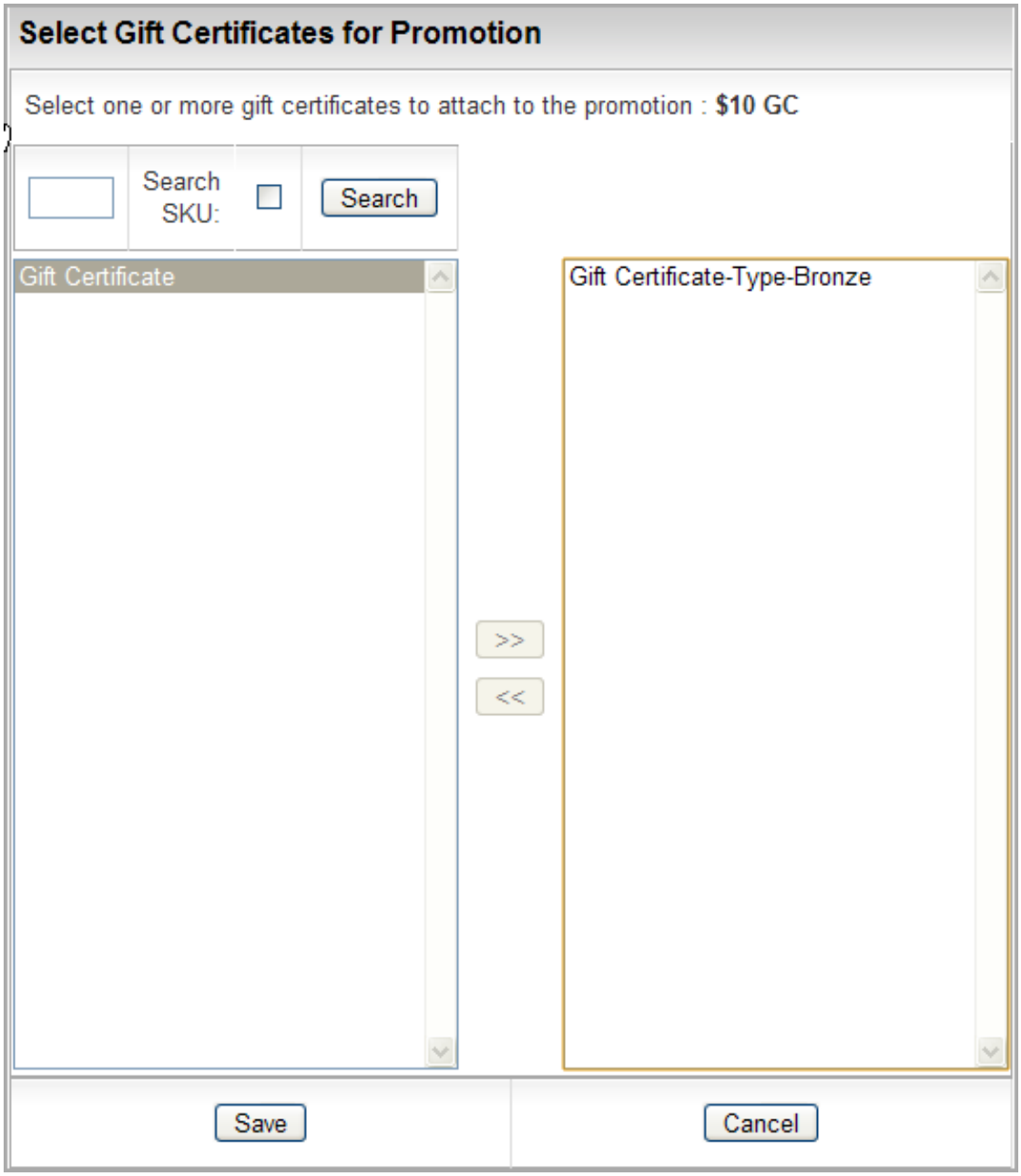
Create a product of type gift certificate using the admin app. You may choose different products for different amounts or choose a single product and configure the amounts as product attributes which can be selected by the customer before adding the certificate to the shopping cart.

For each gift certificate, create a promotion of type Gift Certificate, where the value is equivalent to the value of the gift certificate. The promotion should require a coupon.



Once the promotion has been created you need to click the *Gift Certificates* button on the promotions panel in order to connect the promotion to a gift certificate.

The above example shows a Gift Certificate product that has three options (Gold, Silver, Bronze) which are expanded out when the product is selected. It is important the promotion is only associated with one of these options so the other two must be removed as shown below.



Note that a gift certificate product may be connected to any type of promotion, which means that you could, for example create a gift certificate that gives 10% discount for an order. Also the standard rules can be added to the promotion in order to filter it for certain products, categories, manufacturers, customers and expressions.

Creating a new Admin App User

New Admin App users can be created and configured using the Admin App, if you are logged in as a user with the required privileges.

Each KonaKart user can be assigned one or more roles in order to define the functionality available to that user. The first step is to create a new user in the Customers>>Customers section of the Admin App. The user type must be set to "Admin User".

Once the user has been created, roles may be assigned in the *Customers>>Assign Roles* section of the Admin App. The role assignment becomes active the next time the user logs in.

Creating New Roles

The default KonaKart database already contains a number of roles. New roles may be created (and existing roles may be edited) in the *Customers>>Maintain Roles* section of the Admin App.

Each role is mapped to a number of panels with a set of privileges. Each role to panel association may have a combination of read / insert / edit / delete privileges.

API call security may also be enabled in the *Configuration>>Security and Auditing* section of the Admin App. When enabled, this allows you to map roles to API calls and is useful for enforcing security through the SOAP Web Service interface of the Admin App.

Precise instructions on how to create new roles, can be found in the on-line help.

Default Customer Configuration

A Default Customer can be defined using the Admin Application. Only one default customer should be defined. It is a fictitious customer used to create a temporary order for displaying order totals before the checkout process. This is useful for example to create estimated shipping costs and promotional discounts (the order totals of the order), which can be displayed to a customer in the edit cart screen without him having to log in or register. The address of the default customer should be an address that will generate average shipping costs. i.e. If the majority of your business is national then it shouldn't be an international address.

The default customer is used by the application API method *createOrderWithOptions(String sessionId, BasketIf[] basketItemArray, CreateOrderOptionsIf options, int languageId)* if the options object is set to use the default customer. In this case the sessionId may be set to null.

Customer Groups

Version 2.2.3.0 is the first version of KonaKart that includes Customer Group functionality.

A customer group is a way of aggregating customers that are similar in some way. For example, you may use them to distinguish between retail and wholesale customers or between company employees and external customers etc.

Customer groups may be created and maintained using the KonaKart Admin application. Once a group has been created, you can associate a customer to that group through a drop list in the Edit Customer panel. When editing a customer, if the Customer group is changed to a valid new group, you will be prompted to send a template based email to the customer. This is a useful feature for when the customer is going through an approval process. For example, a customer may have registered through the application as a wholesale customer. During registration he was placed in a "Waiting for Approval" customer group and now the administrator may approve or decline the request. As a result of the approval, the customer may receive an email informing him of the decision. The template used is in the form *CustGroupChange_groupId_lang.vm* e.g. CustGroupChange_2_en.vm, if the customer has been moved to the group with id equals 2 in a system where the language code is "en". This means that different templates can be used depending on which group the customer has been moved to. i.e. You could have different templates for approved and denied requests.

Groups may be used to:

- Control what prices are displayed to customers.
  - Each group has a PriceId attribute which may have a value of 0 to 3. When set to 0, a customer belonging to that group will see the normal price of the product (i.e. the price attribute). When set to 1, the customer will see the price defined in the Price 1 attribute of the product and so on for 2 and 3. This functionality for example, allows you to display wholesale prices to wholesale customers and retail prices to retail customers. If a customer belongs to no groups, then the price from the normal price attribute is displayed. Note that in the Admin App you may change the price labels from Price1, Price2 etc. to a more meaningful description such as Wholesale price, MRP, Employee price etc.
- Enable promotions.
  - Promotions may be enabled for customers belonging to a particular group. i.e. You may want to enable certain promotions just for your retail customers.
- Send communications.
  - Bulk emails may be sent to only customers belonging to a particular customer group.

Auditing

Auditing can be enabled on the Admin App API in order to keep track of when API calls are made and by whom. All audit data is written to the KonaKart database and can be viewed in the *Audit Data>>Audit Data* section of the Admin App.

Auditing can be configured in the *Configuration>>Configure Auditing* section of the Admin App. It can be configured independently for Reads / Edits / Inserts and Deletes. The level may be set to "summary" or "detailed" :

- Summary : The name of the API call, the type of Action (read , write etc.) , the id of the object being edited, inserted etc. (where applicable) and the time stamp are saved.
- Detailed : Where possible, the objects being deleted, edited etc. are also saved in a serialized form . Note that enabling detailed auditing can have a detrimental affect on performance and may save a large amount of data.

Custom Credential Checking

When the login() method is called, KonaKart instantiates a class defined by the property *LOGIN_INTEGRATION_CLASS* . If this property isn't set, the class that is instantiated is *com.konakart.bl.LoginIntegrationMgr* . If you write a custom class it must implement the interface *com.konakart.bl.LoginIntegrationMgrInterface* which contains the method:

```
public int checkCredentials(String emailAddr, String password)
    throws KKException;
```

The checkCredentials() method can return the following values:

- A negative number in order for the login attempt to fail. The KonaKart login() method will return a null sessionId.
- Zero, to signal that this method is not implemented. The KonaKart login() method will perform the credential check.

- A positive number for the login attempt to pass. The KonaKart login() will not check credentials, and will log in the customer, returning a valid session id.

A similar mechanism exists for the Admin App. The property is called *ADMIN_LOGIN_INTEGRATION_CLASS* and if it isn't set then the class that is instantiated is *com.konakartadmin.bl.AdminLoginIntegrationMgr* . If you write a custom class it must implement the interface *com.konakartadmin.bl.AdminLoginIntegrationMgrInterface* which contains the method as described above.

```
public int checkCredentials(String emailAddr, String password)
        throws KKAdminException;
```

This mechanism is a useful generic way to implement a Single Sign On system or to connect KonaKart to an LDAP directory or just to implement your own custom credentials checking..

The *LOGIN_INTEGRATION_CLASS* and *ADMIN_LOGIN_INTEGRATION_CLASS* properties can be edited in the *Configuration>>Security and Auditing* section of the Admin App.

Multi-Store Configuration and Administration

Multi-Store functionality is provided as part of the KonaKart Enterprise Extensions.

Before Multi-Store can be configured it must be installed by following the instructions for installing the KonaKart Enterprise Extensions .

Introduction

Since version 3.0.1.0, the enterprise version of KonaKart can run in multi-store mode. When in this mode, one instance of the KonaKart engine can manage multiple stores. Previous to this version, each store would have required its own instance of the KonaKart engine. Each store still requires its own database schema (i.e. its own instance of database tables).

Configuring KonaKart to function in Multi-Store Mode

The instructions that follow, are to set up two stores on localhost using the Tomcat servlet engine in the download kit. Obviously this isn't a production scenario, but will quickly allow you to use two KonaKart stores picking up separate data but running on a single KonaKart deployment. The URLs to access the stores will be :

- http://store1.localhost:8780/konakart/Welcome.do
- http://store2.localhost:8780/konakart/Welcome.do

The first step is to install the KonaKart Enterprise Extensions. It is recommended that you use the automated GUI installation but it is also possible to install manually. During the installation process you are prompted to choose one of the multi-store modes that KonaKart supports. All of the modes are compatible with the following steps that need to be taken.

Configuration Steps

Mapping

DNS has to be set up to map store1.localhost and store2.localhost to 127.0.0.1. This can be done by editing your hosts file as follows:

```
127.0.0.1       store1.localhost
127.0.0.1       store2.localhost
```

Note that this is a manual configuration step that is not carried out by the Enterprise Extensions installation.

In the Tomcat server.xml file you must set up aliases in the Host section:

```
<Host name="localhost"  appBase="webapps"
            unpackWARs="true" autoDeploy="true"
            xmlValidation="false" xmlNamespaceAware="false">
            <Alias>store1.localhost</Alias>
            <Alias>store2.localhost</Alias>
</Host>
```

BaseAction.java

This step that is not carried out automatically by the Enterprise Extensions installation and so needs to be performed manually.

com.konakart.actions.BaseAction.java contains a method called getStoreIdFromRequest() . The purpose of this method is to derive the storeId from the HttpServletRequest so that the correct storeId can be passed to the KonaKart engine when it is instantiated. Below you can see an example where the store id is derived from the server name. It returns store1 when the server name is store1.localhost and store2 when the server name is store2.localhost. You can find the source for this class in the KonaKart\custom\appn\src\com\konakart\actions directory. All you need to do is to un-comment the code and compile it. In other parts of this document there are instructions for compiling and deploying the modified code. There is an ant build file in the KonaKart\custom directory with suitable targets for building and deploying the modified jars.

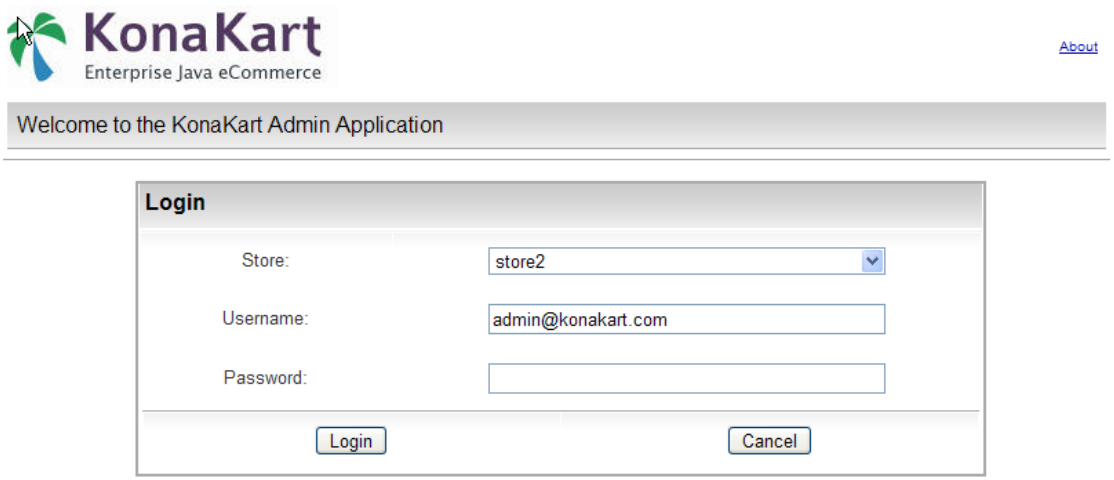
```
    /**
     * In a multi-store scenario, you should implement your own logic here to extract the storeId
     * from the request and return it.
     *
     * @param request
     * @return Returns the storeId
     */
    private String getStoreIdFromRequest(HttpServletRequest request)
    {
        /*
         * If the server name could contain store1.localhost or store2.localhost which both point to
         * localhost, we could get the store id from the server name.
         */
        if (request != null && request.getServerName() != null)
        {
            String[] nameArray = request.getServerName().split("\\.");
            if (nameArray.length > 1)
            {
                String storeId = nameArray[0];
                return storeId;
            }
        }

        return null;
    }
```

Final Steps

Once the modifications have been completed, you must re-start Tomcat. Assuming the database tables for store1 and store2 both contain valid data, you should be able to navigate directly to http://

store1.localhost:8780/konakart/Welcome.do [http://store1.localhost:8780/konakart/Welcome.do] and to http://store2.localhost:8780/konakart/Welcome.do [http://store2.localhost:8780/konakart/Welcome.do] .

In order to configure KonaKart separately for each store, the Admin App now allows you to choose the store before logging in.



Choose store during login

Once you've logged you will will be able to configure the store that was chosen from the drop down list.

Multi-Store Configuration

This section describes the functions and configuration options available to a KonaKart administrator once Multi-Store has been successfully installed.

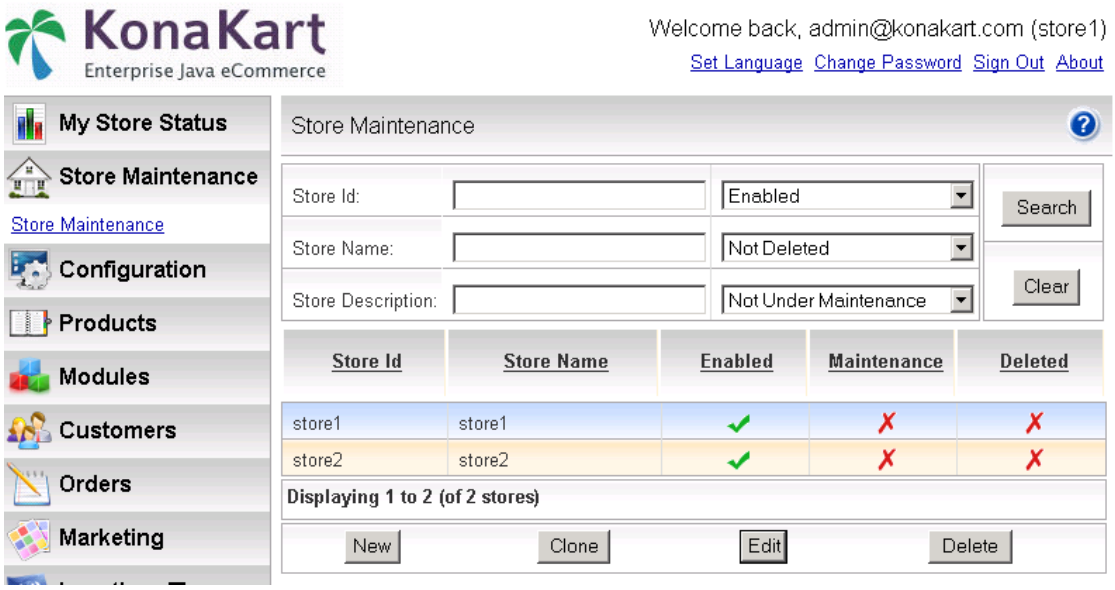
All functionality related to the creation of new stores is only relevant if the Multi-Store Single Database Mode is selected.

The administration panels are made accessible to an Admin App user by virtue of role settings that have to be applied by a Super User of the KonaKart system. By default, following a successful installation of the Enterprise Extensions, the "Super User" user(s) created will have access to the panels described below.

By contrast, the panels discussed below will not be visible in the Admin App (by default) in Single-Store Mode, or Multi-Store Multiple DB modes where the functionality is not available.

Multi-Store Management Panel

Assuming you have sufficient privileges, you can maintain multiple stores on the Multi-Store Management Panel:



KonaKart Admin Application - Store Maintenance

If you have been granted sufficient privileges, you may search for a store in the mall by entering any combination of the search criteria at the top of the panel then clicking the Search button.

The search is not case sensitive unless your database is configured to be non-case sensitive. Wildcard configuration parameters control the precise searches of substrings (See *Configuration>>Admin App Configuration*) but with the default settings a wildcard is added before and after all search text which means that, for example, storeId *StoreX* will be returned if you enter *tor* as the StoreId.

In a similar fashion you can search for a store in the mall on whether or not it is enabled or disabled, under maintenance or not under maintenance and whether or not it is marked as deleted.

Only the stores you are authorized to maintain will be returned.

Any displayed stores may be edited or deleted by selecting them in the table then clicking the respective buttons at the bottom of the list assuming the relevant privileges have been granted to the current user.

The user must have edit store privileges for the Edit Store panel in order for the Edit button to be visible.

Creating a New Store - Without Cloning

Note that storeIds must contain no embedded spaces and no special characters that cannot be used when creating directory names.

To create a new store without cloning click the *New* button whereupon a new panel will be displayed on which you define the attributes for the new store.

Stores can have a number of different statuses. These are defined as follows:

Enabled = active stores that are available for use. If disabled a store is not accessible to application or admin app users.

Under Maintenance = stores that are currently being maintained so are inaccessible to application users, but can be accessed by admin app users.

Deleted = stores that are deleted are no longer available for use by application or admin app users. These stores are not physically deleted from the database but only marked as "deleted". Therefore it is possible to "Un-delete" a store if required simply by changing the deleted status back to false.

When a new store is created, the following new users are created:

- Multi-Store Single Database - Shared Customers Mode:

  One user is created with the Store Administrator's role.

Username	*Password*	*Roles*
{new store Id}-admin@konakart.com	princess	KonaKart Store Administrator

- Multi-Store Single Database - NON-Shared Customers Mode:

  One user is created with the Store Administrator's role, and one user with the Super User role.

Username	*Password*	*Roles*
{new store Id}-admin@konakart.com	princess	KonaKart Store Administrator
{new store Id}-super@konakart.com	princess	KonaKart Store Super User

The users created above will have the {new store Id} replaced with the storeId of the new store. Thus, if the new store was called "store3" the new users would be named *store3-admin@konakart.com* and *store3-super@konakart.com* as applicable.

The particular role that is assigned to the each user can be defined in the Admin App. You can configure the roles themselves as you wish so that when new stores are created, the users that are created will have only the permissions that you have defined.

In the case of the Non-Shared Customers Mode, where a new "Super User" is created, you can decide to provide these credentials to a "Super User" of the new store or keep them secret.

Creating a New Store - With Cloning

To create a new store by cloning another store, select the row containing the store you wish to clone and click the *Clone* button whereupon a new dialogue will be displayed on which you define the attributes for the new store.

For cloning you are prompted for the credentials of a user authorized to export data from the store to be cloned.

Differences between "New" and "Clone"

Both the *New* and *Clone* options can be used to create a new store. The major difference between the two options is that in the case of the clone, a lot more data is cloned for the new store.

When you create a new store using the "New" option, the following objects are created in the new store:

- Standard users and their respective role assignments (see above).
- Address formats, Countries, Languages, Tax zones, Currencies.
- Order Statuses, Configuration Data.

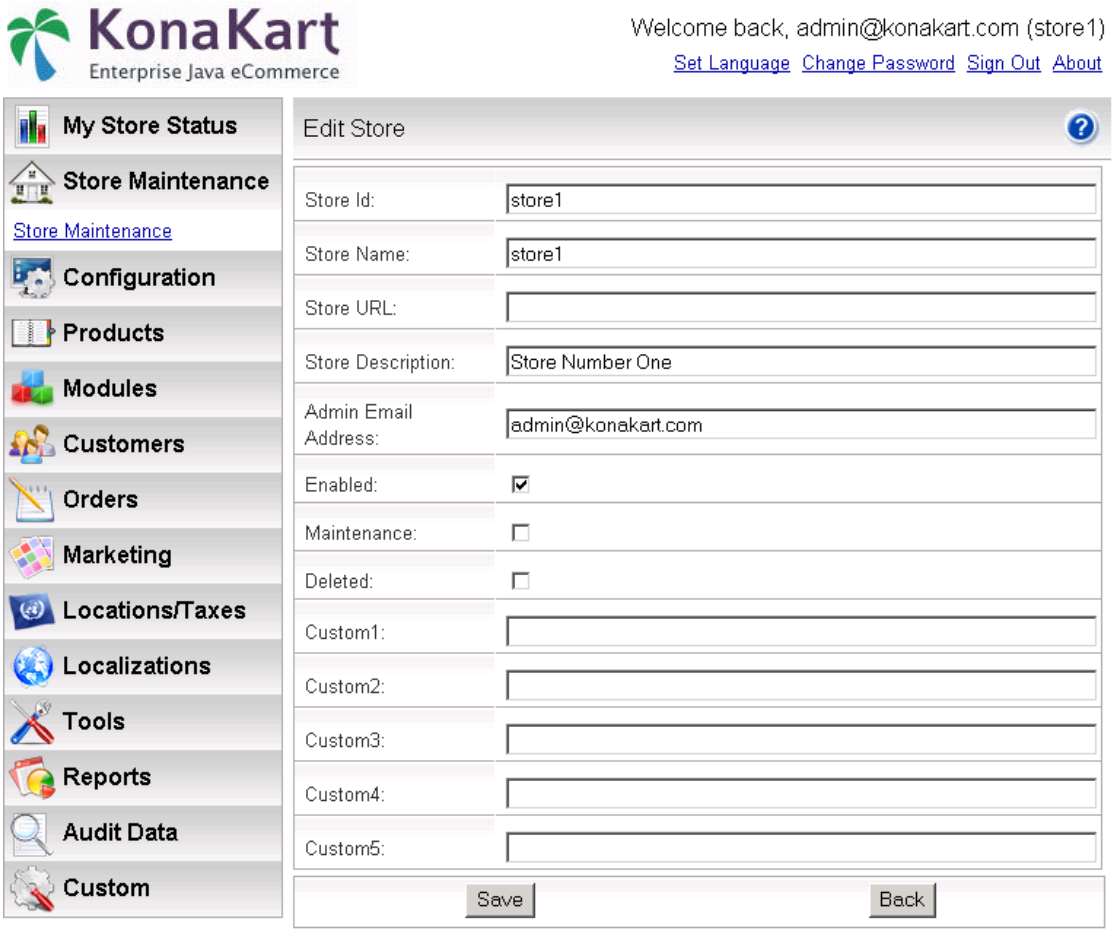
When you clone a store, using the "Clone" option, in addition to the above, the following objects are exported from the store to be cloned and imported into the new store:

- Products, Categories, Manufacturers, Coupons
- Customer Groups
- Zones, Sub-Zones, Tax Classes, Tax Rates.
- Tags and Tag Groups.

Note that cloning does not include the copying of the following objects:

- Auditing Data, IPN (payment gateway responses).
- Customers, Reviews
- Configuration Groups (this table is no longer used by KonaKart)

You can edit stores using the Edit Store Panel:



KonaKart Admin Application - Edit or Insert Store

Multi-Store Table Sharing

These details will not be of interest to many KonaKart Administrators as they will regard this as an implementation detail but it could be useful when analyzing the database directly for various purposes.

When in MultiStore Single DB Mode (engine mode 2) database tables are shared between stores. In most cases the data is segmented for each store using a store_id column to identify which store the data belongs to. Some tables are shared across all stores so no store_id column is created, whereas some tables are shared only in customer shared or products shared mode.

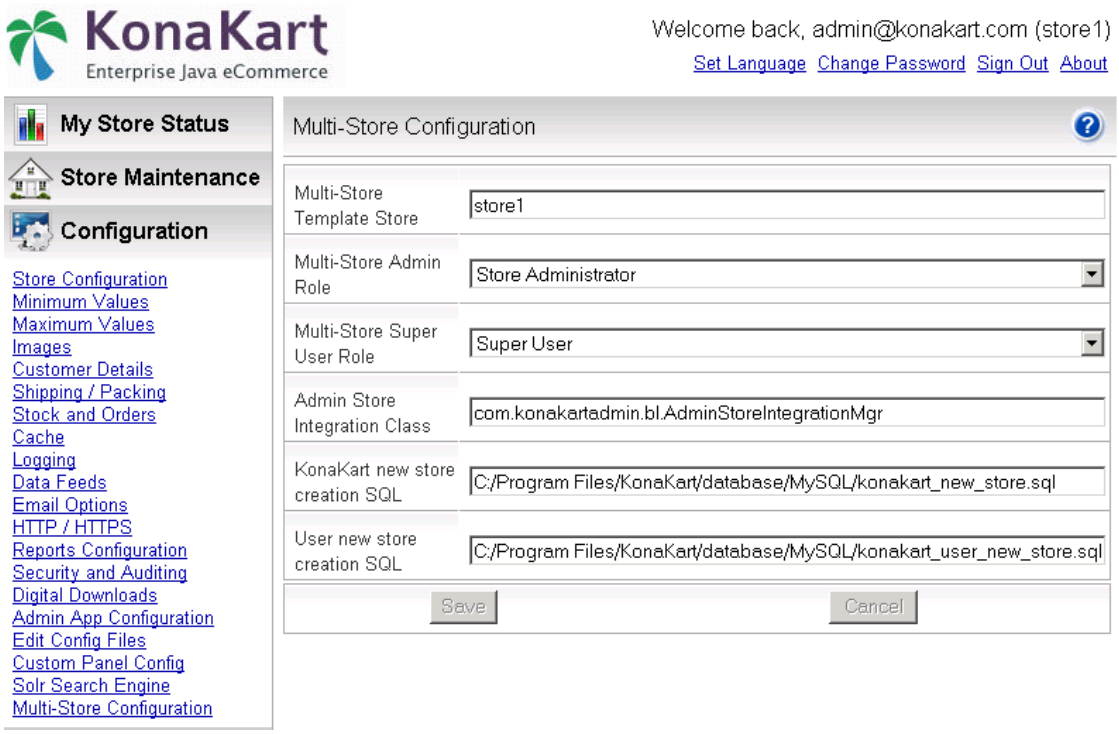
When tables are "shared" there is either no store_id column on the table to identify which store the data belongs to, or if the store_id column is present, it isn't used.

Tables that are Always Shared	• kk_api_call • kk_cookie • kk_panel • kk_role • kk_store • utility
Tables Shared only when Customers are Shared	• address_book • address_format • countries • customers • customers_info • geo_zones • kk_customer_group • kk_customers_to_role • kk_role_to_api_call • kk_role_to_panel • sessions • tax_class • tax_rates • zones • zones_to_geo_zones
Tables Shared only when Products are Shared	• kk_payment_schedule • kk_tag • kk_tag_group • kk_tag_group_to_tag • kk_tag_to_product

	• languages • manufacturers • manufacturers_info • orders_status • products • products_attributes • products_description • products_options • products_options_values • products_options_values_to_products_options • products_attributes_download • reviews • reviews_description • specials

Multi-Store Configuration Panel

You can configure the following parameters on the Multi-Store Configuration Panel:



KonaKart Admin Application - Multi-Store Configuration Parameters

These are the configuration variables that are used in a multi-store installation.

You can define the multi-store template storeId to the store whose reports you wish to copy for new stores (in the future, more configuration data may be copied from the template store).

You can define the roles that will be assigned to new users that are created when you create new stores. The number of new users that are created when creating new stores is dependent on whether you are using Shared or Non-Shared Customers. In Shared Customers mode, only a "Store Administrator" user is created, but in Non-Shared Customers mode a "Super User" user is also created. You can change the roles that are assigned for the users and change the roles themselves to configure the permissions granted to new users exactly as you please.

When new stores are created some SQL commands are run to set up the database in various ways. First the "KonaKart new store creation SQL" script is run, then KonaKart loads some set-up data that isn't in any SQL script, then finally this is followed by the execution of the "User new store creation SQL" script. If you need to change the data that is loaded, you should add your SQL commands to the "User new store creation SQL" script and not modify the "KonaKart" script.

For more specialized requirements there is a "hook" function that is called whenever a store is created or modified. If you need special behavior at these points, you have to implement this class in java (default name is *com.konakartadmin.bl.AdminStoreIntegrationMgr*) and it will be executed by KonaKart at the appropriate times. Your implementation must implement the *com.konakartadmin.bl.AdminStoreIntegrationMgrInterface* interface which has the following methods:

```
package com.konakartadmin.bl;

import com.konakartadmin.app.AdminStore;

/**
 * Used to provide an integration point when a store is added or changed
 */
public interface AdminStoreIntegrationMgrInterface
{
    /**
     * Called whenever a new store is added
     *
     * @param store
     *            The new store
     */
    public void storeAdded(AdminStore store);

    /**
     * Called whenever a new store is added
     *
     * @param oldStore
     *            The store object before the change
     * @param newStore
     *            The new store object after the change
     */
    public void storeChanged(AdminStore oldStore, AdminStore newStore);
}
```

If required, you can change the name of the class that is instantiated so long as it implements *com.konakartadmin.bl.AdminStoreIntegrationMgrInterface* and you modify its name in the configuration panel in the *Admin Store Integration Class* field.

Configuring KonaKart to use the Solr Search Engine

Introduction

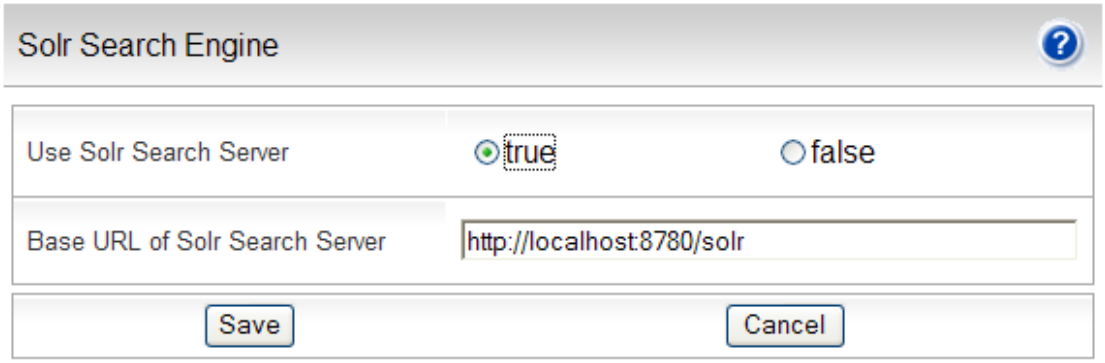
Since version 3.0.1.0, the enterprise version of KonaKart can use the Apache Solr [http://lucene.apache.org/solr/] search engine. Solr gives you fully indexed search using the Jakarta Lucene search engine. As well as being very fast regardless of the size of your catalog; it caters for misspellings, synonyms, plurals and alternate spellings.

Solr can be installed on a dedicated search server or on the same server and servlet engine where KonaKart is running. KonaKart Enterprise Extensions includes a war called solr.war which will install Solr when placed in the webapps directory of Tomcat. The standard KonaKart installation already creates a solr directory where Solr can be configured and where the indexed data is stored.

Configuration Instructions

The first step is to install Solr. As mentioned above, this can be done on a dedicated search server or simply by dropping solr.war into the Tomcat webapps directory. The following instructions assume that Solr is installed in the same container as KonaKart.

Next, KonaKart must be told where Solr is located and also instructed to use Solr rather than the standard database search. This can be achieved in the Configuration>>Solr Search Engine panel of the Admin App as shown in the screen shot below:



Configure Solr Search Engine

Once KonaKart has been configured to use Solr, you must instruct it to index the product catalog currently in the KonaKart database. This can be done in the Tools>Manage Solr Search Engine panel of the Admin App. This tool allows you to index all of the products or to remove all of the products from Solr. The "add" operation can be performed multiple times. Products that already exist will be overwritten and not added twice.

When KonaKart is enabled to use Solr, the Solr index will be updated automatically whenever a new product is added or an existing product is edited or deleted using the Admin App.

Customization of Solr

The Solr search engine behaves differently when compared to a relational database, so we make it straightforward to customize Solr to allow you to configure the search behavior in order to satisfy your requirements. For example, the standard KonaKart behavior when searching for a product using a search string is to add a wild card before and after the string in order to make the search work reliably. Let's say that the name of a product is "Hewlett Packard LaserJet 1100Xi" and a search is made for Laserjet. With a relational database, the product will not be found unless it has a leading and trailing wildcard. i.e. The search string becomes %laserjet%. However, with Solr the string is tokenized and the search for laserjet returns a result without requiring any wild cards so by default they are not added because this makes the query slower and affects the behavior of synonyms. However, if a search is made for Laser, the relational database with its wild cards will return a result whereas Solr will not return a result unless a wild card is added so that the search string becomes laser*.

Under KonaKart/java_api_examples/src/com/konakart/apiexamples you will find a Java file called MySolrMgr.java with a couple of methods that allow you to define how you want wild cards to be used for Solr searches. One method is used for managing wild cards when searching for products using text searches. The other method is used for managing the wild cards when searching by matching custom fields. If you decide to change the default behavior, you must edit the konakart.properties file in order to use the new manager rather than the standard manager.

konakart.manager.SolrMgr = com.konakart.bl.MySolrMgr

Scheduling in KonaKart

Job scheduling in KonaKart is achieved with an integration with the Open Source Quartz scheduler. (It's also easy to use any other scheduler if you prefer but the notes below refer to integration of the Quartz scheduler). Quartz integration is provided in the Enterprise Extensions of KonaKart.

Configuring Quartz to execute KonaKart jobs

This section describes how to configure Quartz to execute KonaKart batch jobs. All the files mentioned are provided as examples in the Enterprise Extensions of KonaKart.

The quartz jar (version 1.6.5 is provided in KonaKart v4.0.0.0) is provided in the kit and is added to the konakartadmin/WEB-INF/lib directory alongside all the other KonaKart Admin jars.

Configuring web.xml

To start-up Quartz you need to uncomment a section in the konakartadmin webapp's web.xml file (this is located in the konakartadmin/WEB-INF directory).

You need to uncomment this section so that the QuartzInitializerServlet starts up when KonaKart starts.

```
<!-- Quartz Scheduler
<servlet>
    <servlet-name>QuartzInitializer</servlet-name>
    <servlet-class>org.quartz.ee.servlet.QuartzInitializerServlet</servlet-class>
    <init-param>
        <param-name>shutdown-on-unload</param-name>
        <param-value>true</param-value>
    </init-param>
    <load-on-startup>2</load-on-startup>
</servlet>
End of Quartz Scheduler -->
```

Configuring quartz.properties

The Quartz properties file should be placed on the konakartadmin classpath (the installer will place it in the konakartadmin/WEB-INF/classes directory).

The following is the default for KonaKart:

```
#============================================================================
# Configure Main Scheduler Properties
#============================================================================

org.quartz.scheduler.instanceName = KonaKartScheduler
org.quartz.scheduler.instanceId = AUTO

#============================================================================
# Configure ThreadPool
#============================================================================

org.quartz.threadPool.class = org.quartz.simpl.SimpleThreadPool
org.quartz.threadPool.threadCount = 3
org.quartz.threadPool.threadPriority = 5

#============================================================================
# Configure JobStore
#============================================================================

org.quartz.jobStore.misfireThreshold = 60000
org.quartz.jobStore.class = org.quartz.simpl.RAMJobStore

#============================================================================
# Configure Plugins
#============================================================================

org.quartz.plugin.triggHistory.class = org.quartz.plugins.history.LoggingJobHistoryPlugin

org.quartz.plugin.jobInitializer.class = org.quartz.plugins.xml.JobInitializationPlugin
org.quartz.plugin.jobInitializer.fileNames = konakart_jobs.xml
org.quartz.plugin.jobInitializer.overWriteExistingJobs = true
org.quartz.plugin.jobInitializer.failOnFileNotFound = true
org.quartz.plugin.jobInitializer.scanInterval = 6300
org.quartz.plugin.jobInitializer.wrapInUserTransaction = false
```

A useful parameter that you may wish to modify is the filenames parameter which, by default, is set to "konakart_jobs.xml". The "konakart_jobs.xml" file contains definitions of the example KonaKart jobs that can be run.

It is possible that you may wish to have additional job definition files like "konakart_jobs.xml" for defining batch schedules for other stores in a multi-store environment. Additional job definition files can be added to the filenames property.

Configuring konakart_jobs.xml

The default job definition file is called "konakart_jobs.xml" and is placed in the konakartadmin/WEB-INF/classes directory.

The following is an extract from "konakart_jobs.xml" that defines a single job:

```
<job-detail>
    <name>RemoveExpiredCustomers</name>
    <group>KonaKart Batch Jobs</group>
    <description>Removes expired Customers for privacy and performance</description>
    <job-class>com.konakartadmin.bl.ExecuteBatchEE</job-class>
    <volatility>false</volatility>
    <durability>false</durability>
    <recover>false</recover>
    <job-data-map>
      <entry>
        <key>credentialsFile</key>
        <value>konakart_jobs.properties</value>
      </entry>
      <entry>
        <key>executionClass</key>
        <value>com.konakartadmin.bl.AdminCustomerBatchMgr</value>
      </entry>
      <entry>
        <key>executionMethod</key>
        <value>removeExpiredCustomersBatch</value>
      </entry>
      <entry>
        <key>param0</key>
        <value>removeExpiredCustomers</value>
      </entry>
      <entry>
        <key>param1</key>
        <value>true</value>
      </entry>
      <entry>
        <key>param2</key>
        <value>25</value>
      </entry>
      <entry>
        <key>param3</key>
        <value>0-1-2-3</value>
      </entry>
    </job-data-map>
</job-detail>
```

This particular batch job removes expired sessions from KonaKart. Note the following parameters:

job-class = com.konakartadmin.bl.ExecuteBatchEE

The job-class defines the class that Quartz will execute when the job is run. The ExecuteBatchEE class is the Quartz > KonaKart bridge class that can be used to call KonaKart batch jobs from jobs defined in Quartz.

key: credentialsFile = konakart_jobs.properties

Inside the job-data-map tag an entry is defined that contains the name of a KonaKart "Credentials" file. The file can be named anything you like but it must be located on the class path so that ExecuteBatchEE can access it. In our example, the file is called "konakart_jobs.properties" (see below for more detail on the contents of this file). The credentials are required so that the ExecuteBatchEE class can create and log into a KonaKart Admin Engine, then finally execute the "execute()" API call on that engine to run the defined batch job.

key: executionClass = com.konakartadmin.bl.AdminCustomerBatchMgr

The execution class is the name of the class that will be instantiated by KonaKart to execute the defined batch job. It is possible to define your own class as the executionClass which is an excellent way to extend KonaKart's batch functionality.

key: executionMethod = removeExpiredCustomersBatch

The execution method is the name of the method on the executionClass that will be executed by KonaKart to run the defined batch job. It is possible to define your own class and methods as described above to extend KonaKart functionality as you require.

key: param0, param1, ..., paramN

The "param" keys are the parameters that are passed to the batch job. These can be whatever the batch job needs but must be represented as strings and the ordering is significant.

It is essential that you name the parameters "param0", "param1" and so on for each of the parameters.

In our example, param0, the first argument, is used in this job to define the name of the log file produced by the batch job.

Quartz executes the defined jobs when defined "Triggers" fire. These triggers are also defined in the konakart_jobs.xml file:

The following is an extract from "konakart_jobs.xml" that defines a single trigger:

```
<trigger>
    <cron>
        <name>RemoveExpiredCustomersTrigger</name>
        <group>KonaKart Batch Jobs</group>
        <description>Trigger for RemoveExpiredCustomers</description>
        <job-name>RemoveExpiredCustomers</job-name>
        <job-group>KonaKart Batch Jobs</job-group>
        <!-- every hour           0 0 * ? * *    -->
        <!-- every 30 seconds     0,30 * * ? * * -->
        <!-- every day @ 9:00pm   0 0 21 ? * *   -->
        <cron-expression>0 5 21 ? * *</cron-expression>
    </cron>
</trigger>
```

This is where you define when you want a particular batch job to be executed.

In this case we have chosen to use the cron trigger definition but Quartz provides other trigger mechanisms that you can easily use instead if you prefer.

Some examples of cron expressions are provided (commented out).

Configuring konakart_jobs.properties

The default job definition credentials file is called "konakart_jobs.properties" and is placed in the konakartadmin/WEB-INF/classes directory.

The file name is actually defined in the "konakart_jobs.xml" file - see the credentialsFile tag above. Hence, you can easily change the name to suit your needs. You can also have more than one credentials file - which would be required if you needed to run batch jobs on different stores, in a multi-store configuration, where the access credentials were different for the different stores.

The following is an extract from "konakart_jobs.properties" that defines the parameters required to create and log in to an Admin Engine:

```
#=============================================================================
# konakart_jobs.properties
#
# Used to define the engine configuration for batch jobs.
# If multiple configurations are required, use multiple files and define
# these in multiple org.quartz.plugin.jobInitializer.fileNames files.
#=============================================================================

# ----------------------------------------------------------------------------
# Engine mode that the batch jobs will use
# 0 = Single Store (default)
# 1 = Multi-Store Multiple-Databases (add konakart.databases.used above as well)
# 2 = Multi-Store Single Database

konakart.mode = 2

# ----------------------------------------------------------------------------
# When in multi-store single database mode, the customers can be shared between stores

konakart.customersShared = true

# ----------------------------------------------------------------------------
# Credentials to use for the batch jobs

konakart.user     = admin@konakart.com
konakart.password = princess
```

It is recommended that you secure this file appropriately as it could contain the credentials of a privileged Admin user.

Other configuration options are possible in credentials files (eg. the engine class can be defined and the properties files it uses can be defined). If the other configuration parameters are left commented out default values are used.

Customizing the KonaKart jobs

This section describes how to customize the batch jobs provided or create new ones and rebuild them. Source and build files are provided in the Enterprise Extensions of KonaKart.

The java source files can be found under the KonaKart installation directory under *custom/batch* . The java files can be modified here and new ones added as required to implement different or new batch functionality.

To rebuild the *konakartadmin_batch.jar* (the jar containing all of the batch class files) execute the ANT build script as follows:

```
C:\Program Files\KonaKart\custom\batch>..\bin\ant
Buildfile: build.xml

clean:
     [echo] Cleanup...

compile:
     [echo] Compile the batch sources
    [mkdir] Created dir: C:\Program Files\KonaKart\custom\batch\classes
    [javac] Compiling 4 source files to C:\Program Files\KonaKart\custom\batch\classes

make_batch_jar:
     [echo] Create the batch jar
    [mkdir] Created dir: C:\Program Files\KonaKart\custom\batch\jar
      [jar] Building jar: C:\Program Files\KonaKart\custom\batch\jar\konakartadmin_batch.jar

build:

BUILD SUCCESSFUL
Total time: 2 seconds
```

Once rebuilt, for convenience, you can use the *copy_jars* ANT target to copy the konakartadmin_batch.jar into the konakartadmin webapp.

```
C:\Program Files\KonaKart\custom\batch>..\bin\ant
Buildfile: build.xml

copy_jars:
     [echo] Copy the batch jar to the lib directory
     [copy] Copying 1 file to C:\Program Files\KonaKart\webapps\konakartadmin\WEB-INF\lib

BUILD SUCCESSFUL
Total time: 0 seconds
```

After possible reconfiguration of the scheduling configuration files (which you would need to do if you have added a new batch job - see above), restart tomcat to test your new jobs.

Deletion of Expired Data

In order to keep KonaKart running efficiently, expired data should be deleted from the database at regular intervals. If not deleted, the data in some database tables, tends to grow and reduce the overall system performance. A batch job that can be scheduled through Quartz is provided for this task. The name of the job is *AdminCustomerBatchMgr.deleteTemporaryDataBatch* .

Expired sessions are deleted from the sessions table. These accumulate because most customers tend not to do a formal logout from the application after they've logged in. Another table that tends to grow is the kk_cookie table. Whenever a guest comes to the store, a cookie is created which contains the key to a kk_cookie table record. A temporary customer id is contained within this record and this id is used to insert and fetch shopping cart data so that a customer's cart is persisted even if he is a non-registered customer. The batch job deletes the cookie and cart records if they haven't been read for a programmable number of days. Finally, there is a counter table which is used to get unique ids for temporary customers. The batch job also deletes the data from this table.

Configuring KonaKart to use Analytics Tools

This feature of KonaKart can be used to integrate with Google Analysts or any other analytics engines assuming their requirement is simply to insert some code into each page. Indeed, it's also possible to use this feature to insert some code into each page for any other purpose that you might have!

Configuring KonaKart to use Google Analytics

This section describes how to integrate KonaKart with Google Analytics. The integration technique is actually so generic in nature that it can be used for integrating with other analytics tools as well as Google's.

First you need to create an account with Google Analytics - see http://www.google.com/analytics/ for details.

KonaKart - Google Analytics Integration

Setting up Google Analytics

Following Google's guidelines, set up a web site profile for your KonaKart site. By default the default page is */konakart/Welcome.do* .

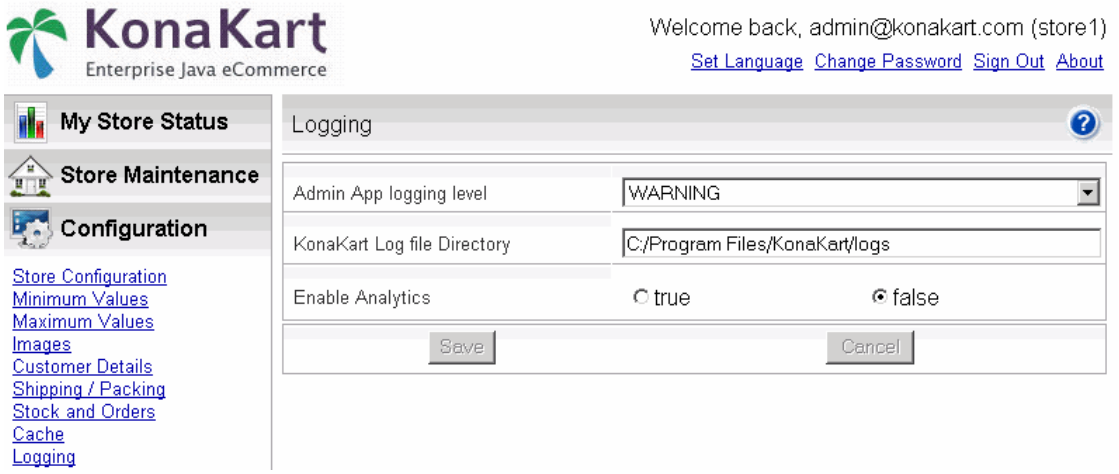
Take note of the javascript "Tracking Code" that Google generate for your profile. You will need this to configure KonaKart (see below).

Setting up KonaKart to use Google Analytics

KonaKart will insert the Google Analytics *"Tracking Code"* for your site into every page of the KonaKart store. For KonaKart to use your own unique code, you will have to copy this and add it to your Messages.properties file (or your own locale version of this file, as appropriate).

You must add the text of the "Tracking Code" on one line as the value of the *analytics.code* property. It may be convenient to use the default tracking code value that is included by default - but if you do this you must ensure that you replace the dummy UA-9999999-1 identifier with your own.

Once the analytics code is defined in the Messages.properties file you have to enable analytics in the KonaKart Admin App. You can find this configuration parameter under the *Configuration >> Logging* section.



Now sit back and wait for the data to be collected and enjoy studying the reports that Google produces!

Be patient, however, because data does not appear in your Google account for 24 hours or more.

Configuring KonaKart to use Other Analytics Tools

This feature of KonaKart can be used to integrate with other analytics engines assuming their requirement is simply to insert some code into each page. Indeed, it's also possible to use this feature to insert some code into each page for any other purpose that you might have!

Defining the Code to be inserted

For KonaKart to insert your own code into each page, you have to define it in your Messages.properties file (or your own locale version of this file, as appropriate).

You must add the code on one line as the value of the *analytics.code* property overwriting whatever is defined there by default.

Once your code is defined in the Messages.properties file you have to enable analytics in the KonaKart Admin App. You can find this configuration parameter under the *Configuration >> Logging* section. Whilst you may not actually be using the feature for "analytics", you still need to enable this setting so that the code is inserted in each page.

Publishing Product Data to Google Base

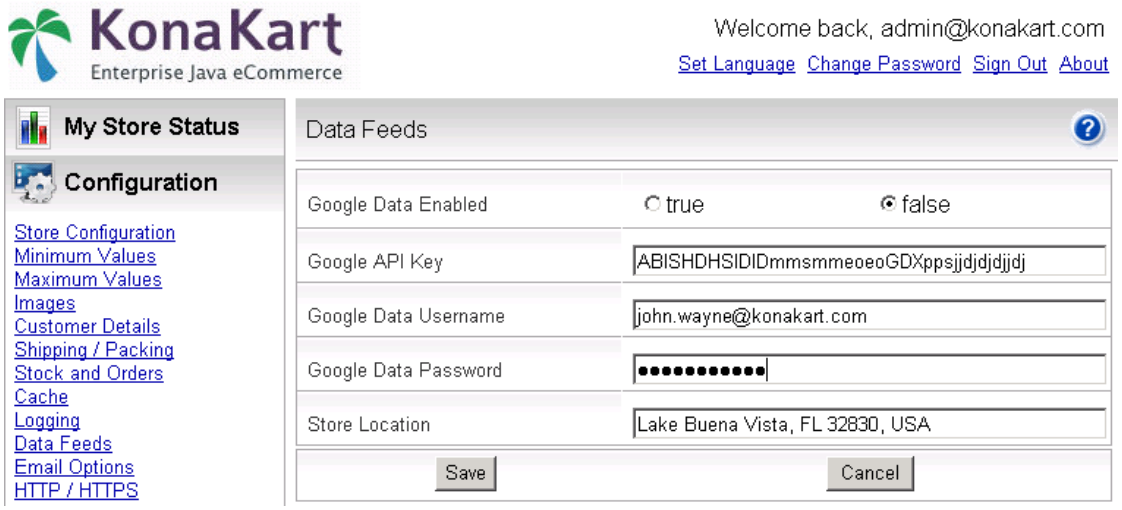
KonaKart provides the functionality to publish product data to Google Base. You can execute this from either a command line utility or from the KonaKart Admin App. Since this might be a process you would want to run on a regular basis to keep your products in sync with the items in Google Base, it might be appropriate for you to execute the command line utility from your system scheduler at a frequency that makes sense for your shop's product catalog. Note that published products "expire" in Google Base after 30 days, so bear this in mind when scheduling publishing runs.

Products are published with the target country defined as the shop where the store resides with product descriptions published only in the default language for the store.

Neither inactive or invisible products are published.

Setting Up Google Base

Before you can use this feature you must create an account in Google, get an API key and define these configuration parameters in the KonaKart Admin App. At the time of writing, these accounts are free to create. See Google Base Account Set-up [http://base.google.com/] for details.



KonaKart Admin Application - Data Feeds Configuration

You need to obtain a Google Base API key for "Installed Apps". You can obtain one of these from Google API Keys [http://code.google.com/apis/base/signup.html] .

Executing the Google Base Publishing Feed

There are two different ways to publish products in Google Base. One is automatically executed by KonaKart whenever changes are made to products in the application. The other is explicit execution of the process to publish products to Google.

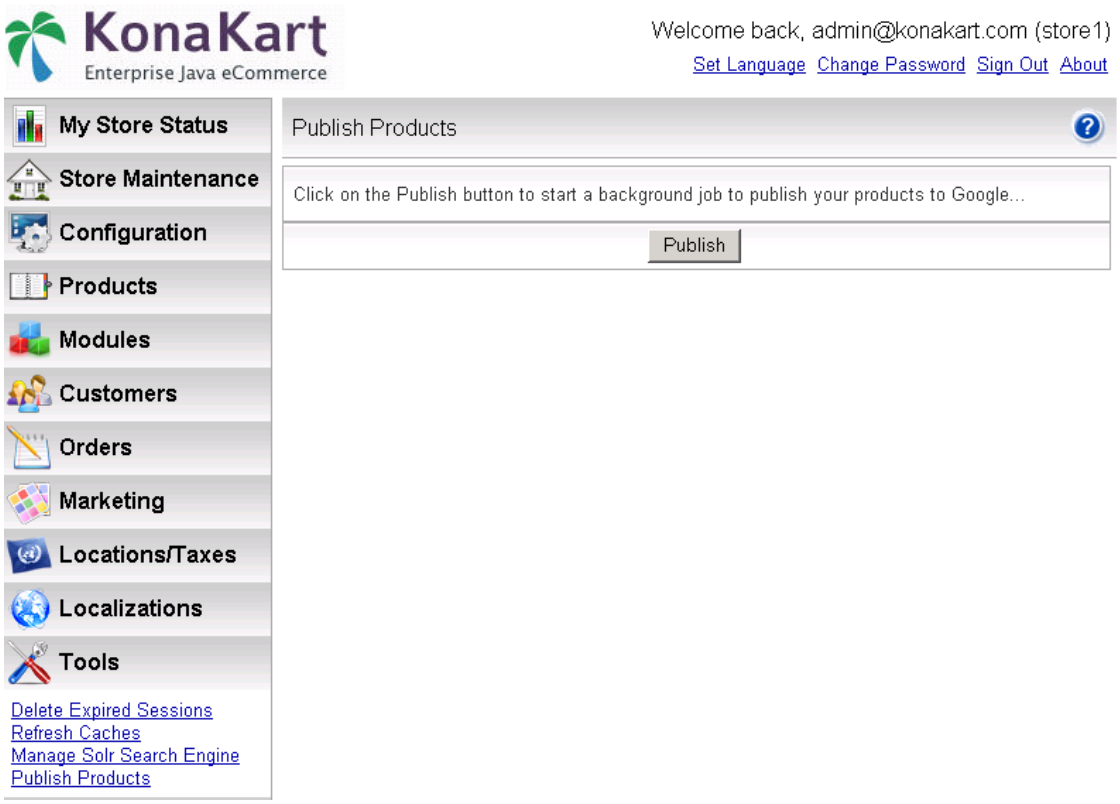
If you want KonaKart to update the products published in Google whenever a change occurs to these products in KonaKart, you have to "Enable Google Base" in the Configuration section of the Admin App. If you only want to publish products at specific times, and not whenever changes occur to products inside KonaKart, you can disable Google Base. This enable Google Base setting in the configuration parameters only controls the automated updates to Google Base by KonaKart so even if you do not enable it, you can always run the full publish products process, whenever you like.

There are two ways to run the process to publish all products to Google Base as follows:

- From the Admin App
- From a Script

Publishing Products From the Admin App

Under the Tools Menu you will find the Data Feeds menu item. Once here, you will see the "Publish" option. When you click on the "Publish" button you will initiate a process that publishes your product to Google Base. Since this can take a very long time (the more products you have, the longer time it will take), this job executes in the background so that the Admin App user does not have to wait for it to complete before moving on to another task.



KonaKart Admin Application - Tools > Publish Products

Publishing Products From Scripts

Scripts are provided for both Windows and Linux/Unix. These are located in the googleBase directory directly underneath the KonaKart home directory, and are called:

- PublishProducts.bat (Windows)
- PublishProducts.sh (Unix/Linux)

These scripts can be executed directly from the command line or from a system scheduling utility (such as cron on Unix).

The usage is the same on both platforms:

```
C:\Program Files\KonaKart\googleBase>PublishProducts
================================================================================================
Publish KonaKart Products in Google Base
================================================================================================
No username specified.
Usage: PublishProducts [-s storeId] [-l logFileName] -u user -p password [-t feed-type] [-d]
 -u user          = KonaKart Admin User
 -s storeId       = KonaKart Store Id (default storeId)
 -p password      = KonaKart Admin Password
 -t feed type     = Data Feed Type (default 1 = Google)
 -l log file name = log file name (default PublishProducts.log)
 -d               = Enable debug mode
```

Example execution:

```
keller@swansea:~/konakart/googleBase$ ./PublishProducts.sh -u admin@konakart.com -p princess
================================================================================================
Publish KonaKart Products in Google Base
================================================================================================

**** Enterprise version of KonaKartAdmin Engine ****

Published 28 products to Google
Products Published successfully
```

Chapter 9. Marketing - Customer Tags and Expressions

The Enterprise version of KonaKart contains sophisticated marketing functionality that allows you to capture customer data as the customer uses your KonaKart eCommerce store; and to use that data within complex expressions in order to show dynamic content, activate promotions and send eMail communications.

What are Customer Tags?

A customer tag is an entity that can be associated with a logged in customer and given a value for that customer. The best way of understanding what this really means is to look at the tags included in the standard KonaKart installation.

- PRODUCTS_VIEWED - A list of the most recently viewed products
- CATEGORIES_VIEWED - A list of the most recently viewed categories
- MANUFACTURERS_VIEWED - A list of the most recently viewed manufacturers
- PRODUCTS_IN_CART - A list of products in the shopping cart
- PRODUCTS_IN_WISHLIST - A list of products in the wish list
- SEARCH_STRING - The search string of the last product search made by the customer
- COUNTRY_CODE - The code of the customer's country
- CART_TOTAL - The currency total of the shopping cart
- WISHLIST_TOTAL - The currency total of the wish list
- BIRTH_DATE - When the customer was born
- IS_MALE - The sex of the customer

They tend to be used to keep track of a customer's actions in the store-front application (i.e. what products have been looked at, what products are in the wish list, what the customer has searched for etc.) and to store information about the customer such as whether he is male or female and what country he lives in. New customer tags can easily be added to store whatever information is important for your business requirements. If you create a new tag, for example, to keep track of how many orders the customer has placed in the last 6 months, then you also need to create a way of populating the tag value for each customer. In this example you could use a scheduled batch job that runs once a day.

Tags have a name, a description (used in the expression builder) and a type which can be:

- STRING_TYPE - The tag value is in the format of a String. i.e. To store the country from which the store is being accessed.
- INT_TYPE - The tag type is in the format of an int. i.e. To save the product id of the last product viewed by the customer.
- MULTI_INT_TYPE - The tag type allows the tag to store an array of ints. When this type is selected, the Max Number of Ints attribute determines the maximum number of ints in the array. i.e. To store the ids of the last 5 products viewed by the customer.

- DECIMAL_TYPE - The tag type is in the format of a decimal. i.e. To store the value of all items in the basket.
- DATE_TYPE - The tag type is in the format of a date. i.e. To store the date of the last login for the customer.
- BOOLEAN_TYPE - The tag type is in the format of a boolean. i.e. To store the customer gender. The tag could be named IS_MALE and take values of true or false.

What are Expressions?

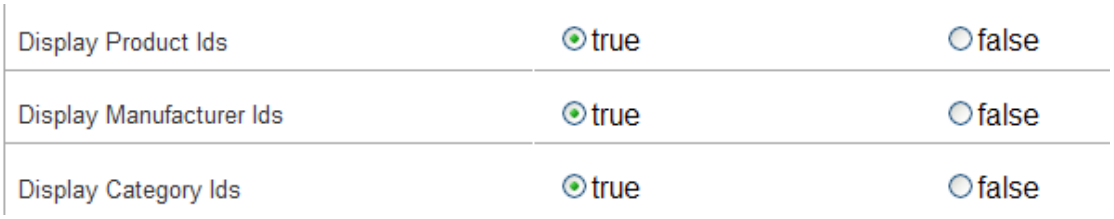
Expressions are a way of combining customer tag values using AND/OR operators. An expression can be evaluated for a customer and always returns true or false. For example, I may want to show a banner to a customer if his cart already contains $50.00 worth of goods and he has Product A in his wish list or he has recently viewed Product A. Since I know that the customer has shown an interest in Product A, my banner could attempt to persuade him to add it to the cart. In order to achieve this, I need to create an expression and run it for a customer before he checks out.

Expressions may be used for three different tasks:

- To show dynamic content such as a banner, as in the example above.
- To activate a promotion. The expression can be selected in the panel used to set promotion rules once a promotion has been created.
- To filter customers when sending out eMail communications. The expression can be selected in the Customer Communications panel.

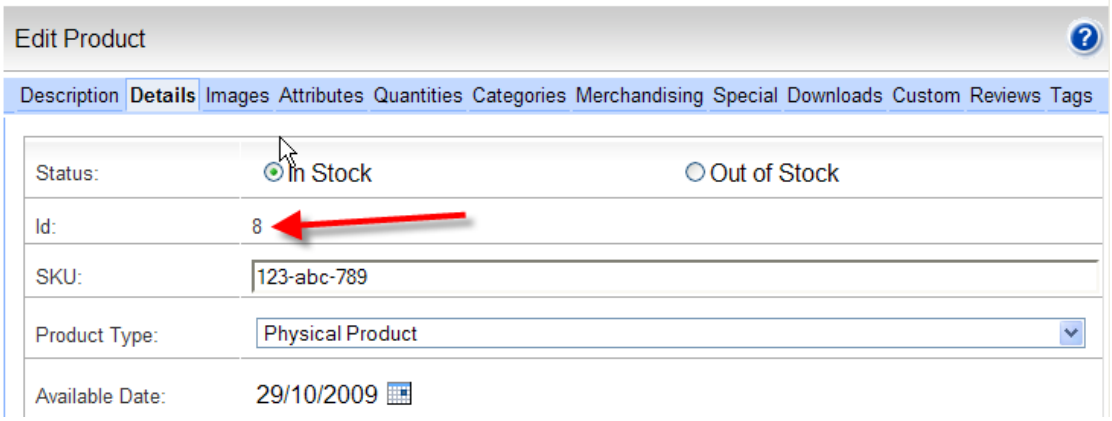
Tutorial for creating an expression using the standard customer tags

Note that when creating expressions we often use the numeric internal ids of products, categories and manufacturers to identify them. These ids are visible in the admin app although they may be hidden by setting the configuration variables under the Admin App Configuration sub menu.

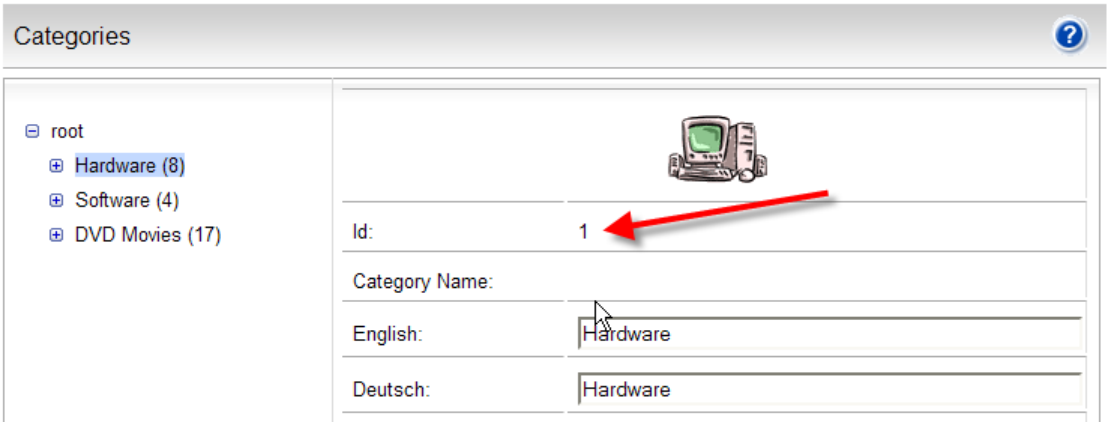


The id of a product (and SKU) may be viewed as you move your mouse over the product name in the Products panel:

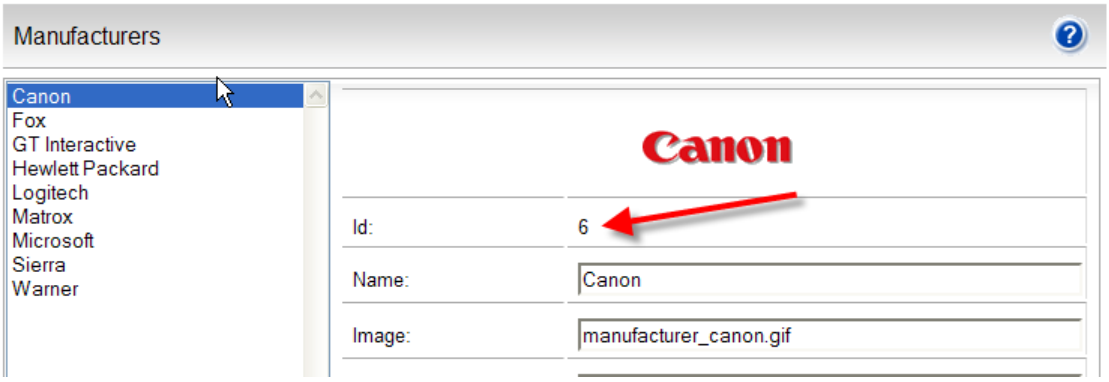
It may also be viewed in the Details tab of the Edit Product panel:



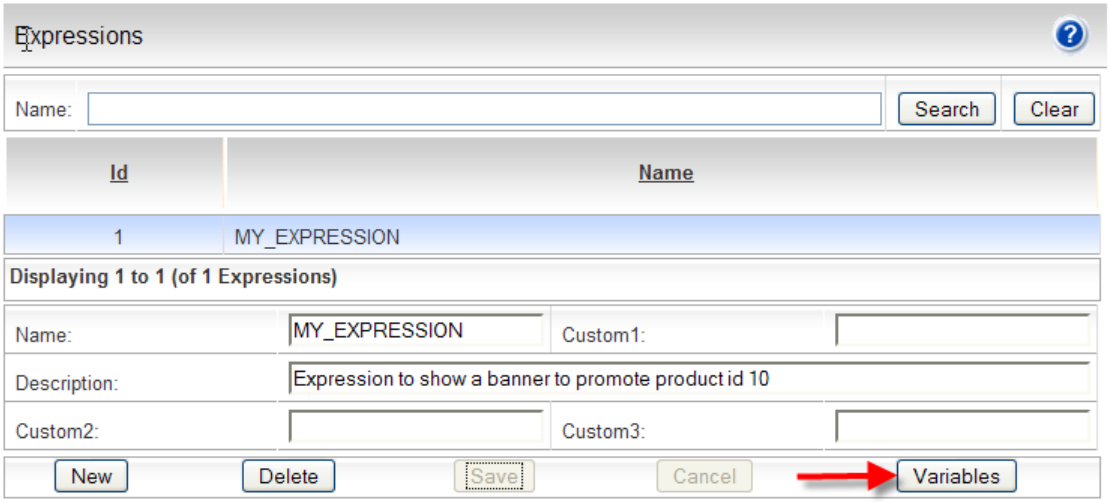
The id of a category is visible in the Categories panel:



The id of a manufacturer is visible in the Manufacturers panel:

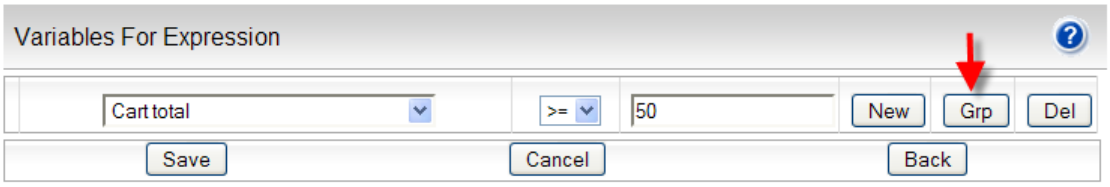


Now that we know where to find the ids, lets move on to the expression that we want to create. As explained in the example above we want to create an expression to show a banner to a customer if his cart already contains $50.00 worth of goods and he has Product A in his wish list or he has recently viewed Product A. For the sake of the tutorial we can attribute a product id of 10 to Product A. Let's create an expression called MY_EXPRESSION as shown below.

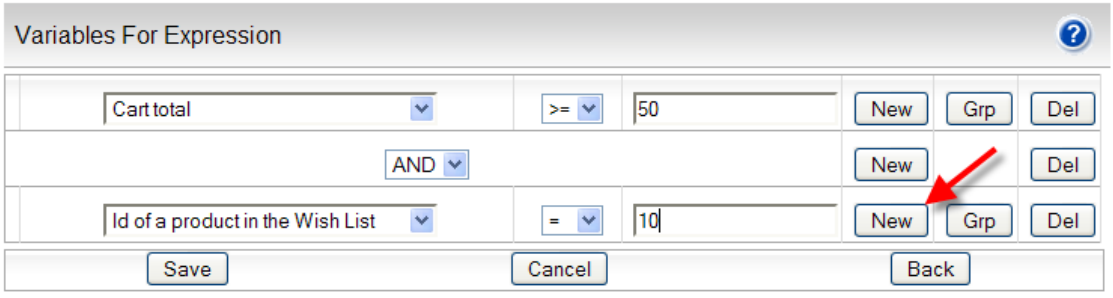


Once the expression has been saved, we must click on the Variables button in order to open a new panel where we can enter the expression variables that define the expression.

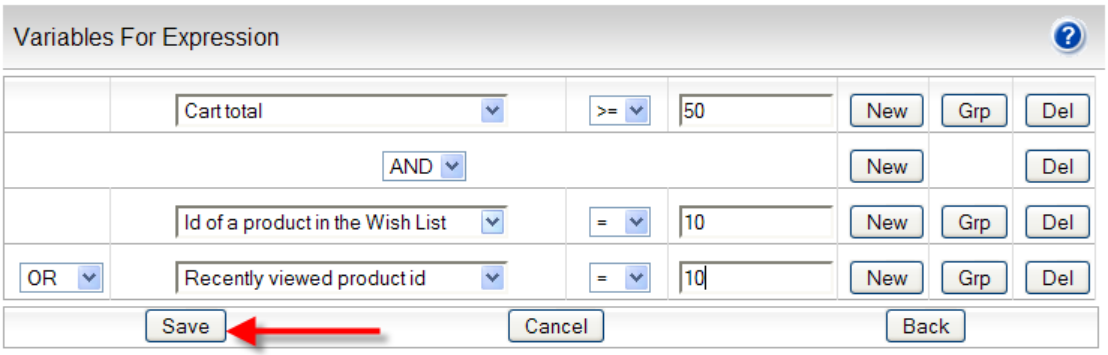
Click the New button to create the first variable.



We choose CartTotal from the list of customer tags and give it a value of >= 50. Now we must AND this tag with the the following two tags OR'ed together. To achieve this, we click the Group button.



After entering the Customer Tag value for product in wish list, we need to OR it with the recently viewed product tag, by clicking the New button.



Now we can click the save button to save the expression variables.

We have created the expression: (Cart_Total >= 50) AND ((prod in wishlist == 10) OR (recently viewed prod == 10))

The demo store front application is already partially set up to show a tile (DynamicContentTile.jsp) dynamically for a logged in customer. In order to enable the tile, we must edit the file called tiles-defs.xml which can be found under the webapps\konakart\WEB-INF directory. As can be seen from the image below, we must uncomment the line for leftTile3 in order to add DynamicContentTile.jsp. We must also comment or delete the line below this which adds an empty tile called Empty.jsp. Note that once this tile is enabled and customer tag functionality has been enabled, it will attempt to evaluate an expression called MY_EXPRESSION and an exception will be thrown if this expression doesn't exist.

```
<!--
     KonaKart Tiles definition file.
    (c) 2006 DS Data Systems UK Ltd, All rights reserved.
-->
<tiles-definitions>
    <!-- Main Layout -->
    <definition name="main.layout" path="/WEB-INF/jsp/MainLayout.jsp">
        <put name="header" value="/WEB-INF/jsp/Header.jsp"/>
        <put name="body" value="/WEB-INF/jsp/Empty.jsp"/>
        <put name="body1" value="/WEB-INF/jsp/Empty.jsp"/>
        <put name="body2" value="/WEB-INF/jsp/Empty.jsp"/>
        <put name="body3" value="/WEB-INF/jsp/Empty.jsp"/>
        <put name="body4" value="/WEB-INF/jsp/Empty.jsp"/>
        <put name="body5" value="/WEB-INF/jsp/Empty.jsp"/>
        <put name="leftTile1" value="/WEB-INF/jsp/CategoriesTile.jsp"/>
        <!-- <put name="leftTile1" value="/WEB-INF/jsp/CategoriesTile.jsp"/> Deprecated -->
        <put name="leftTile2" value="/WEB-INF/jsp/SearchByManufacturerTile.jsp"/>
        <!-- <put name="leftTile3" value="/WEB-INF/jsp/DynamicContentTile.jsp"/> -->
        <put name="leftTile3" value="/WEB-INF/jsp/Empty.jsp"/>
        <put name="leftTile4" value="/WEB-INF/jsp/RandomNewProductTile.jsp"/>
        <put name="leftTile5" value="/WEB-INF/jsp/QuickSearchTile.jsp"/>
        <put name="leftTile6" value="/WEB-INF/jsp/InformationTile.jsp"/>
        <put name="leftTile7" value="/WEB-INF/jsp/Empty.jsp"/>
        <put name="rightTile1" value="/WEB-INF/jsp/CartTile.jsp"/>
        <put name="rightTile2" value="/WEB-INF/jsp/WishListTile.jsp"/>
        <put name="rightTile3" value="/WEB-INF/jsp/OrderHistoryTile.jsp"/>
        <put name="rightTile4" value="/WEB-INF/jsp/BestSellersTile.jsp"/>
        <put name="rightTile5" value="/WEB-INF/jsp/RandomSpecialTile.jsp"/>
        <put name="rightTile6" value="/WEB-INF/jsp/RandomReviewTile.jsp"/>
        <put name="rightTile7" value="/WEB-INF/jsp/LanguagesTile.jsp"/>
        <put name="rightTile8" value="/WEB-INF/jsp/CurrenciesTile.jsp"/>
        <put name="footer" value="/WEB-INF/jsp/Footer.jsp"/>
    </definition>
```

Uncomment

Comment

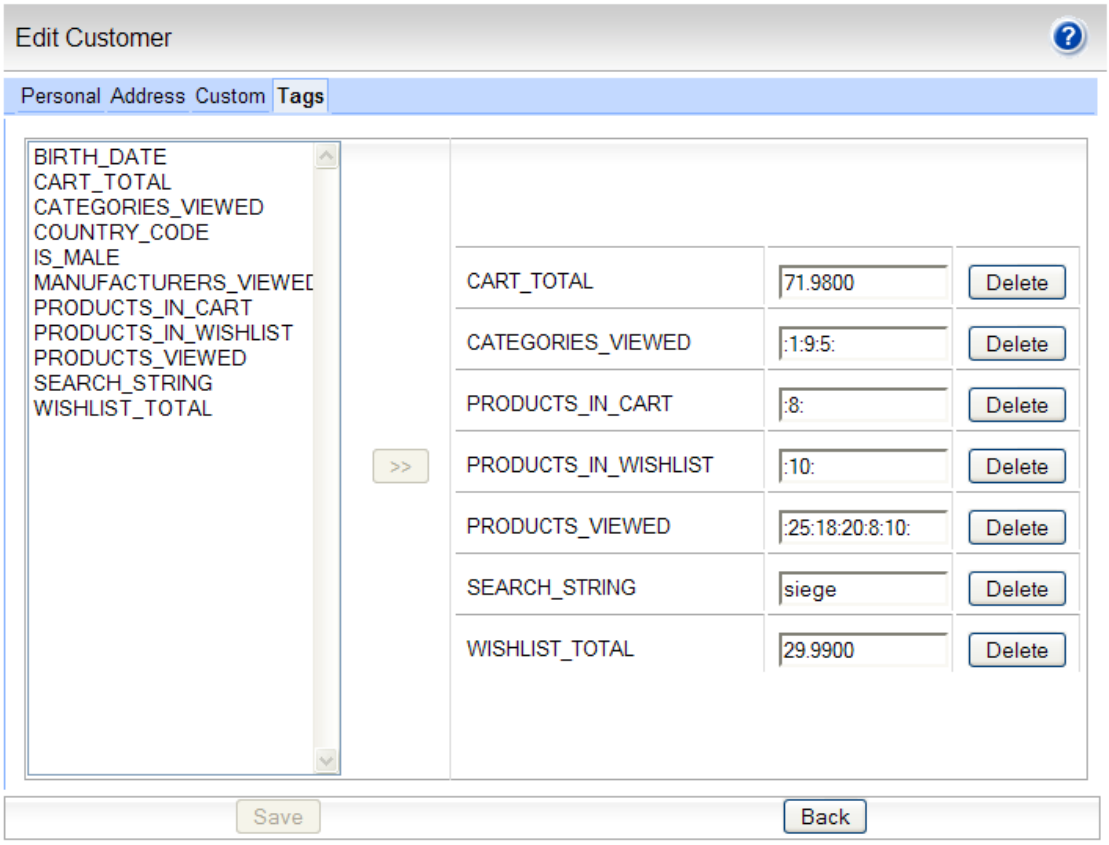
Finally, before running the application to try out our expression, we must enable customer tags in the Customer Details section of the configuration variables, as shown below:

Enable Customer Tag functionality	◉ true	○ false
Enable Customer Cart Tag functionality	◉ true	○ false
Enable Customer WishList Tag functionality	◉ true	○ false

The code that sets the wish list and cart customer tags is embedded within the client engine and so this tag functionality has to be enabled separately. All other customer tags are set within the Struts action classes such as CustomerRegistrationSubmitAction.java for which the source code is shipped.

As can be seen from the image above, a tile appears (red arrow) after logging in, when the cart total is above $50 and Under Siege 2 (product id = 10) is in the wish list. The tile appears on the home page view. Obviously in a real life situation the tile could be a banner.

At any time, you can view (and edit) the customer tag values for any customer from the Tags folder of the Edit Customer panel.



How to set Customer Tag Values in Java code

The KonaKart Store Front Server eCommerce Engine has methods to get and set the customer tags. These methods are:

- insertCustomerTag()
- addToCustomerTag()
- getCustomerTag()
- getCustomerTagValue()
- deleteCustomerTag()
- getCustomerTags()

The CustomerTag object has getter and setter methods to set and read data as BigDecimal, Boolean, Date, Int, Int Array and String. These methods should be used rather than setting the tag value directly as a String because the internal representation of the tag data may change over time.

The best way of seeing how the customer tag data is set in the store front application is to look at the source code of the Struts Action classes where this data is set using the Client Engine. Here are a few examples:

ShowProductDetailsAction.java

```
// Set the PRODUCTS_VIEWED customer tag for this customer
kkAppEng.getCustomerTagMgr().addToCustomerTag("PRODUCTS_VIEWED", selectedProd.getId());
```

QuickSearchAction.java

```
// Set the SEARCH_STRING customer tag for this customer
kkAppEng.getCustomerTagMgr().insertCustomerTag("SEARCH_STRING", searchText);
```

EditCustomerSubmitAction.java

```
// Set the BIRTH_DATE customer tag for this customer
CustomerTag ct = new CustomerTag();
ct.setValueAsDate(d);
ct.setName("BIRTH_DATE");
kkAppEng.getCustomerTagMgr().insertCustomerTag(ct);
```

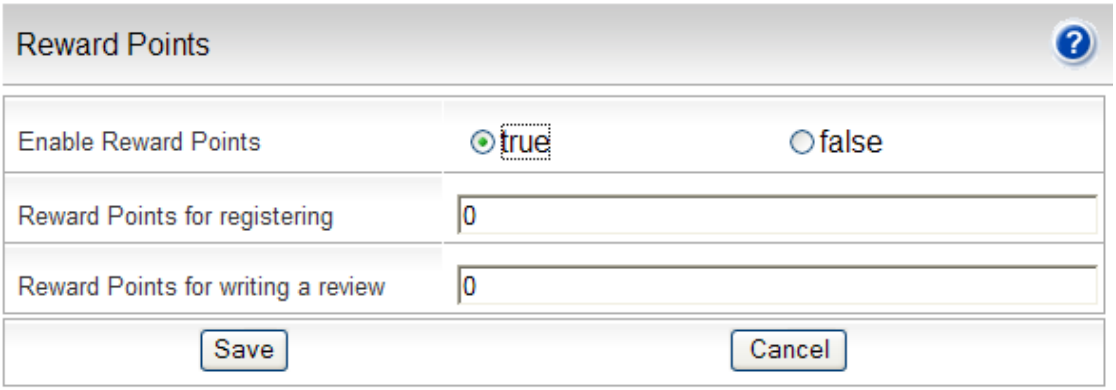
Chapter 10. Reward Points

The Enterprise version of KonaKart supports reward points which enable you to increase customer loyalty and increase sales by rewarding customers for purchases as well as other actions such as registering, writing a review, referrals etc. During the checkout process, points may be redeemed for discounts up to the total value of the order.

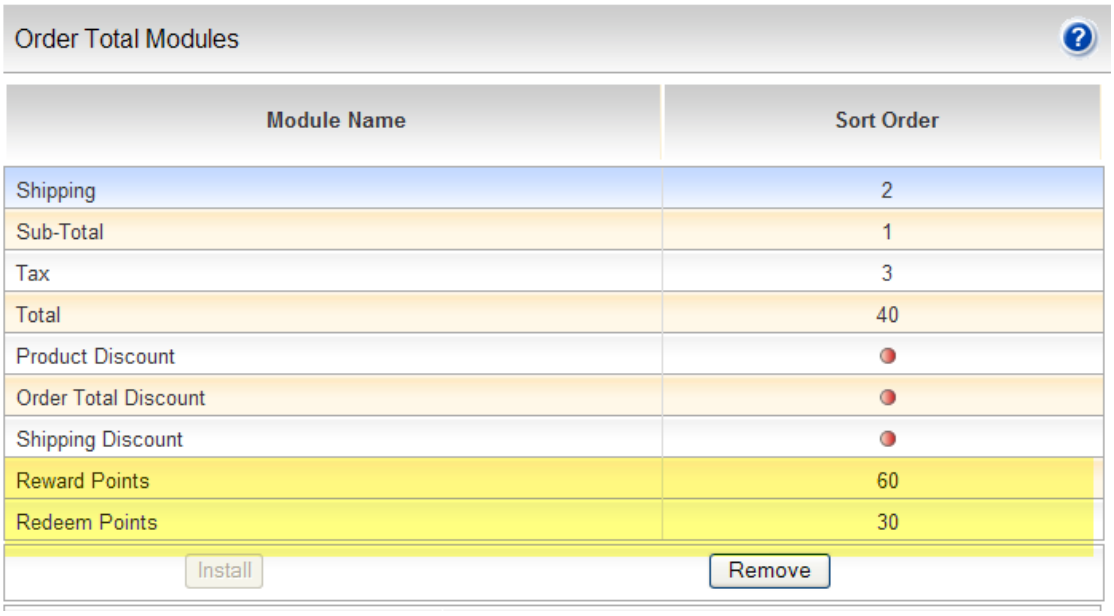
The mechanism to redeem and allocate points is controlled by the KonaKart promotion sub-system which means that both actions may be assigned the rules applicable to all promotions. i.e. You may decide to only accept points redemption if the order value is above a limit or only allocate points for an order containing a particular product etc.

Configuration of Reward Points

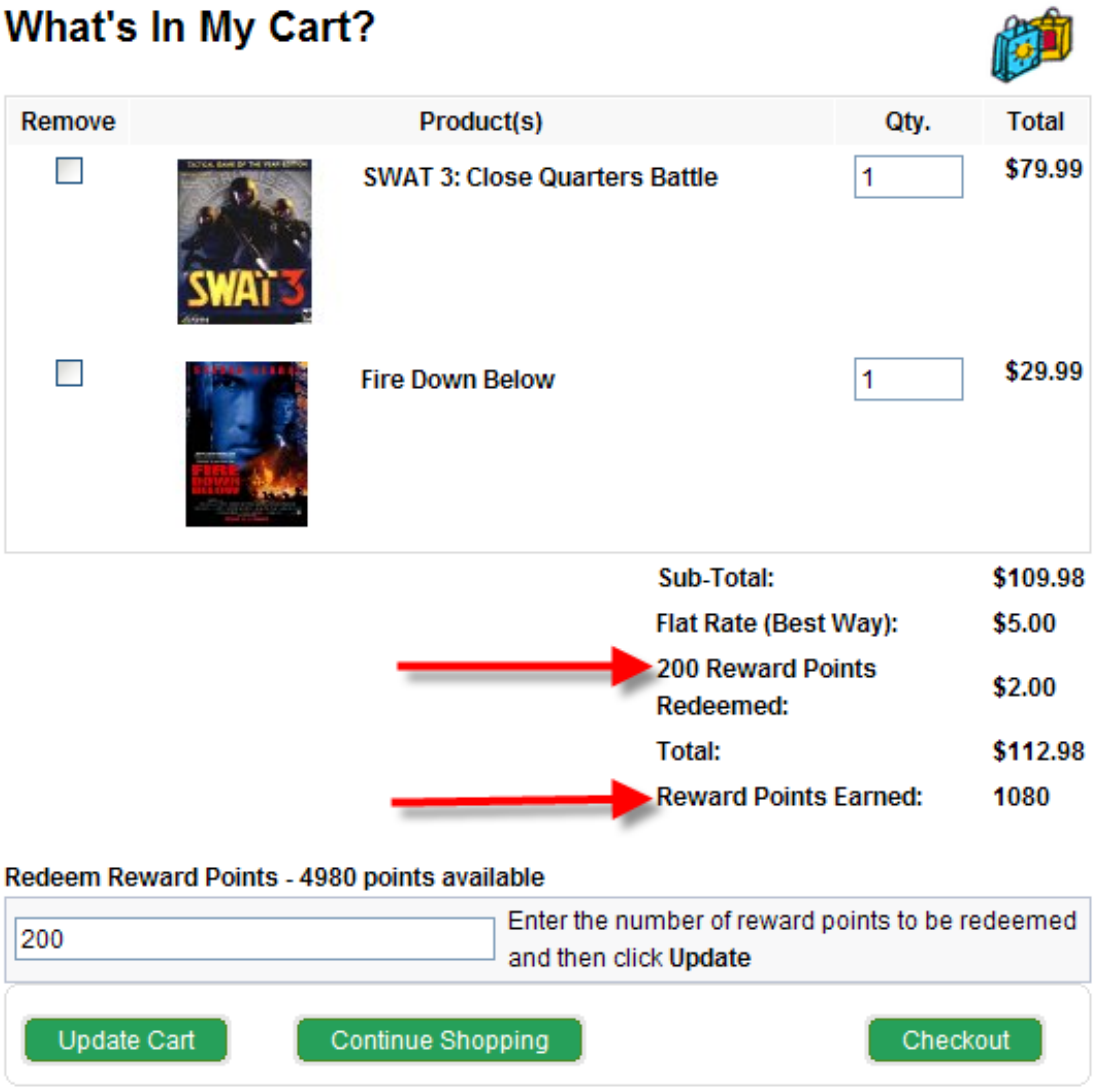
In order to configure the reward point system, you must take the following steps:



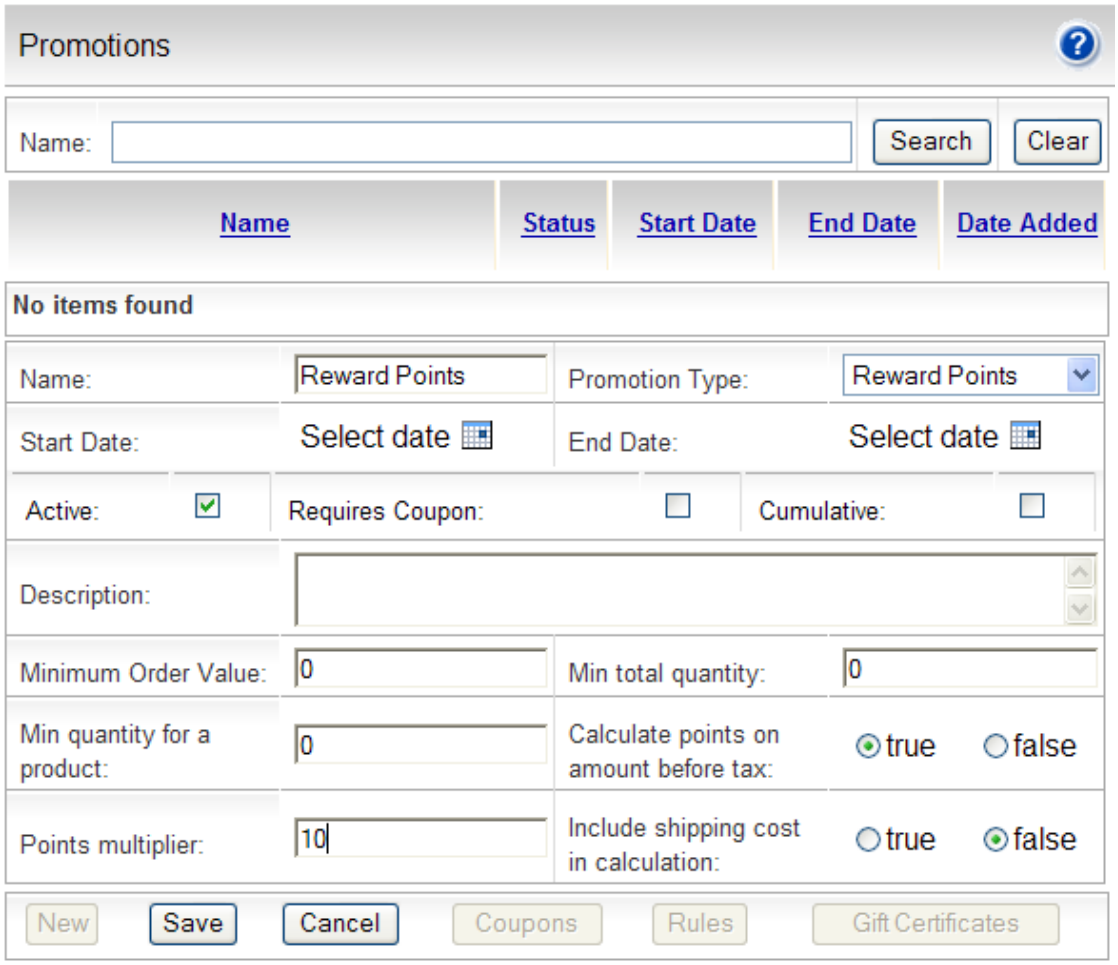
In the Configuration>>Reward Points section of the Admin App, the Reward Point functionality must be enabled. There are also configuration variables to assign a number of points for when a customer registers or writes a review. More options like this may be easily added to the solution.



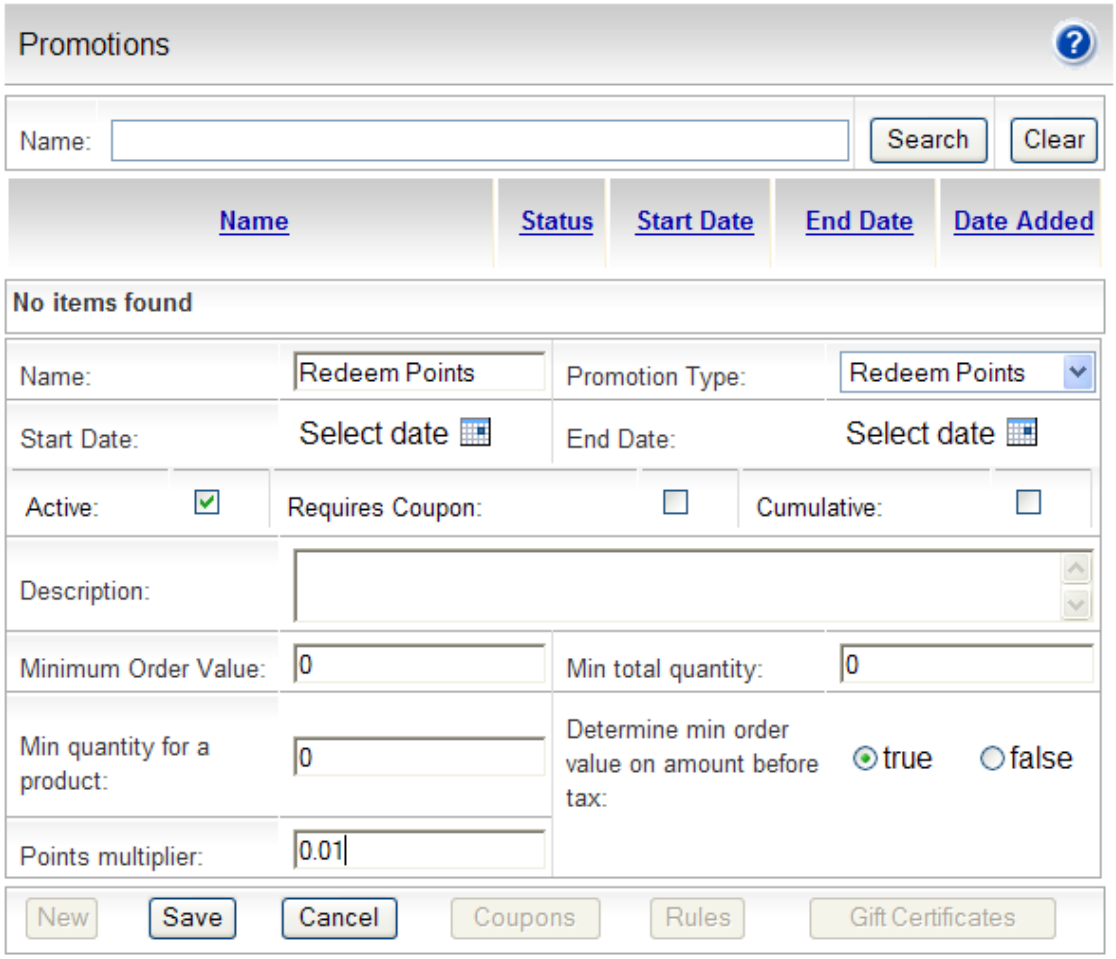
The Reward Point and Redeem Point Order Total modules must be installed in the Modules>>Order Totals section of the Admin App. The sort order of these modules is important. The Redeem Points module must come before the Total module and the Reward Points module must come after. The reason for this can be explained by the image below.



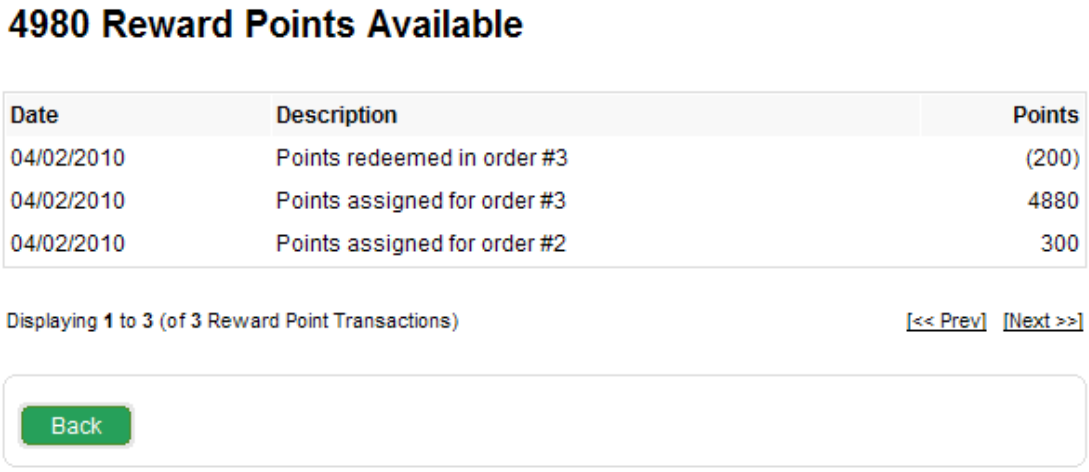
Now two promotions must be defined that use the modules that have just been installed:



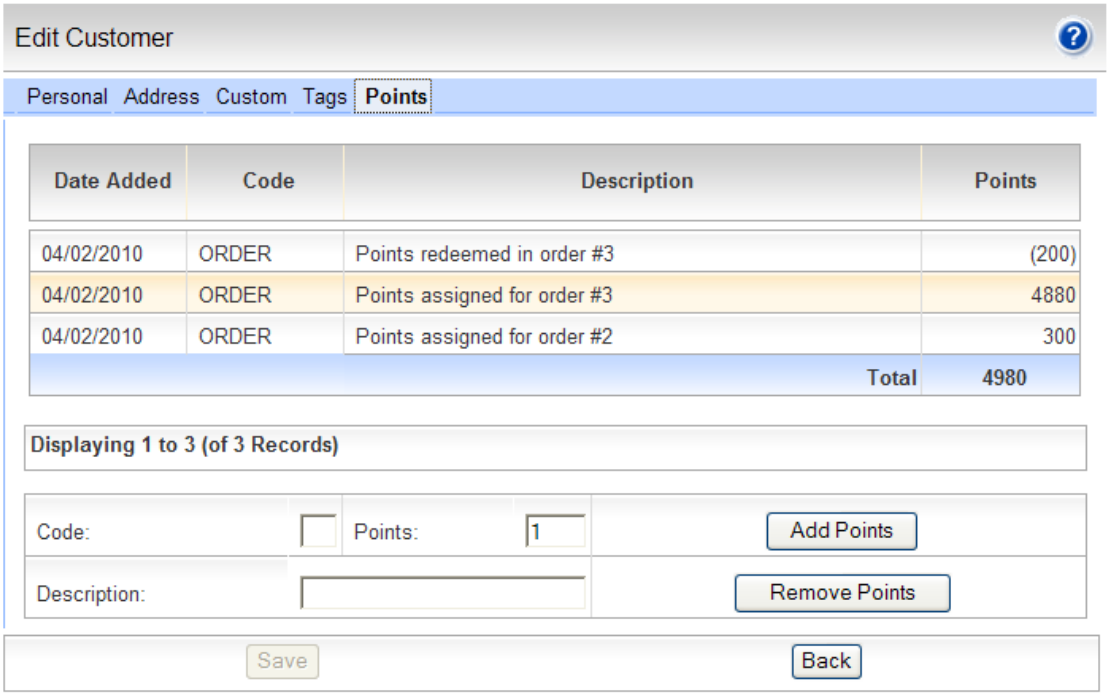
The Reward Points Promotion is the promotion that allocates a number of points to the customer based on the value of the order. The number of points is calculated by multiplying the order value by the points multiplier attribute. i.e. If the value of the order is $50 and the multiplier is 10, then 50 x 10 = 500 points will be assigned to the customer when the order is paid for.



The Redeem Points Promotion is the promotion that converts points into a discount. The discount is calculated by multiplying the number of points redeemed by the points multiplier. i.e. If 1000 points are redeemed and the point multiplier is 0.01, then a discount of 1000 x 0.01 = $10.00 is created. The points multiplier can also be considered to be the value of a single point. In the example above, a single point is worth 1 cent.



When a customer logs into the store front application he can view a statement of his reward point transactions and he always has available the total number of points that he can spend.



The administrator can view the reward point transactions for any customer, and has the ability to add and delete points from the customer's account.

Technical Details

Reward points are added and removed from a customer's account when an order is saved or changes state. The code that manages this is in the com.konakart.bl.OrderIntegrationMgr and com.konakartadmin.bl.AdminOrderIntegrationMgr.

When an order is saved but hasn't been paid for, redeemed points are reserved so that they cannot be used twice. If the order is cancelled, these reserved points are returned to the customer, otherwise they are permanently removed once the order is paid for.

If your business requires reward points to expire after a certain period, then you may run the AdminCustomerBatchMgr.removeExpiredCustomersBatch which will expire all unused points older than a specified number of days. Once the points have been expired, they are no longer available to be used by a customer.

Chapter 11. Payment, Shipping and OrderTotal Modules

Module Types

KonaKart has a flexible plug-in architecture to support the addition of modules for "payment", "shipping" and "order-totals".

Payment Modules

Payment modules shipped with KonaKart are installed and configured through the Administration Application.

If you wish to add a new payment gateway and are not a programmer, please contact us. If you are a Java programmer, it is possible for you to add your own module by following the examples we provide in the package. There is a detailed guide below.

The best approach is to learn by example. We supply all of our supported modules in source code format. They can be found under the KonaKart/custom/modules/src/com/konakart/bl/modules/payment directory. All payment modules should extend com.konakart.bl.modules.payment.BasePaymentModule and implement com.konakart.bl.modules.payment.PaymentInterface.

In order to determine which Payment Modules are installed, the KonaKart engine reads the "MODULE_PAYMENT_INSTALLED" configuration property which should contain a semicolon delimited list of payment modules installed. In the case of a current osCommerce database, the property will contain a list of PHP modules (i.e. cc.php;cod.php). KonaKart ignores the extension. Let's say that you introduce a new module called "MyModule". In this case, KonaKart will look for a class called MyModule.class in the package "com.konakart.bl.modules.payment.mymodule". Note that the package name is always the class name converted to lower case.

The interface that the payment module implements is relatively simple . The main method is called getPaymentDetails(Order order, PaymentInfo info) . The module is passed in the Order object and a PaymentInfo object . The PaymentInfo object contains details on zone information so that the module can be disabled if the delivery address isn't within a zone. It also contains details used mainly for IPN (Instant Payment Notification) such as the host and port details for the return notification and a secret key that can be used to validate the return notification. The order object contains all details about the order, some of which, may be required. In the case of the PayPal example, the final piece of the puzzle is contained in a Struts action class called com.konakart.actions.ipn.PayPalAction. This action is called by PayPal in order to return the status of the payment. When received, the action class may change the state of the order as well as updating the inventory.

Shipping Modules

Shipping modules shipped with KonaKart are installed and configured through the Administration Application.

If you wish to add a new shipping module and are not a programmer, please contact us. If you are a Java programmer, it is possible for you to add your own module by following the examples we provide in the package. The best approach is to learn by example. We supply a few examples in source code format:

- com.konakart.bl.modules.shipping.digitaldownload.DigitalDownload.java - If you sell digital download products in your store, then you should install this module.
- com.konakart.bl.modules.shipping.fedex.Fedex.java - A FedEx shipping module
- com.konakart.bl.modules.shipping.flat.Flat.java - A flat rate
- com.konakart.bl.modules.shipping.free.Free.java - You should install this module to provide free shipping.
- com.konakart.bl.modules.shipping.freeproduct.FreeProduct.java - If you have one or more products that have been configured for free shipping, then you should install this module.
- com.konakart.bl.modules.shipping.item.Item.java - A rate per item
- com.konakart.bl.modules.shipping.table.Table.java - This shipping module implements a rate per order weight or a rate based on the total cost.
- com.konakart.bl.modules.shipping.ups.Ups.java - UPS shipping module.
- com.konakart.bl.modules.shipping.zones.Zones.java - This shipping module implements a rate per item weight per zone.

In order to determine which Shipping Modules are installed, the KonaKart engine reads the "MODULE_SHIPPING_INSTALLED" configuration property which should contain a semicolon delimited list of shipping modules installed. In the case of a current osCommerce database, the property will contain a list of PHP modules (i.e. flat.php;item.php;table.php). KonaKart ignores the extension. Let's say that you introduce a new module called "MyModule". In this case, KonaKart will look for a class called MyModule.class in the package "com.konakart.bl.modules.shipping.mymodule". Note that the package name is always the class name converted to lower case.

The interface that the shipping module implements is relatively simple . The main method is called getQuote(Order order, ShippingInfo info) . The module is passed in the Order object and a ShippingInfo object . The ShippingInfo object contains details on zone information so that the module can be disabled if the delivery address isn't within a zone. It also contains information about the number of packages and their weight etc so that the shipping cost can be calculated . The order object contains all details about the order, some of which, may be required.

An alternative approach is to contact us with details of the Shipping Module that you would like to integrate with KonaKart so that we can create the module for you.

Configuring Free Shipping

From version 2.2.3.0, free shipping can be set on a product by product basis. To set free shipping for a product, you must navigate to the Details tab of the Edit Product panel in the Admin App. There you must change the product type to "Physical Product - Free Shipping". In order for this mechanism to function correctly, you must install the Shipping Module called "FreeProduct". This module will return a shipping quote of zero if it detects that the physical products within the order all have free shipping.

Free shipping for all products can be configured in the Administration Application in the section Modules>>Order Totals by selecting the Shipping Module.

You may allow free shipping by setting the Allow Free Shipping value to "true" . In order to not show the shipping cost of zero on the order you must set Display Shipping to "false". Free shipping can be made conditional for orders over a certain amount or just for a combination of national / international orders.

The text that you display on the screen in the area that you would normally select a shipping method, is defined in WEB-INF\classes\com\konakart\bl\modules\shipping\Shipping_xx.properties. This can be set to e.g. "Free shipping for orders over $50", "Free Shipping", "No Shipping" etc.

Note that in order to completely remove shipping from the checkout process, you will need to make modifications to the checkout process (i.e. JSPs, Struts Actions and GWT code in the case of one page checkout).

Configuring the Zones Shipping Module

The Zones Shipping Module allows you implement shipping rates based on the weight of the shipment, for different countries. The module can be installed and configured through the Admin App. The number of different shipping zones has to be decided before running the Admin App. It is set in the properties file:

/webapps/konakartadmin/WEB-INF/classes/com/konakartadmin/modules/shipping/zones/
Zones.properties

by editing the section:

```
# Set this to the number of zones you require.
MODULE_SHIPPING_ZONES_NUMBER_OF_ZONES=1
```

The Admin App uses the above information to create a number of entry fields called "Zone 1 Countries", " Zone 1 Shipping Table", "Zone 1 Handling Fee", "Zone 2 Countries", Zone 2 Shipping Table" etc. depending on how many shipping zones are required.

For each shipping zone you must enter data in :

- Zone X Countries

  Contains a comma separated list of two character ISO country codes that are part of a shipping zone (i.e. US, CA for USA and Canada)

- Zone X Weight Charges

  Contains shipping rates to shipping zone destinations based on a group of maximum order weights. Example: 3:8.50,7:10.50,... Weights less than or equal to 3 cost 8.50 for destinations in this Zone. Weights greater than 3 but less than or equal to 7, cost 10.50 for destinations in this zone.

- Zone X Handling Fee

  Handling Fee for this shipping zone

Order Total Modules

Order Total modules shipped with KonaKart are installed and configured through the Administration Application.

If you wish to add a new order total module and are not a programmer, please contact us. If you are a Java programmer, it is possible for you to add your own module by following the examples we provide in the package.

The best approach is to learn by example. We supply a few examples in source code format:

- com.konakart.bl.modules.ordertotal.productdiscount.ProductDiscount.java - Discount for individual products
- com.konakart.bl.modules.ordertotal.shipping.Shipping.java - Displays the shipping cost of the order
- com.konakart.bl.modules.ordertotal.subtotal.Subtotal.java - Calculates the subtotal of the order
- com.konakart.bl.modules.ordertotal.tax.Tax.java - Calculates the tax of the order
- com.konakart.bl.modules.ordertotal.total.Total.java - Calculates the total of the order
- com.konakart.bl.modules.ordertotal.totaldiscount.TotalDiscount.java - Discount on the total of the order

In order to determine which Order Total Modules are installed, the KonaKart engine reads the "MODULE_ORDER_TOTAL_INSTALLED" configuration property which should contain a semicolon delimited list of order total modules installed. In the case of a current osCommerce database, the property will contain a list of PHP modules (i.e. ot_subtotal.php;ot_tax.php;ot_shipping.php). KonaKart ignores the extension. Let's say that you introduce a new module called "MyModule". In this case, KonaKart will look for a class called MyModule.class in the package "com.konakart.bl.modules.ordertotal.mymodule". Note that the package name is always the class name converted to lower case.

The interface that the order total module implements is relatively simple . The main method is called getOrderTotal(Order order, boolean dispPriceWithTax, Locale locale) . The module is passed in the Order object which contains all details about the order, some of which, may be required.

An alternative approach is to contact us with details of the Order Total Module that you would like to integrate with KonaKart so that we can create the module for you.

How to Create a Payment Module

This section explains how to create a new payment module for KonaKart using its module plug-in framework.

Introduction

KonaKart supports additional payment/shipping/order total/discount modules using a simple plug-in model.

Payment modules are typically designed to interface between KonaKart and a 3rd Party payment gateway supplier - like PayPal, Authorize.Net or WorldPay etc.

You can install as many payment gateways as you like with KonaKart but typically you would just have one configured as there is usually a cost associated with the merchant account that you have to set-up with each payment organization in order to receive your payments.

Suppose you want to create a brand new payment gateway module to interface between KonaKart and your chosen payment gateway supplier. For the purposes of this guide, let's call the payment gateway supplier "KonaPay" (a completely fictitious gateway).

Study the "KonaPay" APIs

First of all you should find out as much as you can about which interfaces "KonaPay" supports. They might supply an XML interface, a HTTP post interface, a SOAP interface or any kind of weird custom API that

allows you to communicate with them. Some payment gateways do not provide any APIs for providing credit card information at all and require that your user is directed to their site to enter such sensitive details.

Choose which Interface Type you want for your users

So, you have to consider which type of gateway you want to implement for your users? This may well affect which gateway supplier you choose. Do you want to collect the credit card details yourself within KonaKart or do you want to send the users off to a payment gateway site to collect this information? Some prefer the former, some the latter.

You will see in the code that you need to set the paymentType on the PaymentDetails object, which defines which of these two modes you want:

```
// For Authorize.Net,YourPay etc.
setPaymentType(PaymentDetails.SERVER_PAYMENT_GATEWAY);

or

// For PayPal, WorldPay etc.
setPaymentType(PaymentDetails.BROWSER_PAYMENT_GATEWAY);
```

For the sake of our discussion, KonaPay provides a well-documented HTTP API that allows us to collect credit card information on the KonaKart site and send these off synchronously for payment authorization - which we think provides the best user experience at payment time. It's attractive to us because we can retain the same look and feel of our KonaKart store across the full shopping experience - rather than having to jump off to a payment gateway page provided by the gateway supplier which doesn't look anything like the rest of our site.

OK, we've chosen "KonaPay" because it fits our preferred implementation model and it has a well-documented API, what next?

Sign up for a Test Account with "KonaPay"

Typically, the payment gateway supplier will provide a free dummy test account so the next step is to apply for one of these at "KonaPay". Fortunately, "KonaPay" do provide a test account so we sign up and study the API documentation in a little more detail.

Determine which of the existing payment modules is the closest match

The next important step is to study the existing payment modules to see which one looks to be the closest fit to "KonaPay". This step is very important and will save you a great deal of time if you pick a close match.

The good news is that many of the gateways work in very similar ways within the two distinct payment module groups:

- Payment details are collected inside KonaKart ("Server Mode" - Authorize.Net, YourPay, PayJunction, USAePay)
- Payment details are collected at Gateway Supplier's Site ("Browser Mode" - WorldPay, PayPal, ChronoPay, ePayBg)

Copy the files of the closest match as the starting point

We decide that PayJunction is the closest match to "KonaPay" so we make copies of all the PayJunction files and directories - ensuring that we are completely consistent with the naming conventions used by PayJuntion (ie, the same lower/mixed case conventions as PayJunction). Make copies of the various properties files as well and rename these as appropriate to "KonaPay", "Konapay" or "konapay" in a consistent manner.

There will be payment directories to copy under com.konakart.bl.modules.payment and com.konakartadmin.modules.payment.

We also need to copy modules/src/com/konakart/actions/gateways/PayjunctionAction.java to modules/src/com/konakart/actions/gateways/KonapayAction.java

Define the configuration parameters

Next, we need to decide which configuration options we will allow an administrator to change once the "KonaPay" module is installed.

PayJunction allows these to be configured: (the following is the code that initializes these in modules/src/com/konakartadmin/modules/payment/payjunction/Payjunction.java:)

```
configs[i++] = new KKConfiguration(
    /* title */"Enable PayJunction Module",
    /* key */"MODULE_PAYMENT_PAYJUNCTION_STATUS",
    /* value */"true",
    /* description */ "Do you want to accept PayJunction payments? ('true' or 'false')",
    /* groupId */groupId, /* sort Order */i, /* useFun */"",
    /* setFun */"tep_cfg_select_option(array('true', 'false'), ",
    /* dateAdd */now);

configs[i++] = new KKConfiguration(
    /* title */"Sort order of display.",
    /* key */"MODULE_PAYMENT_PAYJUNCTION_SORT_ORDER",
    /* value */"0",
    /* description */ "Sort order of display. Lowest is displayed first.",
    /* groupId */groupId, /* sort Order */i, /* useFun */"", /* setFun */"", /* dateAdd */now);

configs[i++] = new KKConfiguration(
    /* title */"Payment Zone",
    /* key */"MODULE_PAYMENT_PAYJUNCTION_ZONE",
    /* value */"0",
    /* description */ "If a zone is selected, only enable this payment method for that zone.",
    /* groupId */groupId, /* sort Order */i,
    /* useFun */"tep_get_zone_class_title",
    /* setFun */"tep_cfg_pull_down_zone_classes(",
    /* dateAdd */now);

configs[i++] = new KKConfiguration(
    /* title */"PayJunction Username",
    /* key */"MODULE_PAYMENT_PAYJUNCTION_USERNAME",
    /* value */"pj-ql-01",
    /* description */ "The username used to access the PayJunction service",
    /* groupId */groupId, /* sort Order */i, /* useFun */"", /* setFun */"", /* dateAdd */now);

configs[i++] = new KKConfiguration(
    /* title */"PayJunction Password",
    /* key */"MODULE_PAYMENT_PAYJUNCTION_PASSWORD",
    /* value */"pj-ql-01p",
    /* description */ "The password used to access the PayJunction service",
    /* groupId */groupId, /* sort Order */i, /* useFun */"", /* setFun */"", /* dateAdd */now);

configs[i++] = new KKConfiguration(
    /* title */"Payment Server URL",
    /* key */"MODULE_PAYMENT_PAYJUNCTION_URL",
    /* value */"https://payjunction.com/quick_link",
    /* description */ "URL used by KonaKart to send the transaction details",
    /* groupId */groupId, /* sort Order */i, /* useFun */"", /* setFun */"", /* dateAdd */now);

configs[i++] = new KKConfiguration(
    /* title */"Security Options",
    /* key */"MODULE_PAYMENT_PAYJUNCTION_SECURITY",
    /* value */"AWZ|M|false|true|false",
    /* description */
       "Security Options for Pay Junction - refer to PayJunction documentation for details",
    /* groupId */groupId, /* sort Order */i, /* useFun */"", /* setFun */"", /* dateAdd */now);

configs[i++] = new KKConfiguration(
    /* title */"Debug Mode",
    /* key */"MODULE_PAYMENT_PAYJUNCTION_DEBUG_MODE",
    /* value */"true",
    /* description */ "If set to true, the PayJunction module will be set to debug code",
    /* groupId */groupId, /* sort Order */i, /* useFun */"",
    /* setFun */"tep_cfg_select_option(array('true', 'false'), ",
    /* dateAdd */now);
```

The above are quite a typical combination of fields. Let's look at each one in turn:

- MODULE_PAYMENT_PAYJUNCTION_STATUS - for enabling/disabling the module. Typically provided for all modules.
- MODULE_PAYMENT_PAYJUNCTION_SORT_ORDER - for order the module is displayed if there are more than one available. Typically provided for all modules

- MODULE_PAYMENT_PAYJUNCTION_ZONE - for defining a zone where this payment module can be used. Typically provided for all modules.
- MODULE_PAYMENT_PAYJUNCTION_USERNAME - username to access the payment gateway service. Often required for payment modules
- MODULE_PAYMENT_PAYJUNCTION_PASSWORD - password to access the payment gateway service. Often required for payment modules
- MODULE_PAYMENT_PAYJUNCTION_URL - the payment service URL. Often required for payment modules (useful for switching between the payment service's test and live services.
- MODULE_PAYMENT_PAYJUNCTION_SECURITY - a special configuration option particular to PayJunction. Typically payment modules would have one or two of these, but they would be different between gateway services.
- MODULE_PAYMENT_PAYJUNCTION_DEBUG_MODE - handy for diagnosing problems, especially in development. Typically provided for all modules

For "KonaPay" we will change the configuration parameter names to include "KONAPAY" rather than "PAYJUNCTION", so we would have "MODULE_PAYMENT_KONAPAY_STATUS" etc... We need to replace _PAYJUNCTION_ with _KONAPAY_ throughout all the source and properties files. For "KonaPay" we will assume, for simplicity that we will define the same set as is defined for PayJunction except the MODULE_PAYMENT_PAYJUNCTION_SECURITY variable which we'll exclude.

Understanding the Configuration Options

Looking more closely at the KKConfiguration structure that is initialized for each configuration object:

```
configs[i++] = new KKConfiguration(
    /* title */"Enable PayJunction Module",
    /* key */"MODULE_PAYMENT_PAYJUNCTION_STATUS",
    /* value */"true",
    /* description */ "Do you want to accept PayJunction payments? ('true' or 'false')",
    /* groupId */groupId,
    /* sort Order */i,
    /* useFun */"",
    /* setFun */ "tep_cfg_select_option(array('true', 'false'), ",
    /* dateAdd */now);
```

The comments should help a lot in understanding what these attributes are for. In more detail:

- title - affects what's shown on the screen of the Admin App
- key - the unique key by which this key is known
- value - the default value
- description - this is provided as floatover help in the Admin App
- groupId - the groupId - this is 6 for payment modules
- sortOrder - the order in which these keys are displayed in the Admin App
- useFun - a function that defines how this key should be "used"

- setFun - a function that defines how this key is "set"
- dateAdd - the date the key is added to the database.

The only slightly complicated ones are the use and set functions. The example above shows the setFun to use to display a true/false toggle in the Admin App. The setFun and useFun can be null for most simple text fields. These setFun and useFun formats are used throughout the Admin App and perhaps the easiest way to see how they work is to look at these columns in the database for each configuration key that uses them.. eg: Issue "SELECT configuration_title, configuration_key, use_function, set_function FROM configuration;" against your database to see lots of examples.

** Ask questions in the forum if you're uncertain about these.

Add the "KonaPay" gateway to the Admin App

In order to see the "KonaPay" payment gateway module in the Admin App we have to add it to the list of payment modules in webapps/konakartadmin/WEB-INF/classes/konakartadmin.properties. Remember to match the classname - so be careful with your lower case/upper case characters! Once set, the Admin App will inclde the "KonaPay" module in the set of modules that can be installed or removed from the system: (Konapay has been added in bold below):

```
# ------------------------------------------------------------------
# Set the class names of the various modules you would like to make
# available. The administrator can still choose to enable or disable
# these.
#
# Note that if you remove a module from the definitions below that
# has already been set up in the database the users may still have
# access to the modules in the konakart application.   Hence, it is
# advisable to remove the modules before they are removed from these
# definitions.

# Make these space or semi-colon-separated class names - they have
# implied prefixes of:
#
#     com.konakartadmin.modules.payment.{lower case module name}.
#     com.konakartadmin.modules.shipping.{lower case module name}.
#     com.konakartadmin.modules.orderTotal.{lower case module name}.

konakart.modules.payment=Authorizenet Yourpay Payjunction Konapay
konakart.modules.shipping=Flat Item Table Zones Free DigitalDownload
konakart.modules.ordertotal=Tax Total ProductDiscount TotalDiscount
```

Implement the PaymentInterface

Next we need to implement the PaymentInterface in our Konapay class in the com.konakart.bl.modules.payment.konapay package. If the PayJunction directories were copied correctly earlier the java file should be at custom/modules/src/com/konakart/bl/modules/payment/konapay

This Konapay.java source extends BasePaymentModule (whose source is provided at custom/appn/src/com/konakart/bl/modules/payment/BasePaymentModule.java) and implements PaymentInterface.

It's advisable to follow the pattern you see in the file you copied. Therefore, rename all the constants and variables to names appropriate for "KonaPay" and set up the PaymentDetails object in a similar way in getPaymentDetails().

For much of the PaymentDetails, the values set will be very similar between payment modules (eg. the payment module code, the sort order, title and description etc) but there will always be differences in the "NameValue[]" parameters that are added further down in the getPaymentDetails() method.

NameValue[] Parameters

Each payment gateway will need different parameter names so to work out which NameValue pairs you need to add you need to study the API specification. With PayJunction, you can see that the following are required: dc_logon, dc_password, dc_transaction_type etc. With "KonaPay" there will be different names and perhaps different encoding rules; the API documentation will define the requirements. Check the examples in the gateway documentation, these often make it clear what the names and values should be. Once the parameters are understood, add these to the PaymentDetails - they will be used later to build the request to the gateway supplier.

Implement the Action code

Next we need to implement the Action code in our KonapayAction class in the com.konakart.actions.gateways package. The "KonaPay" java file should be called custom/modules/src/com/konakart/actions/gateways/KonapayAction.java. (Notice that the (usually synchronous) modules which collect the payment information from the user on the KonaKart site have to have "com.konakart.actions.gateways" implementations, whereas the (asynchronous) modules that divert the user off to a page on the gateway's site have to have "com.konakart.actions.ipn" implementations).

This Konapay.java source extends BasePaymentModule (whose source is provided at custom/appn/src/com/konakart/bl/modules/payment/BasePaymentModule.java) and implements PaymentInterface.

It's advisable to follow the pattern in the file you copied from PayJunction. Therefore, rename all the constants and variables to names appropriate for "KonaPay" and set up the PaymentDetails object in a similar way in getPaymentDetails().

The Action files are quite well documented so it should be easy to see where to make modifications for a new module. Basically you will have to create your message to post to the gateway then process the returned information to determine success or failure. If there's a failure you can return the user to the credit card screen to try again (and show the error message that you received). Alternatively, for more serious errors, you can show the exception in a standard form for the KonaKart site.

Save IPN details

In order for your KonaKart administrator to diagnose payment gateway problems in the future, it's a good idea to save details of each transaction with a call to "saveIpnHistory" (see kkAppEng.getEng().saveIpnHistory()). Set the various attributes on IpnHistoryIf to values that you derive from the response as you see in the example source. These records are available in the KonaKart Admin App for inspection and can be useful when diagnosing problems with payment gateways. The records can also be useful in recording unique transaction codes that are provided by the gateway suppliers for proving that payments have been made, should that need ever arise.

Save the gateway response to a file

Another technique that you can use to diagnose problems is to save gateway responses to a file on disk. An example of such code is in the YourpayAction source as follows:

```
if (yourPayDebugMode)
{
    // Write the response to an HTML file which is handy for
    // diagnosing problems

    try
    {
        String outputFilename = getLogFileDirectory()
                + "yourpay_resp_"
                + order.getId()
                + ".html";
        File myOutFile = new File(outputFilename);
        if (log.isDebugEnabled())
        {
            log.debug("Write gateway response to " + myOutFile.getAbsolutePath());
        }
        BufferedWriter bw = new BufferedWriter(new FileWriter(myOutFile));
        bw.write(gatewayResp);
        bw.close();
    } catch (Exception e)
    {
        // dump the exception and continue
        e.printStackTrace();
    }
}
```

Note that the yourPayDebugMode boolean could be set by one of your module configuration parameters and the log file location that is returned by the getLogFileDirectory() call is defined in the Admin Application under the Configuration >> Logging section.

Send payment confirmation email

You have a choice whether or not to send payment confirmation mails in the Action class. (You are also free to change the format of these emails if you wish by modifying the velocity templates). The call for sending emails is simply kkAppEng.getEng().sendOrderConfirmationEmail().

Struts mapping

More often that not the Struts mapping code in the Action class will be the same for all the synchronous (or "server-side") payment modules. Each "mapping string" in the mapping.forward("mapping string") calls must match the struts-config.xml file as follows: The entry for "KonaPay" has been added below:

```
<!-- ================================= Server Side Gateways -->
 <action path="/USAePay"
    type="com.konakart.actions.gateways.UsaepayAction">
     <forward name="Approved" path="/CheckoutFinished.do"/>
     <forward name="TryAgain" path="/CheckoutServerPayment.do"/>
     <forward name="NotLoggedIn" path="/CheckoutDelivery.do"/>
 </action>

 <action path="/AuthorizeNet"
    type="com.konakart.actions.gateways.AuthorizenetAction">
     <forward name="Approved" path="/CheckoutFinished.do"/>
     <forward name="TryAgain" path="/CheckoutServerPayment.do"/>
     <forward name="NotLoggedIn" path="/CheckoutDelivery.do"/>
 </action>

 <action path="/PayJunction"
    type="com.konakart.actions.gateways.PayjunctionAction">
     <forward name="Approved" path="/CheckoutFinished.do"/>
     <forward name="TryAgain" path="/CheckoutServerPayment.do"/>
     <forward name="NotLoggedIn" path="/CheckoutDelivery.do"/>
 </action>

 <action path="/KonaPay"
    type="com.konakart.actions.gateways.KonapayAction">
     <forward name="Approved" path="/CheckoutFinished.do"/>
     <forward name="TryAgain" path="/CheckoutServerPayment.do"/>
     <forward name="NotLoggedIn" path="/CheckoutDelivery.do"/>
 </action>

 <action path="/YourPay"
    type="com.konakart.actions.gateways.YourpayAction">
     <forward name="Approved" path="/CheckoutFinished.do"/>
     <forward name="TryAgain" path="/CheckoutServerPayment.do"/>
     <forward name="NotLoggedIn" path="/CheckoutDelivery.do"/>
 </action>
```

One other change is required in struts-config.xml which defines the forwarding for the server-side payments: It's critical to maintain naming consistency here (use lower or mixed case as in the other examples - or whatever it takes to match your definitions elsewhere).

```
<action path="/CheckoutServerPaymentSubmit"
      type="com.konakart.actions.CheckoutServerPaymentSubmitAction"
      name="CreditCardForm" scope="request" validate="true"
      input="/CheckoutServerPayment.do">
    <forward name="usaepay" path="/USAePay.do"/>
    <forward name="authorizenet" path="/AuthorizeNet.do"/>
    <forward name="payjunction" path="/PayJunction.do"/>
    <forward name="konapay" path="/KonaPay.do"/>
    <forward name="yourpay" path="/YourPay.do"/>
</action>
```

Build, Deploy and Test

Once the java code is built, the properties files and the struts-config.xml have been updated, all that is required to be done is to execute the ant build, copy the new jars into position, restart tomcat and test!

The gateway suppliers typically provide test credit card numbers for you to use for these tests.

If you have questions on customizing KonaKart please post these on our forum [http://www.konakart.com/forum] , at http://www.konakart.com/forum

Chapter 12. Recurring Billing

KonaKart provides support for recurring billing which may be implemented in one of two alternate ways. The actual payment transactions may be performed by a payment gateway that supports recurring billing, or they may be performed by a KonaKart batch program that interfaces with the payment gateway to make the regular payments. We recommend the first approach since it doesn't require that you store sensitive credit card information within your local database because once they have been sent to the payment gateway to create the subscription, it is the gateway that automatically makes the payments.

There are two main objects within KonaKart that provide recurring billing support. These are the Payment Schedule object and the Subscription object. Both have dedicated panels within the Admin App so that they may be managed. The Payment Schedule panel may be found under Products, whereas the Subscription Panel may be found under Orders.

Payment Schedule

A payment schedule defines the frequency of payments for a product as well as the total number. i.e. Payments may be monthly, lasting for two years. In the case of monthly payments, it allows you to define the day of the month the payment should be made. It also allows you to define one or more trial payments which may be for a different amount. i.e. The subscription may consist of monthly payments of $9.99 for the first 6 months before increasing to $30.00 .

A payment schedule is associated to a product. This is done in the Edit Product panel. A drop list containing payment schedules will appear in the Details tab of the Edit Product panel if one or more payment schedules exist. When an order is confirmed by a customer during the checkout process, the products within the order are examined to detect whether any of them have an associated payment schedule. If a payment schedule is found, this triggers off the process of creating a recurring billing subscription.

Subscription

A subscription defines the payment amount and start date for the payments. It can be activated / deactivated and if any problems are found (i.e. credit card expired) during the payment transaction, these problems are logged in the subscription object . As mentioned above, a subscription is created and saved at the moment when an order is confirmed, if any of the products within the order are associated to payment schedules. A subscription can be associated with one or more Payment Info objects, each of which records the amount paid on a particular date, as well as saving the complete transaction reply from the payment gateway.

A subscription object contains many other attributes such as the last and next billing dates, the order number, the product SKU and custom fields. These are all optional, but may be used to save important information that can be used for reporting purposes and to control the actual payments when they are being managed by KonaKart.

Using a Payment Gateway that supports Recurring Billing

Many payment gateways support recurring billing and provide interfaces to create and manage subscriptions. In this case we recommend using the KonaKart Admin Custom engine in order to communicate to the Payment Gateway whenever a Subscription is created or edited so that the Subscription in the KonaKart database always reflects the subscription in the payment gateway. These are the API calls that need to be customized:

Admin Engine API

- *InsertSubscription()* : The subscription should first be sent to the payment gateway since the payment gateway will normally return a subscription code that should be added to the subscription before it is saved by KonaKart. This code will be used in future communications with the payment gateway in order to identify the subscription.
- *UpdateSubscription()* : The subscription being edited will contain the subscription code that should be used to edit the subscription saved by the payment gateway. An update may be used for example to disable the subscription.
- *DeleteSubscription()* : The subscription being deleted will contain the subscription code that should be used to delete the subscription saved by the payment gateway.

In the case of the Application Engine, the OrderIntegrationMgr contains code that will insert a subscription object when the order is saved. This needs to be edited to also send the subscription to the Payment Gateway. The method called manageSubscriptions() is commented out by default. If your store supports recurring billing, this method must be uncommented. Note that the credit card details may be passed in as attributes of the order object from the application. Since you don't want to save this information in the database but only use it to pass to the payment gateway, you should copy it into a temporary object in the beforeSaveOrder() method and delete it from the order so that it doesn't get persisted into the database.

Some example code is provided under KonaKart / custom / modules / src / com / konakartadmin / modules / payment / authorizenet in the file RecurringBilling.java which contains the methods:

- createSubscription()
- updateSubscription()
- cancelSubscription()

This code may be copied and placed under the directory of the Payment Gateway that you are currently using (if it isn't AuthorizeNet). Once copied you need to implement the actual code that communicates with the payment gateway.

Managing Recurring Billing through KonaKart

In this case the credit card details are stored by KonaKart in an encrypted format within the Order object. The actual payments are made by a KonaKart Batch program that interfaces to the payment gateway to perform the payment transaction. An example of this batch is provided in source code format so that it can be modified. The batch is called recurringBillingBatch() and can be found within AdminOrderBatchMgr.java. It loops through all subscriptions that are active and that have a nextBillingDate equal to or later than the current date. Based on the data found within the Subscription object and attached PaymentSchedule object, the batch program can make the payment and update the Subscription with a new nextBillingDate. The subscription object is also updated if the transaction with the payment gateway fails to indicate that there has been a problem.

The batch does not contain the actual code that interfaces with the payment gateway to make the payment. The easiest way to achieve this functionality is to copy and modify the code from the payment gateway module that you are currently using i.e. Authorizenet.java under KonaKart / custom / modules / src / com / konakart / bl / modules / payment /authorizenet for the case of AuthorizeNet.

Chapter 13. Custom Validation

Configuring the Validation used in KonaKart.

Custom Validation for the Store Front

This section defines how you configure the custom validation for the KonaKart application

Configuring validation on data entered through the UI

The configuration is done via an xml file called WEB-INF/validation.xml. There is a section near the top of the file containing all of the parameters that can be customized, with names that describe the actual entry field. e.g.

```
<constant>
  <constant-name>ENTRY_FIRST_NAME_MIN_LENGTH</constant-name>
  <constant-value>2</constant-value>
</constant>
```

Note that in order for modifications to take effect, the KonaKart application must be rebooted.

Configuring validation for Custom Fields

As for other data entered through the UI, validation for custom fields is set in WEB-INF/validation.xml . The file contains an example for a custom field where the minimum length is set to 5.

```
<field property="customerCustom1" depends="minlength">
    <arg0 key="register.customer.body.custom1"/>
    <arg1 name="minlength" key="${var:minlength}"
          resource="false"/>
        <var>
            <var-name>minlength</var-name>
            <var-value>5</var-value>
        </var>
</field>
```

Custom Validation for the Admin Application

This section defines how you configure the custom validation for the KonaKart Admin application

CustomValidaton.properties file

From release 2.2.3.0 of KonaKart it is possible to modify the default field validation in certain parts of the Admin App.

A new properties file is provided, called CustomValidation.properties. You will find this in the classes directory of the konakartadmin webapp.

The format and description of this file is defined within the file itself, but an extract is as follows:

```
# ------------------------------------------------------------------
#
#  K O N A K A R T   C U S T O M   V A L I D A T I O N
#
# ------------------------------------------------------------------
# Parameters to define custom validation in the KonaKart Admin App
# ------------------------------------------------------------------

# ------------------------------------------------------------------
# If no custom validations are defined (or this file is removed) the
# default validation rules are used in the KonaKart Admin App.
#
# If you define custom validations in this file they will override
# the default rules defined in the KonaKart Admin App.
# Therefore, you only need to define the custom validation rules
# that are different to the defaults.
# ------------------------------------------------------------------

# ------------------------------------------------------------------
# If your intention is to increase the number of characters allowed
# in the database for a certain quantity, you will have to modify
# the characteristics of that column in the database first.   If you
# then wish to validate the attribute in the KonaKart Admin App to
# allow for the increased column width... you also need to add your
# custom validation to this file
# ------------------------------------------------------------------

# ------------------------------------------------------------------
# Format:
#
# ClassName.Attribute = [min];[max]
#
# If min or max are not specified they will not be checked.
#
```

Therefore, if you wanted to change the validation on the Product SKU field in the Admin App, you would specify:

```
Product.sku              = 1;18
```

Fields Supported by Custom Validation

Only a certain subset of fields can have their validation overridden in this way, but if you need other fields to be made available for validation please get in touch with support at KonaKart.

Currently you can define validation rules for the following fields:

```
Address.company
Address.custom1
Address.custom2
Address.custom3
Address.custom4
Address.custom5
Address.postcode
Address.street_address
Address.suburb

Category.name
Category.image
Category.custom1
Category.custom2
Category.custom3

CustGroup.priceId

Customer.email_address
Customer.custom1
Customer.custom2
Customer.custom3
Customer.custom4
Customer.custom5
Customer.telephone
Customer.fax

Order.custom1
Order.custom2
Order.custom3
Order.custom4
Order.custom5
Order.number

Order_Status_History.comment

Product.contentType
Product.custom1
Product.custom2
Product.custom3
Product.custom4
Product.custom5
Product.description
Product.quantity
Product.model
Product.name
Product.priceId
Product.sku
Product.weight

Manufacturer.name
```

All of these fields appear (commented out) in the default CustomValidation.properties file in the default installation for ease of reference.

Chapter 14. One Page Checkout

Introduction

This chapter contains information that explains how you can customize the One Page Checkout code in order to personalize the checkout procedure for your customers.

Technology used for the One Page Checkout Code

AJAX technology is used to give an improved user experience in this critical area where you don't want your customers to leave your shop. We use Google's Web Toolkit http://code.google.com/webtoolkit [http://code.google.com/webtoolkit] embedded inside the Struts application.

How to customize the One Page Checkout Code

All the source code for the one-page checkout is freely available for you to modify as you see fit.

To get you started with this, especially if you're unfamiliar with Google's "GWT", we provide a simple one-page checkout developers toolkit. This allows you to modify the one-page checkout code, recompile and run, quickly and easily, without needing the rest of the application running.

The one-page checkout developers toolkit is included in every KonaKart download and can be found under the custom directory where KonaKart was installed. On Windows the default location is: *C:\Program Files\KonaKart\custom\onepagecheckout* .

Step by step guide on how to customize the One Page Checkout Code

1) Create a command shell window and change directory to the onepagecheckout directory inside your KonaKart installation. The directory should contain the following files:

```
 Directory of C:\Program Files\KonaKart\custom\onepagecheckout

06/01/2010  11:58    <DIR>          .
06/01/2010  11:58    <DIR>          ..
05/01/2010  15:26             5,937 .classpath
05/01/2010  15:26               442 .project
05/01/2010  15:26               514 build.properties
05/01/2010  15:26             6,090 build.xml
05/01/2010  15:26             2,878 KonaKart_One_Page_Checkout.launch
06/01/2010  11:58    <DIR>          lib
06/01/2010  11:58    <DIR>          src
06/01/2010  11:58    <DIR>          war
               5 File(s)         15,861 bytes
```

2) Ensure that you have a java installation installed. KonaKart requires the Java 2 Standard Edition Runtime Environment (JRE) version 5.0 or later. Download the Java 2 Standard Edition Runtime Environment (JRE), release version 5.0 or later from http://java.sun.com/j2se. (You've probably already done this since it is required to run KonaKart).

3) Ensure that you have installed Apache ANT (this is used by the supplied ANT build file that compiles and runs the code). (Alternatively, you can use the ant that's provided under the custom/bin directory).

4) Modify the build.properties file to suit your environment. You have to define your database connection parameters because the code that you run will need to access the database. Use the database connection parameters that you have set up for your KonaKart application.

```
# ------------------------------------------------------------------------------------
# konakart_gwt build properties
#
# Set the parameters in this file to suit your environment
# ------------------------------------------------------------------------------------

# Database Parameters

adapter=mysql
user=root
password=
url=jdbc:mysql://localhost:3306/store1?zeroDateTimeBehavior=convertToNull
driver=com.mysql.jdbc.Driver
validationQuery=select 1

# KonaKart Home

KONAKART_HOME=../../
```

4) Add an item to your shopping cart. Run the KonaKart application and add an item (or many items) to a user's shopping cart. You need to do this to access the one-page checkout when it's run.

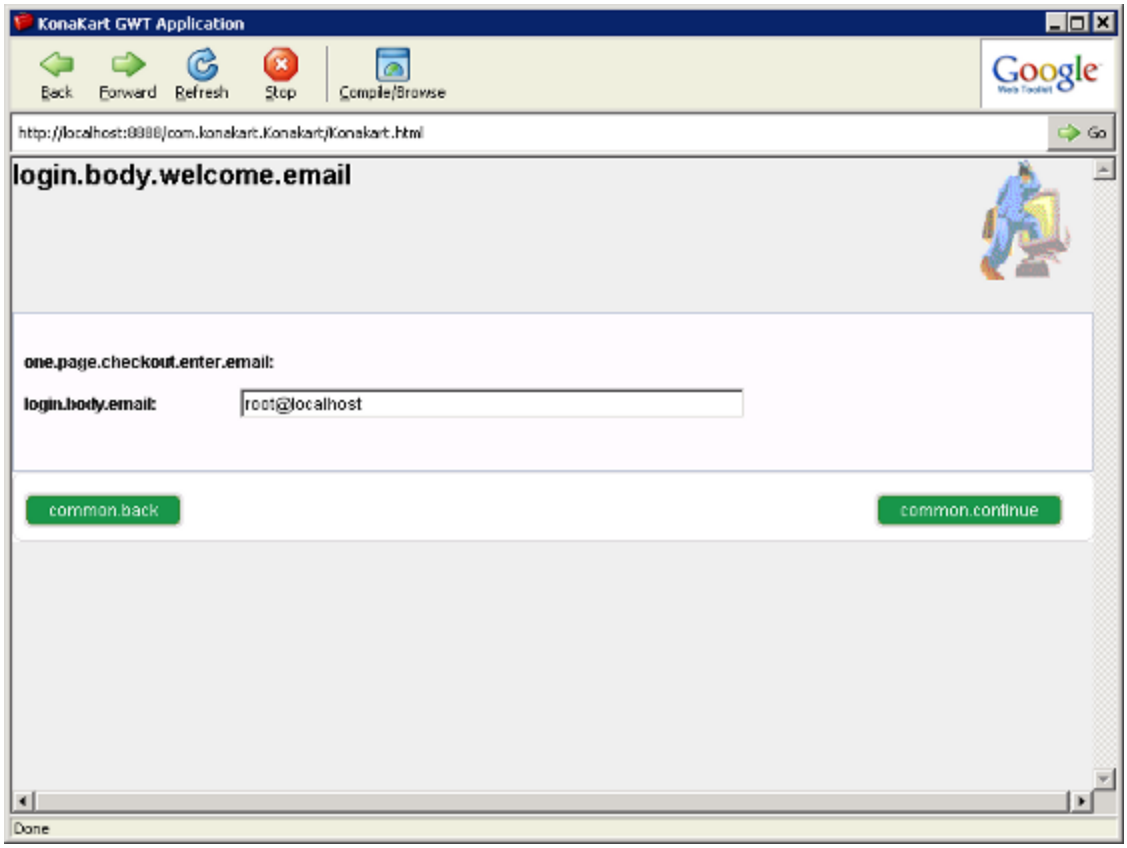
5) Finally, you are ready to build and run the code as follows by simply running ant. Note that the file KKGWTServiceImpl.java, instantiates a KonaKart engine which is normally already instantiated when the one page checkout code is embedded within the store front application. It is coded to instantiate an engine in MODE_SINGLE_STORE. If you are setup to run in multi-store mode then you must change the code accordingly.

```
C:\Program Files\KonaKart\custom\onepagecheckout>..\bin\ant
Buildfile: build.xml

clean:
     [echo] Cleanup...

copy_libs:
     [echo] Copy Jars...

copy_images:
     [echo] Copy Images...

compile:
     [echo] Compile the sources
    [mkdir] Created dir: C:\Program Files\KonaKart\custom\onepagecheckout\war\WEB-INF\classes
    [javac] Compiling 82 source files to
                        C:\Program Files\KonaKart\custom\onepagecheckout\war\WEB-INF\classes
     [echo] GWT-Compile the sources

setConfigs:
     [echo] Set Configs to:
     [echo]     adapter         = mysql
     [echo]     driver          = com.mysql.jdbc.Driver
     [echo]     user            = root
     [echo]     password        =
     [echo]     url             =
                        jdbc:mysql://localhost:3306/store1?zeroDateTimeBehavior=convertToNull
     [echo]     validationQuery = select 1

run:
     [java] KonakartGWTServer() Engine to be used by application is com.konakart.al.KKAppEng
     [java] getAppEngByName(com.konakart.al.KKAppEng)
     [java]
     [java] ********************************************************************************
     [java] * KONAKART LICENSE AGREEMENT                                                  *
     [java] * You may not use this software except in compliance with the licenses.       *
     [java] * Please study the licenses on the KonaKart website  for the rights, obligations *
     [java] * and limitations governing the use of this software.                          *
     [java] * For users of the Community Edition of KonaKart see:                         *
     [java] *         http://www.konakart.com/documents/COMMUNITY-LICENSE.txt             *
     [java] * For users of the Enterprise Extensions of KonaKart see:                     *
     [java] *         http://www.konakart.com/documents/ENTERPRISE-LICENSE.txt            *
     [java] ********************************************************************************
     [java]

build:

BUILD SUCCESSFUL
```

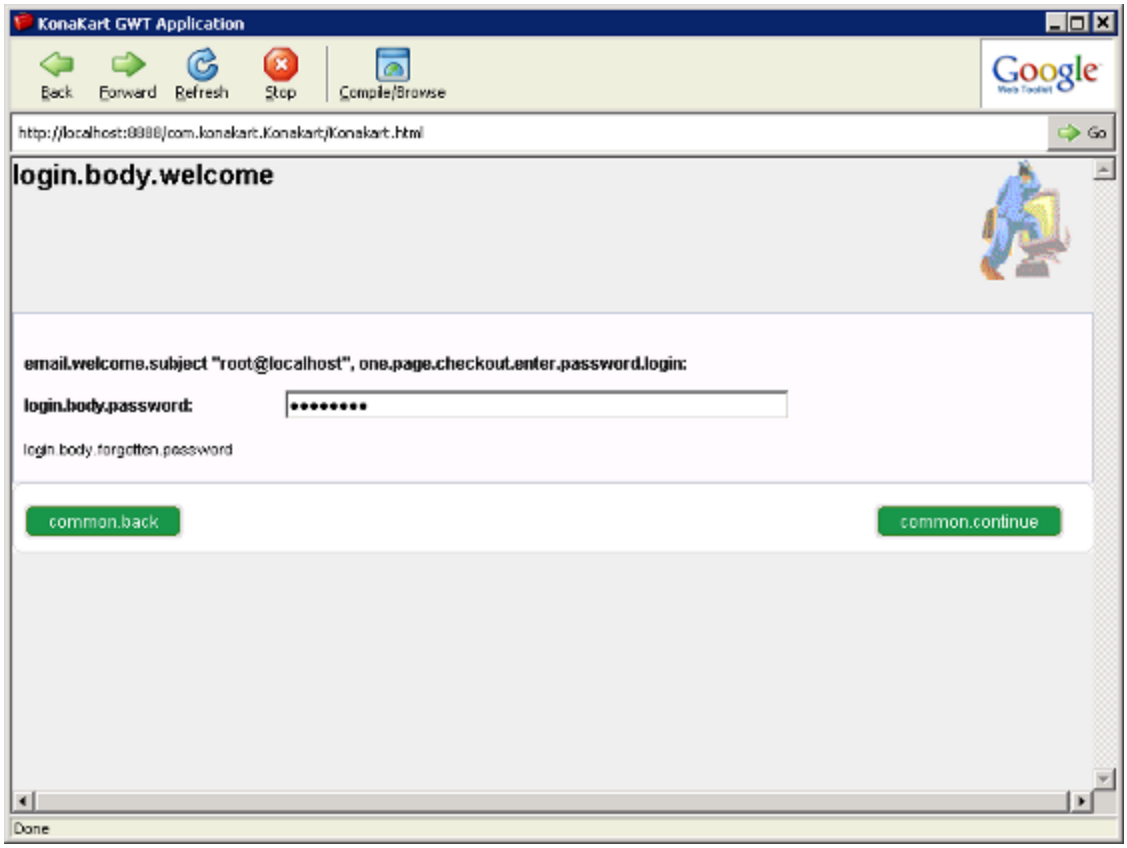
When the one-page checkout code runs it will launch the GWT "dev mode" shell which allows you to test your code changes.

You have to set up a KonaKart application user (or use the default John Doe account which has email address: "root@localhost" and password "password"). To run the one-page checkout in the GWT "Dev Mode" enter your user's credentials as instructed:

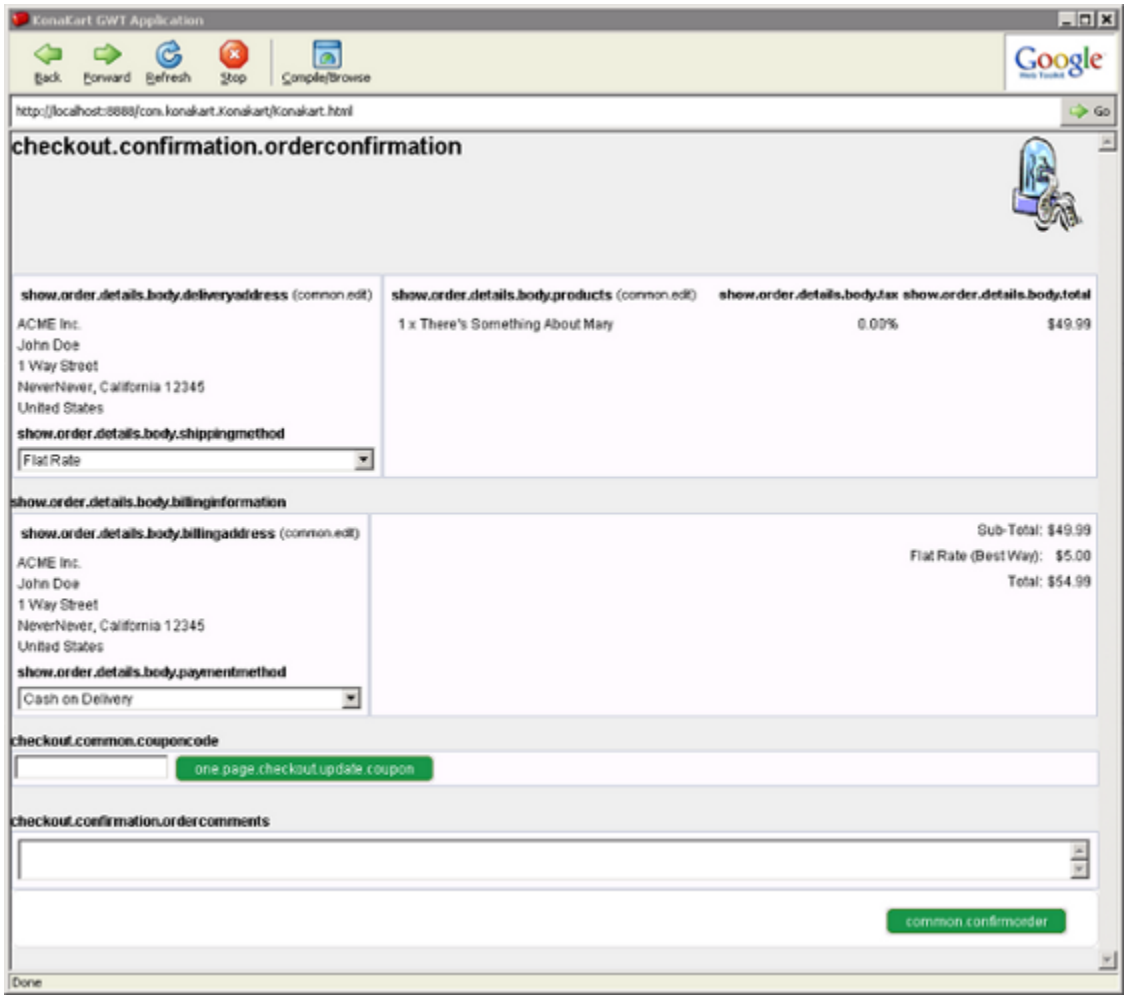
First the username which is an email address. The default username that is created at installation is *root@localhost* :



Next enter the password. The default password that is created at installation is *password* :



If successful, and your user has a product in their shopping cart, you will see the following which is the one-page checkout screen:



Notes;

- You will notice that the configurable text strings (for labels and headings etc) are shown with their properties file references and not their translated names. This should help you locate the messages in the message catalogues, especially if you need to translate them.

- To test your one-page checkout in a fully-integrated fashion (and with the message catalog references translated) you will have to copy the generated javascript files into position (under the konakart webapp).

- A common error is to forget to place an item in your user's cart before running the one-page checkout. If you don't add at least one product to your user's cart you will see this error:

- GWT has an extremely useful debugging system that integrates with Eclipse. This allows you to debug both client and server code in the Eclipse debugger. This is highly-recommended if you expect to be writing anything more than the most trivial modifications to the one-page checkout.

  To set up the One Page Checkout as an Eclipse project:

  - Execute the default ANT task as above to copy libraries and images into position.
  - In Eclipse, use "File Import" then choose "Existing Projects into Workspace" and click "Next". Browse for the onepagecheckout directory (under the custom directory where you installed KonaKart). Once selected, note that the KonaKart_one_page_checkout project should have been found.
  - Finally, take all the defaults and click "Finish" which will create your Eclipse project which you should see as "konakart_one_page_checkout" in your workspace.
  - In addition to loading the source code ready to edit, the project has also defined a run configuration (called "KonaKart_One_Page_Checkout") which can be used to run the one page checkout from Eclipse.

Chapter 15. Programming Guide

A guide to programming and customizing KonaKart.

One of the most powerful aspects of KonaKart is the flexibility in the number of different ways it can be customized. This chapter contains descriptions of some of these techniques.

Using the Java APIs

One of the most important features of KonaKart is the availability of a set of open APIs that allow you to control KonaKart as you require as part of your IT solution. You may wish to add a different front-end for your KonaKart shopping cart application or you may wish to integrate KonaKart with other applications in your back office. When you use the java APIs for whatever purpose you can be confident that they will work with future releases of KonaKart as backwards compatibility will always be maintained (although some API calls may be deprecated, they will not be removed). A number of simple java sources are provided in every KonaKart download kit (you can find them under the installation directory in a directory called java_api_examples) that demonstrate how you call the direct POJO form of the KonaKart APIs: To give you a flavor of the examples in the downloadable sources, here is an extract from one of them that demonstrates how you can register a new customer using the KonaKart Admin APIs. (See the example sources for a complete set of java files).

```
// Instantiate an AdminCustomerRegistration object and set its
// attributes

AdminCustomerRegistration acr = new AdminCustomerRegistration();

// Compulsory attributes

// Gender should be set to "m" of "f"

acr.setGender("m");
acr.setFirstName("Peter");
acr.setLastName("Smith");

// If you do not require the birthdate, just set it to the current
// date. It is compulsory and so needs to be set.

acr.setBirthDate(new Date());
acr.setEmailAddr("peter.smith@konakart.com");
acr.setStreetAddress("23 Halden Close");
acr.setCity("Newcastle");
acr.setPostcode("ST5 ORT");
acr.setTelephoneNumber("01782 639706");
acr.setPassword("secret");

// Optional attributes

acr.setCompany("DS Data Systems Ltd.");

// Country Id needs to be set with the id of a valid country from
// the Countries table

acr.setCountryId(222);
acr.setFaxNumber("01782 639707");

// Newsletter should be set to "0" (don't receive) or "1" (receive)
acr.setNewsletter("1");

acr.setSuburb("May Bank");
acr.setState("Staffs");

// Optional Custom fields for customer object

acr.setCustomerCustom1("Number Plate");
acr.setCustomerCustom2("Driver's license");
acr.setCustomerCustom3("Passport");
acr.setCustomerCustom4("custom 4");
acr.setCustomerCustom5("custom 5");

// Optional Custom fields for address object

acr.setAddressCustom1("custom 1");
acr.setAddressCustom2("custom 2");
acr.setAddressCustom3("custom 3");
acr.setAddressCustom4("custom 4");
acr.setAddressCustom5("custom 5");

// Register the customer and get the customer Id

int custId = eng.registerCustomer(sessionId, acr);;

System.out.println("Id of the new customer = " + custId);
```

Using the SOAP Web Service APIs

KonaKart has two major interface types - the direct POJO interface, and the SOAP interface. Both support exactly the same interface calls. Which one you choose will depend on many factors but the best performance is likely to come from the direct interface, whereas the SOAP interface gives greater flexibility in distributed implementations and inter-operability.

It's remarkably simple to use KonaKart's SOAP interfaces. If your IDE can create client stubs from WSDL then you can use that to create your SOAP clients or, if you prefer, you can use AXIS as in the downloadable example which follows.

There are two WSDL definitions; one for the KonaKart Application API, and the other for the KonaKart Admin API. They can be seen at these URLs:

- http://www.konakart.com/konakart/services/KKWebServiceEng?wsdl [http://www.konakart.com/konakart/services/KKWebServiceEng?wsdl]
- http://www.konakart.com/konakartadmin/services/KKWSAdmin?wsdl [http://www.konakart.com/konakartadmin/services/KKWSAdmin?wsdl]

Enable the SOAP Web Services

Since version 3.2.0.0 of KonaKart, the SOAP APIs are disabled during the installation process. The purpose of this decision is to make the KonaKart engines more secure. The process for enabling the APIs is very simple and can be achieved by running an ant target called *enableWebServices* in the *KonaKart/custom* directory as shown below.

```
C:\Program Files\KonaKart\custom>.\bin\ant enableWebServices
Buildfile: build.xml

enableWebServices:
     [echo] Allow all methods in WSDD files:

BUILD SUCCESSFUL
Total time: 0 seconds
```

The ant target modifies the files called *server-config.wsdd* present in the WEB-INF directory of the KonaKart store front and admin applications. The modification is simple:

```
The line

<parameter name="allowedMethods" value="none"/>

is changed to

<parameter name="allowedMethods" value="*"/>
```

Securing the SOAP Web Services

KonaKart web services use the AXIS 1 web services framework in a standard manner. This allows you to add handlers in the request and response pipelines of the web service message processors for a variety of purposes. Two common examples are for web service monitoring and security.

A step-by-step guide to implementing WS-Security for the KonaKart web services is provided in the download kits under java_soap_examples in a document called KonaKart-WS-Security.txt.

Step-by-step guide to using the SOAP APIs:

1. The SOAP examples kit that is provided in every KonaKart download kit (you can find them under the installation directory in a directory called java_soap_examples) contains everything you need to build a simple SOAP client from the KonaKart Application WSDL. First verify that you have the kit in your version of KonaKart.

2. Next, ensure that KonaKart is running on your machine. After the default installation you should be able to start KonaKart by clicking on the "Start KonaKart Server" start-up icon (on Windows) or by executing the {Konakart Home}/bin/startkonakart.sh script (on *nix). You need KonaKart to be running in order to get responses so your SOAP calls that you will make with the examples.

3. Check that the KonaKart server has started OK - a quick way would be to see if the application appears at http://localhost:8780/konakart [http://localhost:8780/konakart]

4. Open up a console window and change directory to the location of the java_soap_examples, for example this would be:

   C:\> cd C:\Program Files\KonaKart\java_soap_examples on Windows.

5. Ensure that the environment variable JAVA_HOME is set correctly. On Windows, a suitable setting might be:

   JAVA_HOME=C:\jdk1.5.0_07

6. Ensure that the JAVA_HOME/bin directory appears on your PATH. On Windows, this might look something like this:

   Path=C:\jdk1.5.0_07\bin;C:\WINDOWS\system32;C:\WINDOWS

   {You could also check that when you issue "java -version" you get the java version you expect}

7. If you already have ANT installed, ANT_HOME is defined and ANT's bin directory is on your PATH you can skip the next two sections. If you don't have ANT installed you can use the cut-down version of ANT that we include in the KonaKart download kit, but you must set the following environment variables. Ensure that the environment variable ANT_HOME is set correctly in the command shell that you are executing (you probably don't want to change the environment variable globally). On Windows, if you installed KonaKart to the default location (C:\Program Files\KonaKart), it would be (note the slashes):

   ANT_HOME=C:/Program Files/KonaKart/custom/bin

8. Ensure that the ANT_HOME/bin directory appears on your PATH. On Windows, this might look something like this:

   Path=C:\jdk1.5.0_07\bin;C:\WINDOWS\system32;C:\WINDOWS;C:\Program Files\KonaKart\custom\bin

   As a sanity check that you are set up ready to build the examples, check that you see the following when you issue a "ant -p" command:

```
C:\Program Files\KonaKart\java_soap_examples>ant -p
Buildfile: build.xml

Main targets:

 axis_client_generation  Generate client stubs from the WSDL
 build                   Creates the SOAP clients, compiles and runs a little example
 clean                   Clears away everything that's created during a build
 compile                 Compile the examples
 run                     Run the little example program
Default target: build
```

[The KonaKart download kit contains just enough of ANT for you to build the examples. For subsequent development using ANT you should consider installing a complete ANT installation - check the Apache ANT site [http://ant.apache.org/] for details]

9. Simply execute the "ant" command to compile, then run, the simple SOAP example.

   If all is well you should see the following output:

```
C:\Program Files\KonaKart\java_soap_examples>..\custom\bin\ant
Buildfile: build.xml

clean:
     [echo] Cleanup...

axis_client_generation:
     [echo] Create the KonaKart client stubs from the WSDL

compile:
     [echo] Compile the examples
    [mkdir] Created dir: C:\Program Files\KonaKart\java_soap_examples\classes
    [javac] Compiling 59 source files to C:\Program Files\KonaKart\java_soap_examples\classes
    [javac] Note: Some input files use unchecked or unsafe operations.
    [javac] Note: Recompile with -Xlint:unchecked for details.

run:
     [java] First the low-level version...
     [java]
     [java] There are 239 countries
     [java] There are 10 manufacturers
     [java] The default currency is: USD
     [java] 29 products found
     [java] 29 length of product array
     [java]
     [java] Next the recommended high-level version...
     [java]
     [java] There are 239 countries
     [java] There are 10 manufacturers
     [java] The default currency is: USD
     [java] 29 products found
     [java] 29 length of product array

build:

BUILD SUCCESSFUL
Total time: 10 seconds
```

   The code is very simple; here are a couple of extracts from AxisExample.java. This is the lower-level version:

```
KKWSEngIf port = new KKWSEngIfServiceLocator().getKKWebServiceEng();

// make some example calls

Country[] countries = port.getAllCountries();
System.out.println("There are " + countries.length + " countries");

Manufacturer[] manufacturers = port.getAllManufacturers();
System.out.println("There are " + manufacturers.length + " manufacturers");

Currency curr = port.getDefaultCurrency();
System.out.println("The default currency is: " + curr.getCode());
```

   This is the recommended higher-level version:

```
KKEngIf engine = new KKWSEng();

// make some example calls

CountryIf[] countries = engine.getAllCountries();
System.out.println("There are " + countries.length + " countries");

ManufacturerIf[] manufacturers = engine.getAllManufacturers();
System.out.println("There are " + manufacturers.length + " manufacturers");

CurrencyIf curr = engine.getDefaultCurrency();
System.out.println("The default currency is: " + curr.getCode());
```

Notes:

- If you've installed to a port other than 8780, you will have to modify the konakart.wsdl file to match (change the port number right at the end of the file) .
- If you get "connection refused" - check that your firewall isn't blocking your client calls.
- Remember you have to enable the web services - see above for enabling the web services .

Running Your Own SQL

A convenient way to use the same database connection techniques as KonaKart is as follows:

First a *SELECT* query... note the processing of the result set after the results are returned.

```
/*
 * Run a query that selects the product id and product model from
 * all products that have an id less than 10. All Select queries
 * need to be run using the BasePeer.executeQuery command
 */

List<Record> records = BasePeer
      .executeQuery("select products_id, products_model, " +
                           "products_price " +
                           "from products " +
                           "where products_id < 10");

/*
 * Loop through the result set and print out the results. Note that
 * the first attribute in the Record object is at index = 1 and not
 * index = 0
 */

if (records != null)
{
    for (Iterator<Record>
         iterator = records.iterator();
         iterator.hasNext();)
    {
        Record rec = (Record) iterator.next();
        System.out.println("id = " + rec.getValue(1).asInt()
                    + "; model = "
                    + rec.getValue(2).asString() + "; price = "
                    + rec.getValue(3).asBigDecimal(/* scale */2));
    }
}
```

Here's a simple *UPDATE* example:

```
/*
 * Now let's run another query to change the model name of the
 * product with id = 1.
 *
 * All non select queries need to be run using the
 * BasePeer.executeStatement command
 */

BasePeer.executeStatement(
        "update products set products_model='Super Turbo' where products_id=1");
```

The */java_api_examples/src/com/konakart/apiexamples/RunCustomQuery.java* example, provided in the download kit, illustrates this technique.

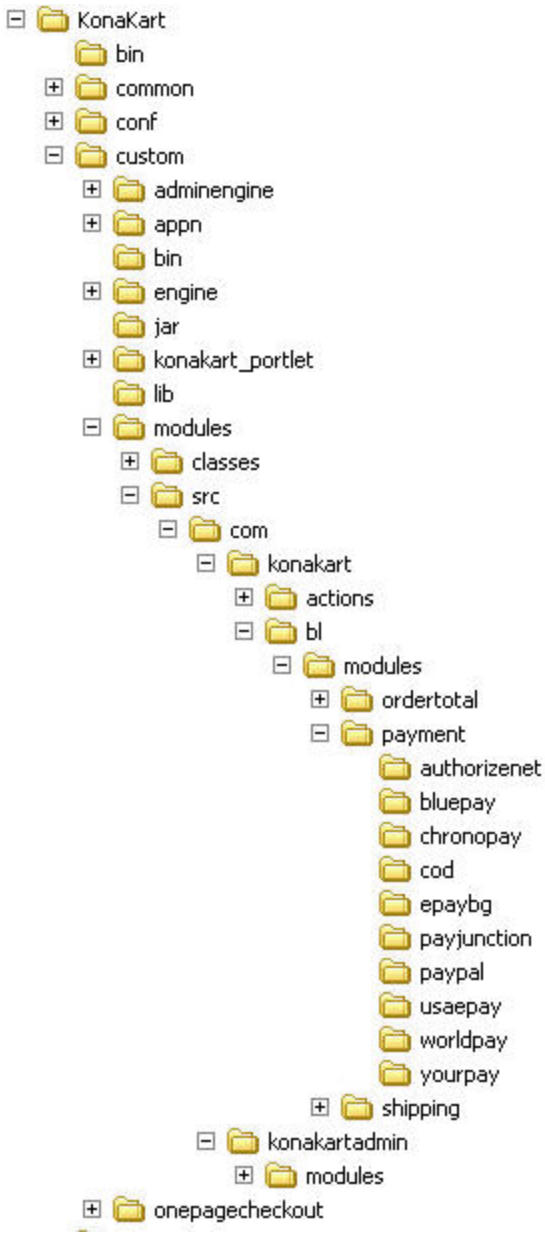
Customizable Source Code

Not all of KonaKart source code is provided in the download kits, only the parts designed to be customized. These include:

- Struts Actions
- Struts Forms
- All JSPs
- All of the Modules (Shipping, Payment, Order Totals, Discount)
- GWT code for the single-page checkout

Source Code Location

Once you have installed KonaKart you will be able to study the customizable source code in the following locations:



You will find all the java sources and associated properties files under the "custom" directory in every download kit from KonaKart version 2.2.1.0 and above. (These source files were available in previous releases but structured slightly differently). In the future, more directories will be added under the custom directory as more customizable source is made available - so don't be surprised if the directory structure that you see is different to the one on the left.

The "custom" directory is located directly under the installation directory that was selected for KonaKart.

The "custom" directory has two main source directories underneath: "appn" and "modules".

The "appn" directory tree holds the java source for the actions, the forms, the module super-classes and other customisable classes such as AdminOrderIntegrationMgr.java.

The "modules" directory tree holds all of the java classes required to implement each of the modules.

An ant build file (build.xml) can be found at the root of the custom directory.

The "bin" directory under custom contains a cut-down ant that is sufficient to build all of the custom code - all you need is to set JAVA_HOME to your JDK.

The "custom/lib" directory contains jars for ant.

Once you have executed an ant build you will see a few more directories under "custom" which are the products of the build process. For example, you will see classes directories, a new jar directory etc. To remove the files and directories produced by the build you can execute the "clean" target of the ant build, eg:

$ bin/ant clean

Building the Customizable Source

An ant file is provided that should make it easy to build the customizable java classes. Use "ant -p" to see the ant command targets:

```
C:\Program Files\KonaKart\custom>.\bin\ant -p
Buildfile: build.xml

Main targets:

 build                          Compiles all the custom code and creates all the jars
 clean                          Clears away everything that's created during a build
 clean_admin_portlet_war        Clears away the admin portlet war
 clean_portlet_war              Clears away the portlet war
 clean_torque_classes           Clears away everything that's created during a build of the
                                torque classes
 clean_wars                     Clears away all the WARs and EARs
 compile                        Compile the customisable application code
 compile_custom_adminengine     Compile the customisable admin engine code
 compile_custom_engine          Compile the customisable engine code
 compile_modules                Compile the customisable module code
 copy_jars                      Copy the konakart custom jars to the lib directories
 create_torque_classes          Process the Custom Schema to produce torque classes
 enableWebServices              Enable Web Services in deployed server
 generate_torque_java           Process the Custom Schema to produce torque java files
 make_admin_liferay_portlet_war Create the konakartadmin portlet war for Liferay
 make_ear                       Create the konakart EAR
 make_jars                      Create the konakart custom jars
 make_jetspeed_portlet_war      Create the konakart portlet war for Jetspeed
 make_liferay_portlet_war       Create the konakart portlet war for Liferay
 make_ordertotal_module_jar     Create the ordertotal module jar
 make_payment_module_jar        Create the payment module jar
 make_shipping_module_jar       Create the shipping module jar
 make_torque_jar                Create the konakart custom torque jar
 make_wars                      Create the konakart wars
Default target: build
```

Notice that the default build target compiles all the source files and creates the jars. It doesn't move the jars or create any wars.

If after building the jars you wish to move these to your webapp lib directories you should use the "copy_jars" target.

The "make_wars" target is just a convenient means of creating wars out of the KonaKart webapps. It is not required to be run to build and deploy the custom code so it's not closely-related to the topics discussed on this page.

The "make_*_portlet_war" targets are for creating JSR-168 compliant WARs out of your current KonaKart application. See the section of this documentation regarding portlets for more details.

Here is an example of running the default ant target:

```
$ ~/konakart/custom$ ./bin/ant
Buildfile: build.xml

clean_wars:
     [echo] Cleanup WARs...
     [echo] Cleanup EARs...

clean:
     [echo] Cleanup...

compile:
     [echo] Compile the customisable application code
    [mkdir] Created dir: /home/pete/konakart/custom/appn/classes
    [javac] Compiling 104 source files to /home/pete/konakart/custom/appn/classes

compile_modules:
     [echo] Compile the customisable module code
    [mkdir] Created dir: /home/pete/konakart/custom/modules/classes
    [javac] Compiling 50 source files to /home/pete/konakart/custom/modules/classes

make_payment_module_jar:
     [echo] Create the module jar
    [mkdir] Created dir: /home/pete/konakart/custom/jar
      [jar] Building jar: /home/pete/konakart/custom/jar/konakart_payment_authorizenet.jar

make_payment_module_jar:
     [echo] Create the module jar
      [jar] Building jar: /home/pete/konakart/custom/jar/konakart_payment_chronopay.jar

make_payment_module_jar:
     [echo] Create the module jar
      [jar] Building jar: /home/pete/konakart/custom/jar/konakart_payment_cod.jar

make_payment_module_jar:
     [echo] Create the module jar
      [jar] Building jar: /home/pete/konakart/custom/jar/konakart_payment_payjunction.jar

make_payment_module_jar:
     [echo] Create the module jar
      [jar] Building jar: /home/pete/konakart/custom/jar/konakart_payment_paypal.jar


-- some of the modules have been excluded from this output --


make_shipping_module_jar:
     [echo] Create the module jar
      [jar] Building jar: /home/pete/konakart/custom/jar/konakart_shipping_free.jar

make_shipping_module_jar:
     [echo] Create the module jar
      [jar] Building jar: /home/pete/konakart/custom/jar/konakart_shipping_item.jar

make_shipping_module_jar:
     [echo] Create the module jar
      [jar] Building jar: /home/pete/konakart/custom/jar/konakart_shipping_table.jar

make_shipping_module_jar:
     [echo] Create the module jar
      [jar] Building jar: /home/pete/konakart/custom/jar/konakart_shipping_zones.jar

make_jars:
     [echo] Create the konakart_custom.jar
      [jar] Building jar: /home/pete/konakart/custom/jar/konakart_custom.jar
     [echo] Create the konakartadmin_custom.jar
      [jar] Building jar: /home/pete/konakart/custom/jar/konakartadmin_custom.jar

build:

BUILD SUCCESSFUL
Total time: 8 seconds
```

Customization of the KonaKart Engines

One of the most important features of KonaKart is the availability of a set of open APIs that allow you to control KonaKart as you require as part of your IT solution. These work fine most of the time but there are occasions, especially with heavily-customized solutions, where you need to modify the behavior of the KonaKart APIs.

KonaKart Customization Framework

A simple framework has been developed that allows you to modify what happens when you call the KonaKart APIs.

It may be instructive to start by explaining the architecture so that you get a clear view of where you should add your customizations.

The interface to the KonaKart application engine is defined in *KKEngIf.java* . This is implemented by *KKEng.java* . A new, custom, implementation of the interface is provided in *KKCustomEng.java* . For every API call, there is a method in *KKCustomEng.java* that in turn calls a method in *KKEng.java* . The call is made by instantiating an instance of a class that has the same name as the method and executing the relevant API call on that class. The source for all of these classes is provided in the download package (from version 2.2.6.0). If you wish to change the behavior of a certain API call, you simply move the relevant source file from *custom/gensrc/com/konakart/app/METHOD.java* to *custom/src/com/konakart/app/METHOD.java* , then modify the code in that java file, to implement the behavior you require for that particular API call.

KonaKart has two major API sets - one for the Application [http://www.konakart.com/javadoc/server] , and one for Administration [http://www.konakart.com/javadoc/admin] . The paragraph above explained the classes involved in the Application API but there is an equivalent set for the Administration API as follows:

The interface to the KonaKart administration engine is defined in *KKAdminIf.java* . This is implemented by *KKAdmin.java* . A new, custom, implementation of the interface is provided in *KKAdminCustomEng.java* . For every API call, there is a method in *KKAdminCustomEng.java* that in turn calls a method in *KKAdmin.java* . The call is made by instantiating an instance of a class that has the same name as the method and executing the relevant API call on that class. The source for all of these classes is provided in the download package (from version 2.2.6.0). If you wish to change the behavior of a certain API call, you simply move the relevant source file from *custom/gensrc/com/konakartadmin/app/METHOD.java* to *custom/src/com/konakartadmin/app/METHOD.java* , then modify the code in that java file, to implement the behavior you require for that particular API call.

An ANT build file is provided in the standard download kits that help you build your custom code into jars and wars for subsequent deployment.

The next two sections step through the engine customization process in detail. The first illustrates how to add your own code in the *custom()* interface call, and the second shows you how to modify what happens in the *getCustomerForId()* API call.

Adding a New API call

As from KonaKart version 2.2.6.0 there are two custom API calls for both the application APIs and the Admin APIs for this purpose. The default implementations all return null. One of the two calls is called *customSecure* ("Secure" because a sessionId is validated before it is executed), and the other simply called *custom* . An equivalent pair of calls are available on the Admin API.

The calls are defined as follows (you could also find this information in the javadoc):

```
/**
 * A custom interface that you have to provide an implementation
 * for. The default implementation will simply return a null.
 *
 * There are two versions, one that requires a valid sessionId
 * (customSecure) and one that does not (custom).
 *
 * You are free to use the two input String parameters in any way
 * you choose, for example you may wish to use one to indicate which
 * of your custom functions to run, and the other might
 * contain XML to give you a great deal of flexibility - but it's up
 * to you!
 *
 * @param input1
 *            The first input String - can be anything you choose
 * @param input2
 *            The second input String - can be anything you choose
 * @return Returns a String
 * @throws KKException
 */

public String custom(String input1, String input2) throws KKException;
```

Also, the version that checks the session ID:

```
/**
 * A custom interface that you have to provide an implementation
 * for. The default implementation will throw an exception for an
 * invalid sessionId or return a null.
 *
 * There are two versions, one that requires a valid sessionId
 * (customSecure) and one that does not (custom).
 *
 * You are free to use the two input String parameters in any way
 * you choose, for example you may wish to use one to indicate which
 * of your custom functions to run, and the other might contain XML
 * to give you a great deal of flexibility - but it's up to you!
 *
 * @param sessionId
 *            The session id of the logged in user
 * @param input1
 *            The first input String - can be anything you choose
 * @param input2
 *            The second input String - can be anything you choose
 * @return Returns a String
 * @throws KKException
 */

public String customSecure(String sessionId, String input1, String input2)
    throws KKException;
```

So let's work through an example of using the custom API call.

Let's suppose you wanted to create an API call that returns the OrderId of the last order that was processed. (Yes, it's a simple case, but you can make it do whatever you like once you know how to use this mechanism!).

This functionality is best-suited to the Admin API so we'll use that in our example.

1. Move (yes, don't copy but move, because we only want one version of this file to ensure there are no duplicate classes produced) the Custom.java file from the gensrc directory tree to the src directory tree:

```
$ mv custom/adminengine/gensrc/com/konakartadmin/app/Custom.java \
     custom/adminengine/src/com/konakartadmin/app/
```

It is possible to edit these files in the *gensrc* directory tree but this isn't advisable as it will make it harder for you to upgrade to a future version of KonaKart. It's better to separate your customized versions out from the *gensrc* tree so that you can easily see which interfaces you've customized.

2. Implement the code in *Custom.java*

   Before you change it, *Custom.java* contains just this:

```
package com.konakartadmin.app;

import com.konakartadmin.bl.KKAdmin;

/**
 *  The KonaKart Custom Engine - Custom -
 *                               Generated by CreateKKAdminCustomEng
 */
public class Custom
{
    KKAdmin kkAdminEng = null;

    /**
     * Constructor
     */
     public Custom(KKAdmin _kkAdminEng)
     {
         kkAdminEng = _kkAdminEng;
     }

     public String custom(
               String input1, String input2) throws KKAdminException
     {
         return kkAdminEng.custom(input1, input2);
     }
}
```

   Since the default implementation for these *custom()* and *customSecure()* methods is simply to return null we will need to replace the lines above (marked in bold) with the following code: (full source code for this example is provided in the download kit in *custom/adminengine/examples/com/konakartadmin/app/Custom.java*)

```
public String custom(String input1, String input2)
    throws KKAdminException
{
  /*
   * Run a query that selects the orders_id of the last order
   * processed.
   */

   List<Record> records =
         BasePeer.executeQuery("SELECT max(orders_id) FROM orders");

   if (records == null)
   {
       // No Orders Found
       return null;
   } else
   {
       return records.get(0).getValue(1).asString();
   }
}
```

3. Compile the new *Custom* class and rebuild the jars

An ANT build file is provided for this purpose - under the *custom* directory in the download kit.

```
C:\Program Files\KonaKart\custom>.\bin\ant -p
Buildfile: build.xml

Main targets:

 build                          Compiles all the custom code and creates all the jars
 clean                          Clears away everything that's created during a build
 clean_admin_portlet_war        Clears away the admin portlet war
 clean_portlet_war              Clears away the portlet war
 clean_torque_classes           Clears away everything that's created during a build of the
                                torque classes
 clean_wars                     Clears away all the WARs and EARs
 compile                        Compile the customisable application code
 compile_custom_adminengine     Compile the customisable admin engine code
 compile_custom_engine          Compile the customisable engine code
 compile_modules                Compile the customisable module code
 copy_jars                      Copy the konakart custom jars to the lib directories
 create_torque_classes          Process the Custom Schema to produce torque classes
 enableWebServices              Enable Web Services in deployed server
 generate_torque_java           Process the Custom Schema to produce torque java files
 make_admin_liferay_portlet_war Create the konakartadmin portlet war for Liferay
 make_ear                       Create the konakart EAR
 make_jars                      Create the konakart custom jars
 make_jetspeed_portlet_war      Create the konakart portlet war for Jetspeed
 make_liferay_portlet_war       Create the konakart portlet war for Liferay
 make_ordertotal_module_jar     Create the ordertotal module jar
 make_payment_module_jar        Create the payment module jar
 make_shipping_module_jar       Create the shipping module jar
 make_torque_jar                Create the konakart custom torque jar
 make_wars                      Create the konakart wars
Default target: build
```

You can compile and copy the relevant jars in one statement, as follows:

```
C:\Program Files\KonaKart\custom>.\bin\ant build,copy_jars
Buildfile: build.xml

clean_wars:
     [echo] Cleanup WARs...
     [echo] Cleanup EARs...

clean:
     [echo] Cleanup...

compile:
     [echo] Compile the customisable application code
    [mkdir] Created dir: C:\Program Files\KonaKart\custom\appn\classes
    [javac] Compiling 106 source files to C:\Program Files\KonaKart\custom\appn\classes

compile_modules:
     [echo] Compile the customisable module code
    [mkdir] Created dir: C:\Program Files\KonaKart\custom\modules\classes
    [javac] Compiling 54 source files to C:\Program Files\KonaKart\custom\modules\classes

make_payment_module_jar:
     [echo] Create the module jar
    [mkdir] Created dir: C:\Program Files\KonaKart\custom\jar
      [jar] Building jar: C:\Program Files\KonaKart\custom\jar\konakart_payment_authorizenet.jar
```

(- the middle section has been cut out here -)

```
make_shipping_module_jar:
     [echo] Create the module jar
      [jar] Building jar: C:\Program Files\KonaKart\custom\jar\konakart_shipping_zones.jar

compile_custom_engine:
     [echo] Compile the customisable engine code
    [mkdir] Created dir: C:\Program Files\KonaKart\custom\engine\classes
    [javac] Compiling 104 source files to C:\Program Files\KonaKart\custom\engine\classes

compile_custom_adminengine:
     [echo] Compile the customisable admin engine code
    [mkdir] Created dir: C:\Program Files\KonaKart\custom\adminengine\classes
    [javac] Compiling 234 source files to C:\Program Files\KonaKart\custom\adminengine\classes
    [javac] Note: Recompile with -Xlint:unchecked for details.

make_jars:
     [echo] Create the konakart_custom.jar
      [jar] Building jar: C:\Program Files\KonaKart\custom\jar\konakart_custom.jar
      [jar] Building jar: C:\Program Files\KonaKart\custom\jar\konakart_custom_engine.jar
     [echo] Create the konakartadmin_custom.jar
      [jar] Building jar: C:\Program Files\KonaKart\custom\jar\konakartadmin_custom.jar
      [jar] Building jar: C:\Program Files\KonaKart\custom\jar\konakartadmin_custom_engine.jar

build:

copy_jars:
     [echo] Copy the custom jars to their respective lib directories
     [copy] Copying 27 files to C:\Program Files\KonaKart\webapps\konakart\WEB-INF\lib
     [copy] Copying 27 files to C:\Program Files\KonaKart\webapps\konakartadmin\WEB-INF\lib

BUILD SUCCESSFUL
Total time: 18 seconds
C:\Program Files\KonaKart\custom>
```

4. Define the Engine Implementation Class

   Your custom code will never be executed if we don't define that KonaKart should instantiate the KKAdminCustomEng class as its engine class rather than the default, which is KKAdmin.

   A small java program is provided in the download kit (called */java_api_examples/src/com/konakartadmin/apiexamples/CustomExamples.java*) which demonstrates how you would call one version of *custom()* or the other from a java program.

   The code in *CustomExamples.java* actually calls *custom()* three times, once with the default *com.konakartadmin.bl.KKAdmin* engine, once with the *com.konakartadmin.app.KKAdminCustomEng* engine and finally using the web services client engine, called *com.konakartadmin.ws.KKWSAdmin* .

   When calling using the default *com.konakartadmin.bl.KKAdmin* engine you should see the default response from *custom()* which is a null being returned.

   When calling using the *com.konakartadmin.app.KKAdminCustomEng* engine you should see the response from the *custom()* implementation that we coded above (i.e. it should return the highest orderId in the database).

   Finally when calling using the *com.konakartadmin.app.KKAdminCustomEng* engine, what you see depends on which engine the web services are configured to use (they could be using the default *com.konakartadmin.bl.KKAdmin* engine or the custom *com.konakartadmin.app.KKAdminCustomEng* engine). Which engine is used in this case is defined in the *konakartadmin.properties* file as follows:

```
# ------------------------------------------------------------------
# KonaKart engine class used by the admin web services
# For the default engine use: com.konakartadmin.bl.KKAdmin
# For the custom engine use:  com.konakartadmin.app.KKAdminCustomEng

konakart.admin.ws.engine.classname = com.konakartadmin.bl.KKAdmin
```

The above definition is for the Admin App engine class name definition. An equivalent engine class name definition is required for the application web services, and this is defined in *konakart.properties* (you can find this under *webapps\konakart\WEB-INF\classes*)

```
# ------------------------------------------------------------------
# KonaKart engine class used by the web services
# For the default engine use:   com.konakart.app.KKEng
# For the custom engine use:    com.konakart.app.KKCustomEng

konakart.app.ws.engine.classname = com.konakart.app.KKEng
```

Finally, to actually run the *CustomExamples* , change directory to the *java_api_examples* directory where there is another ANT build file for building and running the examples. (You will have to start the KonaKart server before running the *CustomExamples* test if you want a response from the web service call!):

```
C:\Program Files\KonaKart\custom>cd ../java_api_examples

C:\Program Files\KonaKart\java_api_examples>
                ..\custom\bin\ant clean, compile, runCustomExamples
Buildfile: build.xml

clean:
     [echo] Cleanup...

compile:
     [echo] Compile the examples
    [mkdir] Created dir: C:\Program Files\KonaKart\java_api_examples\classes
    [javac] Compiling 11 source files to C:\Program Files\KonaKart\java_api_examples\classes
     [echo] Copy Properties for the examples
     [copy] Copying 1 file to C:\Program Files\KonaKart\java_api_examples\classes

runCustomExamples:
     [java] (?:init:?) Finished Initialising Log4j
     [java] (?:init:?) The configuration file being used is
         /C:/Program%20Files/KonaKart/webapps/konakartadmin/WEB-INF/
                                  classes/konakartadmin.properties
     [java] (?:init:?) Initialising KKAdmin
     [java] (?:initKonakart:?) KonaKart Admin V2.2.6.0 built 5:03PM 7-Apr-2008 BST
     [java] (?:init:?) Finished Initialising KonaKartAdmin
     [java] (?:init:?) Initialising Torque
     [java] (?:init:?) Initialising KonaKart-Torque for org.apache.torque.adapter.DBMM
     [java] (?:init:?) Finished Initialising Torque
     [java] (?:login:?) User 'admin@konakart.com' has just logged in to the Admin App
     [java]
     [java] Call the custom interface 'Custom' using Engine named
            com.konakartadmin.bl.KKAdmin
     [java] Result was: null
     [java]
     [java] (?:login:?) User 'admin@konakart.com' has just logged in to the Admin App
     [java]
     [java] Call the custom interface 'Custom' using Engine named
            com.konakartadmin.app.KKAdminCustomEng
     [java] Result was: 27
     [java]
     [java] new KKWSAdminSoapBindingStub setup OK to
              http://localhost:8780/konakartadmin/services/KKWSAdmin
     [java]
     [java] Call the custom interface 'Custom' using Engine named
            com.konakartadmin.ws.KKWSAdmin
     [java] Result was: null

BUILD SUCCESSFUL
Total time: 6 seconds
```

Modifying an Existing API call

We will illustrate how this is done with an example using the *getCustomerForId()* Admin API call.

The default implementation of *getCustomerForId()* returns an *AdminCustomer* object for the specified customer Id.

Suppose you want to change the data returned for whatever reason. It may be that you have customer data in another table somewhere that you would like to look up and add to the *AdminCustomer* object whenever *getCustomerForId()* is called (this other table may or may not be a KonaKart table).

Anyway, to keep this really simple so that we don't lose track of the point of this example we will set the String value "CUSTOM SETTING" in the custom5 attribute of the AdminCustomer object that is returned. This does mean we will overwrite the previous custom5 attribute value if such existed - so you in a proper implementation will have to be aware of which fields are freely available for your use (the custom fields are designed for customers to use in ways that they see fit).

1. Move the *GetCustomerForId.java* file to the *src* directory tree.

   We need to modify the default implementation and to do this we move the file from the *gensrc* directory tree to the *src* directory tree, specifically, this means we need to move the *GetCustomerForId.java* from */custom/adminengine/gensrc/com/konakartadmin/app* to */custom/adminengine/src/com/konakartadmin/app* .

2. Add our customizations to *GetCustomerForId.java*

   By default the implementation of *GetCustomerForId.java* is as follows:

```
/**
 *  The KonaKart Custom Engine - GetCustomerForId
 *  Generated by CreateKKAdminCustomEng
 */
public class GetCustomerForId
{
    KKAdmin kkAdminEng = null;

    /**
     * Constructor
     */
     public GetCustomerForId(KKAdmin _kkAdminEng)
     {
         kkAdminEng = _kkAdminEng;
     }

     public AdminCustomer getCustomerForId(
           String sessionId, int customerId) throws KKAdminException
     {
         return kkAdminEng.getCustomerForId(sessionId, customerId);
     }
}
```

   We will add our simple changes so that it looks like this: (this file is included in the download kit under the *custom/adminengine/examples* directory structure)

```
public AdminCustomer getCustomerForId
          (String sessionId, int customerId) throws KKAdminException
{
    // Leave the original call to the KonaKart API unchanged
    AdminCustomer myCustomer = kkAdminEng.getCustomerForId(sessionId, customerId);

    // Now add our special value into custom5:
    // (we may have got this value from a database query?)

    myCustomer.setCustom5("CUSTOM SETTING");

    return myCustomer;
}
```

3. Compile the new *GetCustomerForId* class and rebuild the jars:

   An ANT build file is provided for this purpose - under the *custom* directory in the download kit.

```
C:\Program Files\KonaKart\custom>.\bin\ant -p
Buildfile: build.xml

Main targets:

 build                          Compiles all the custom code and creates all the jars
 clean                          Clears away everything that's created during a build
 clean_admin_portlet_war        Clears away the admin portlet war
 clean_portlet_war              Clears away the portlet war
 clean_torque_classes           Clears away everything that's created during a build of the
                                torque classes
 clean_wars                     Clears away all the WARs and EARs
 compile                        Compile the customisable application code
 compile_custom_adminengine     Compile the customisable admin engine code
 compile_custom_engine          Compile the customisable engine code
 compile_modules                Compile the customisable module code
 copy_jars                      Copy the konakart custom jars to the lib directories
 create_torque_classes          Process the Custom Schema to produce torque classes
 enableWebServices              Enable Web Services in deployed server
 generate_torque_java           Process the Custom Schema to produce torque java files
 make_admin_liferay_portlet_war Create the konakartadmin portlet war for Liferay
 make_ear                       Create the konakart EAR
 make_jars                      Create the konakart custom jars
 make_jetspeed_portlet_war      Create the konakart portlet war for Jetspeed
 make_liferay_portlet_war       Create the konakart portlet war for Liferay
 make_ordertotal_module_jar     Create the ordertotal module jar
 make_payment_module_jar        Create the payment module jar
 make_shipping_module_jar       Create the shipping module jar
 make_torque_jar                Create the konakart custom torque jar
 make_wars                      Create the konakart wars
Default target: build
```

You can compile and copy the relevant jars in one statement, as follows:

```
C:\Program Files\KonaKart\custom>.\bin\ant build,copy_jars
```

4. Define the Engine Implementation Class

   Your custom code will never be executed if we don't define that KonaKart should instantiate the *KKAdminCustomEng* class as its engine class rather than the default, which is *KKAdmin* .

   A small java program is provided in the download kit (called */java_api_examples/src/com/konakartadmin/apiexamples/GetCustomerExamples.java*) which demonstrates how you would call one version of *getCustomerForId()* or the other from a java program.

   The code in *GetCustomerExamples.java* actually calls *getCustomerForId()* three times, once with the default *com.konakartadmin.bl.KKAdmin* engine, once with the *com.konakartadmin.app.KKAdminCustomEng* engine and finally using the web services client engine, called *com.konakartadmin.ws.KKWSAdmin* .

   When calling using the default *com.konakartadmin.bl.KKAdmin* engine you should see the default response from *getCustomerForId()* which should show a null being returned for the *custom5* attribute (unless you fill in these values with something else in your own implementation).

   When calling using the *com.konakartadmin.app.KKAdminCustomEng* engine you should see the response from the *getCustomerForId()* implementation that we coded above (i.e. it should return "CUSTOM SETTING" in the custom5 attribute).

Finally when calling using the *com.konakartadmin.app.KKAdminCustomEng* engine, what you see depends on which engine the web services are configured to use (they could be using the default *com.konakartadmin.bl.KKAdmin* engine or the custom *com.konakartadmin.app.KKAdminCustomEng* engine). Which engine is used in this case is defined in the *konakartadmin.properties* file as follows:

```
# ----------------------------------------------------------------
# KonaKart engine class used by the admin web services
# For the default engine use: com.konakartadmin.bl.KKAdmin
# For the custom engine use:  com.konakartadmin.app.KKAdminCustomEng

konakart.admin.ws.engine.classname = com.konakartadmin.bl.KKAdmin
```

The above definition is for the Admin App engine class name definition. An equivalent engine class name definition is required for the application web services, and this is defined in *konakart.properties* (you can find this under *webapps\konakart\WEB-INF\classes*)

```
# ----------------------------------------------------------------
# KonaKart engine class used by the web services
# For the default engine use:   com.konakart.app.KKEng
# For the custom engine use:    com.konakart.app.KKCustomEng

konakart.app.ws.engine.classname = com.konakart.app.KKEng
```

Finally, to actually run the *GetCustomerExamples* , change directory to the *java_api_examples* directory where there is another ANT build file for building and running the examples. (You will have to start the KonaKart server before running the *CustomExamples* test if you want a response from the web service call!):

```
C:\Program Files\KonaKart\custom>cd ../java_api_examples

C:\Program Files\KonaKart\java_api_examples>
        ..\custom\bin\ant clean, compile, runGetCustomerExamples
Buildfile: build.xml

clean:
     [echo] Cleanup...

compile:
     [echo] Compile the examples
    [mkdir] Created dir: C:\Program Files\KonaKart\java_api_examples\classes
    [javac] Compiling 12 source files to  C:\Program Files\KonaKart\java_api_examples\classes
     [echo] Copy Properties for the examples
     [copy] Copying 1 file to C:\Program Files\KonaKart\java_api_examples\classes

runGetCustomerExamples:
     [java] (?:init:?) Finished Initialising Log4j
     [java] (?:init:?) The configuration file being used is
                       C:/Program%20Files/KonaKart/webapps/
                       konakartadmin/WEB-INF/classes/konakartadmin.properties
     [java] (?:init:?) Initialising KKAdmin
     [java] (?:initKonakart:?) KonaKart Admin V2.2.6.0 built 5:03PM 7-Apr-2008 BST
     [java] (?:init:?) Finished Initialising KonaKartAdmin
     [java] (?:init:?) Initialising Torque
     [java] (?:init:?) Initialising KonaKart-Torque for org.apache.torque.adapter.DBMM
     [java] (?:init:?) Finished Initialising Torque
     [java] (?:login:?) User 'admin@konakart.com' has just logged in to the Admin App
     [java]
     [java] Call the custom interface 'Custom' using Engine named com.konakartadmin.bl.KKAdmin
     [java] Found: John doe
     [java] custom5 = null
     [java]
     [java] (?:login:?) User 'admin@konakart.com' has just logged in to the Admin App
     [java]
     [java] Call the custom interface 'Custom' using Engine named
            com.konakartadmin.app.KKAdminCustomEng
     [java] Found: John doe
     [java] custom5 = CUSTOM SETTING
     [java]
     [java] new KKWSAdminSoapBindingStub setup OK to
            http://localhost:8780/konakartadmin/services/KKWSAdmin
     [java]
     [java] Call the custom interface 'Custom' using Engine named com.konakartadmin.ws.KKWSAdmin
     [java] Found: John doe
     [java] custom5 = null
     [java]

BUILD SUCCESSFUL
Total time: 7 seconds
```

Enabling Engine Customizations

So, you've made some engine customizations as described above and you want them to be executed when you run KonaKart.

Assuming you have placed all the newly-built jars in the appropriate lib directories (the ANT build *copy_jars* target will do this for you in a standard tomcat installation) you have to modify some properties files to make KonaKart instantiate the custom engines so that your customizations will actually be executed.

There is a lot of flexibility here as you can define different engines in different places. It's advisable to change only those engine definitions that you need to change however.

- webapps/konakart/WEB-INF/classes/konakart_app.properties

  Defines which engine the main Struts Application will use

```
# ------------------------------------------------------------------
# KonaKart engine class used by the KonaKart Application users
#
# For the default engine use:         com.konakart.app.KKEng
# For the custom engine use:          com.konakart.app.KKCustomEng
# For the web services engine use:    com.konakart.app.KKWSEng

konakart.app.engineclass = com.konakart.app.KKEng
```

- webapps/konakart/WEB-INF/classes/konakart.properties

  Defines which engine the Application web services will use

```
# ------------------------------------------------------------------
# KonaKart engine class used by the web services
# For the default engine use:   com.konakart.app.KKEng
# For the custom engine use:    com.konakart.app.KKCustomEng

konakart.app.ws.engine.classname = com.konakart.app.KKEng
```

- webapps/konakartadmin/WEB-INF/classes/konakartadmin.properties

  Defines which engine the Administration web services will use

```
# ------------------------------------------------------------------
# KonaKart engine class used by the admin web services
# For the default engine use: com.konakartadmin.bl.KKAdmin
# For the custom engine use:  com.konakartadmin.app.KKAdminCustomEng

konakart.admin.ws.engine.classname = com.konakartadmin.bl.KKAdmin
```

- webapps/konakartadmin/WEB-INF/classes/konakartadmin_gwt.properties

  Defines which engine the GWT Admin Application will use

```
# ------------------------------------------------------------------
# KonaKart engine class used by the KonaKart Admin Application users
#
# For the default engine use: com.konakartadmin.bl.KKAdmin
# For the custom engine use:  com.konakartadmin.app.KKAdminCustomEng
# For the WSs engine use:     com.konakartadmin.ws.KKWSAdmin

konakartadmin.gwt.engineclass = com.konakartadmin.bl.KKAdmin
```

Pluggable Managers

Since version 3.2.0.0, the internal managers of the KonaKart engines are instantiated by name and adhere to interfaces so that they can easily be substituted by alternative implementations. The managers are listed in the konakart and konakartadmin properties files under WEB-INF/classes for both applications.

```
# ------------------------------------------------------------------------------
# KonaKart managers
# When commented out, the default manager is instantiated

#konakart.manager.ProductMgr = com.konakart.bl.ProductMgr
#konakart.manager.CurrencyMgr = com.konakart.bl.CurrencyMgr
#konakart.manager.SecurityMgr = com.konakart.bl.SecurityMgr
#konakart.manager.CategoryMgr = com.konakart.bl.CategoryMgr
#konakart.manager.ConfigurationMgr = com.konakart.bl.ConfigurationMgr
#konakart.manager.CustomerMgr = com.konakart.bl.CustomerMgr
#konakart.manager.LanguageMgr = com.konakart.bl.LanguageMgr
#konakart.manager.OrderMgr = com.konakart.bl.OrderMgr
#konakart.manager.PromotionMgr = com.konakart.bl.PromotionMgr
#konakart.manager.BasketMgr = com.konakart.bl.BasketMgr
#konakart.manager.ShippingMgr = com.konakart.bl.modules.shipping.ShippingMgr
#konakart.manager.PaymentMgr = com.konakart.bl.modules.payment.PaymentMgr
#konakart.manager.OrderTotalMgr = com.konakart.bl.modules.ordertotal.OrderTotalMgr
#konakart.manager.SolrMgr = com.konakart.bl.SolrMgr
#konakart.manager.TaxMgr = com.konakart.bl.TaxMgr
#konakart.manager.EmailMgr = com.konakart.bl.EmailMgr
#konakart.manager.ManufacturerMgr = com.konakart.bl.ManufacturerMgr
#konakart.manager.ReviewMgr = com.konakart.bl.ReviewMgr
#konakart.manager.WishListMgr = com.konakart.bl.WishListMgr
#konakart.manager.MultiStoreMgr = com.konakart.bl.MultiStoreMgr
#konakart.manager.StoreMgr = com.konakart.bl.StoreMgr
```

As you can see, they are normally commented out so that the default manager is used.

This pluggable architecture allows the KonaKart professional services team and suitably qualified partners to customize the engine internals in order to satisfy customer requirements that cannot be met by customizing the API calls.

Adding a Shopping Cart via SOAP

This section explains techniques for adding from simple to sophisticated KonaKart functionality to web sites. Code examples are provided to add KonaKart shopping cart functionality to a JSP website.

There's a growing trend for owners of information-only websites to add shopping cart features to capitalize on the extraordinary growth of eCommerce around the globe.

This simple example shows how to add shopping cart functionality to a JSP website using a zero-cost, loosely-coupled, SOAP web services integration with KonaKart.

How To Add a KonaKart Shopping Cart?

So what is the best way to add shopping cart functionality to a website?

One solution would be to code a complete shopping cart solution from scratch and merge this into your website. This has the potential to provide a good solution but would be a huge investment in time if anything but the most trivial cart was required. Before undertaking this development you should be aware of the extensive functionality provided by KonaKart which would be costly to reproduce. For example, there's customer management, catalogue management, promotions, payment gateways, shipping gateways, and some complicated tax calculations that depend on the location of the shopper and the store.

A quicker and less-risky solution is to integrate with KonaKart, deriving all the benefits of a sophisticated shopping cart solution without requiring a costly software change to your current site. With imaginative use of stylesheets it's straightforward for a creative web-designer to make the two sites have similar look and feel to give the impression of a more-seamless integration.

Why loosely-coupled?

Loose coupling of your current site and the shopping cart site provides a painless migration of an information-only site to an eCommerce-enabled site with minimal effort. You could take this loose-coupling to extremes and introduce a single link from your existing store to your on-line shop and this is a solution many would be content with. However, with very little effort, you can do much better in bringing your site to life with live product information that will encourage your visitors to buy.

The power and simplicity of SOAP interfaces in KonaKart enables this loosely-coupled integration allowing you to maintain your information-only site and online shop completely independently and potentially running with different technologies.

Being SOAP, the simple example described below could have been written in any language that supports SOAP calls, but JSPs have been chosen in this case:

Movie Review Example

Let us imagine, for the sake of this article, that we have a "Movie Review" website that looks like this:

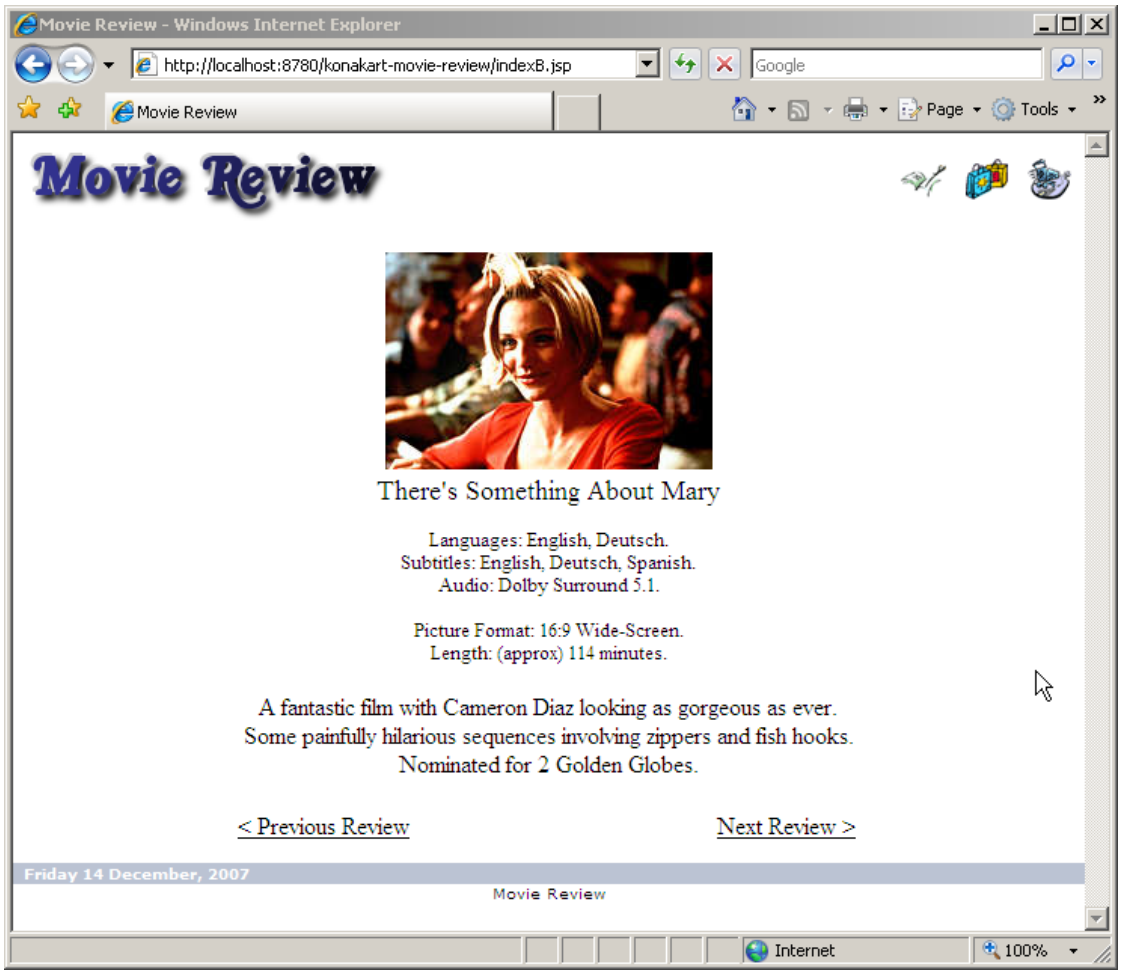
Movie Review Example - Image 1

OK, it's a simple example! Let's say the site contains little more than reviews of the latest movies but has attracted a lively community who might even be contributing with their own reviews.

A natural extension of this website would be to offer DVDs for sale, so rather than build all that shopping cart functionality into Movie Review, we'll integrate with an external site.

The first step would be to add three simple links to the site to take the user directly to his current shopping cart, his account details (to review old orders), and directly to the checkout page. These are simple HTML links which do not require SOAP:

The links were added at the top right:



Movie Review Example - Image 2

Now let's use the power of SOAP to access some information about the DVDs for sale and tempt the visitors of Movie Review to buy. A typical set of data that might be of interest would be a list of new products. We access this in the JSP, in just a few lines of code, as follows:

```
// Get the products from the KonaKart engine using a SOAP call

URL endpointUrl = new URL(kkSoapServiceUrl);
KKWSEngIf eng =
    new KKWSEngIfServiceLocator().getKKWebServiceEng(endpointUrl);

DataDescriptor dataDesc = new DataDescriptor();
dataDesc.setOffset(0); // Offset = 0
dataDesc.setLimit(3);  // We only want to get back 3 products
dataDesc.setOrderBy(DataDescConstants.ORDER_BY_DATE_ADDED);

Products products = eng.getProductsPerCategory(null,
     /* Data Descriptor defining how many products, the offset
        and the sort order */ dataDesc,
     /* CategoryId. 3 is for DVD Movies */ 3,
     /* searchInSubCats */ true,
     /* The language id. -1 for the default store language */ -1);

Product[] prods = products.getProductArray();
```

Once we have the products back in the SOAP response from the shop we can arrange them how we please on the screen.

Another interesting view we could add is to show a list of best sellers. The code is very similar, but we just use a different SOAP interface:

```
// Get the best sellers from the KonaKart engine using a SOAP call

URL endpointUrl = new URL(kkSoapServiceUrl);
KKWSEngIf eng =
    new KKWSEngIfServiceLocator().getKKWebServiceEng(endpointUrl);

DataDescriptor dataDesc = new DataDescriptor();
dataDesc.setOffset(0); // Offset = 0
dataDesc.setLimit(16); // We only want to get back 16 products
dataDesc.setOrderBy(DataDescConstants.ORDER_BY_TIMES_ORDERED);
dataDesc.setOrderBy_1(DataDescConstants.ORDER_BY_NAME_ASCENDING);

Product[] prods = eng.getBestSellers(
     /* Data Descriptor defining how many products, the offset
        and the sort order */ dataDesc,
     /* CategoryId. 3 is for DVD Movies */ 3,
     /* The language id. -1 for the default store language */ -1);
```

Adding these two sets of products to our Movie Review website we now get:

Movie Review Example - Image 3

Every product shown has a link that takes the user directly to the shopping cart, just a few clicks from purchase.

Utilizing the rich set of SOAP APIs provided by KonaKart, the Movie Review website could be improved incrementally with tighter integration.

SOAP client code generation

The simple SOAP calls illustrated above are supported by code that is generated directly from the KonaKart WSDL (at http://www.konakart.com/konakart/services/KKWebServiceEng?wsdl

The steps are simply:

1. Call the Apache AXIS WSDL2Java utility to produce java classes from the WSDL
2. Compile the generated classes
3. Build WAR
4. Deploy to container

Example Source Code

All the source code and ANT build scripts used in this example are available for download in a basic development kit from http://www.konakart.com/kits/konakart-movie-review-dev-kit.zip [http://www.konakart.com/kits/konakart-movie-review-dev-kit.zip]

A WAR is also available which contains all the JSPs and everything you need to run the example in a container (such as tomcat) from http://www.konakart.com/kits/konakart-movie-review-war.zip [http://www.konakart.com/kits/konakart-movie-review-war.zip]

Feel free to try out the code in either format. It generates code that interfaces with the live KonaKart demo web site so you don't actually have to set up your own independent KonaKart website just to try out this example.

Chapter 16. Reporting

This section describes the KonaKart reporting sub-system. KonaKart uses the popular open source BIRT [http://www.eclipse.org/birt/] (http://www.eclipse.org/birt/) reporting system but it is loosely-coupled so it is easy to integrate an alternative or additional reporting system if you wish.

KonaKart Reporting from the Admin App

The reports are accessible from the "Reports" tab of the KonaKart Admin Application. A new browser window will be created that will run the BIRT viewer for the selected report.

Modifying the Reports

You will find the report files under the birtviewer webapp at: *{konakart home}/webapps/birtviewer/reports/stores/store1* By default the reports have the *.rptdesign* file extension although this can be set in the configuration parameters to some other file extension if you wish. For very simple modifications to the reports you can simply edit the report files (they are XML files). You can edit them directly from the Admin Application or using a file editor of your choice. For more complicated modifications or for adding your own new reports, you will have to set up the BIRT/Eclipse report design tools as explained below.

(Note that from version 3.2.0.0 the default reports location has moved to accommodate Multi-Store functionality where each store has its own set of reports. This is why the new location has the store number at the end of the directory path).

(Note that prior to version 2.2.7.0 the "birtviewer" webapp was called "birt-viewer". The change was made due to certain application servers not being able to handle the name "birt-viewer" in all circumstances).

Adding New Reports

KonaKart has been designed to allow the integration of any reporting system. although BIRT [http://www.eclipse.org/birt/] has been used in the download package and makes an excellent choice for adding addition reporting functionality.

BIRT [http://www.eclipse.org/birt/] is a free Eclipse-based open source reporting system for web applications, especially those based on Java and J2EE. BIRT has two main components: a report designer based on Eclipse, and a runtime component that you can add to your app server. BIRT also offers a charting engine that lets you add charts. Included in the KonaKart download package we provide the "BIRT Viewer" web application that includes the BIRT runtime system which is all you need to produce your reports.

For development of addition reports you are advised to follow the instructions on the BIRT web site for setting up BIRT in Eclipse. Note that currently we are using BIRT 2.2.1 so it is strongly advised that you use that version for new reports to ensure compatibility.

Once you have created your new report you can either upload it using the Admin Application or simply add your report to the directory defined to hold your reports (the directory is a configuration parameter that is set up default to *C:/Program Files/KonaKart/webapps/birtviewer/reports/stores/store1* (therefore, this will have to be changed if you have not installed KonaKart in the default location on Windows. You can set this value in the Admin Application under the *Reports Configuration* section.)

To make your report appear in the list of reports with a friendly name rather than its filename you have to specify the text to display in the text-property title tag of your BIRT report, for example:

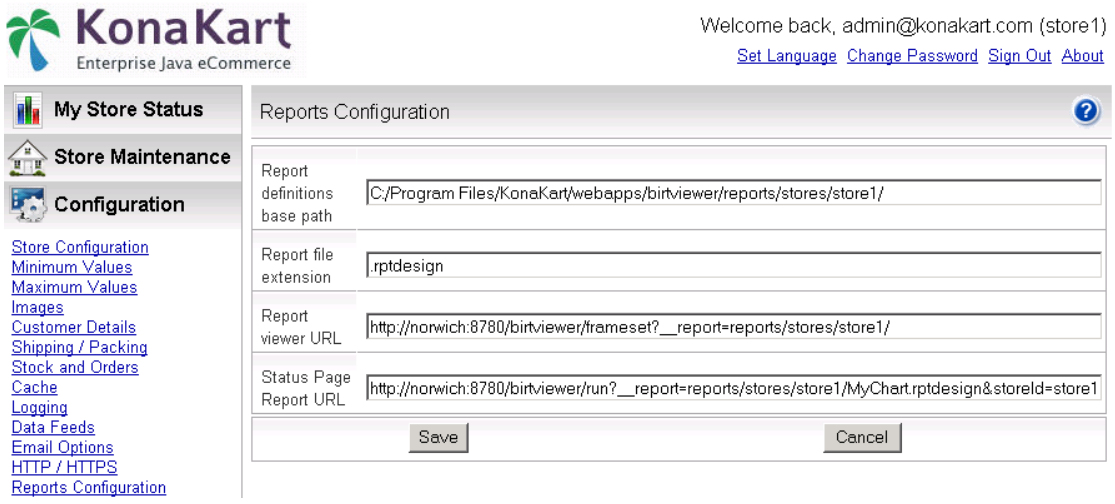
```
<text-property name="title">
        Orders in last 30 Days (Chart Only)
</text-property>
```

Defining a Chart to appear on the Status Page of the Admin App

By default KonaKart is configured to display a plot showing number of orders over the preceding 30 days on the Status page of the Admin Application. What you display in this particular frame is entirely up to you - you can choose another plot, or indeed any page you like that might even be unrelated to KonaKart. You define the URL for the page in the *Reports Configuration* section of the Admin Application.

Reports Configuration

By default KonaKart is configured to use port 8780. If you change this port you will have to modify the "Report Viewer URL" and the "Status Page Report URL" configuration parameters in the *Reports Configuration* section of the Admin Application to reflect the different port. These are set automatically if you installed using the installer so you should only need to do this if you either installed manually using the zip package or changed the KonaKart port number after installation. Here's an example of what you would set these parameters to if you were running KonaKart on port 8080:



KonaKart - Reports Configuration

Defining the Set of Reports Shown in the Admin App

By default KonaKart is configured to search for report files with the *.rptdesign* extension in the *C:/Program Files/KonaKart/webapps/birtviewer/reports/stores/store1* directory. If you use a different file extension for your reports or you have installed KonaKart in any location other than *C:/Program Files/KonaKart/* you will have to modify the configuration parameter to suit your installation. You will have to modify the reporting configuration parameters in the Administration Application. You define all of the reporting configuration parameters in the *Reports Configuration* section of the Admin Application.

Accessing the Database in the Reports

KonaKart may be looking for the database connection parameters in the wrong file. Check your *konakart.rptlibrary* file under *webapps/birtviewer/reports/lib/* . Find the beforeOpen section under <data-sources>:

```
<data-sources>
   <oda-data-source
        extensionID="org.eclipse.birt.report.data.oda.jdbc"
        name       ="KonaKart-Database"
        id         ="4">
       <method name="beforeOpen"><![CDATA[

importPackage(Packages.java.util.logging);
importPackage(Packages.com.konakart.reports);

var dbPropsFile =
    "C:/Program Files/KonaKart/webapps/konakartadmin/WEB-INF/classes/konakartadmin.properties";
var dbparams = new GetDbParams(dbPropsFile);

this.setExtensionProperty("odaDriverClass", dbparams.getDbDriver());
this.setExtensionProperty("odaURL", dbparams.getDbUrl());
this.setExtensionProperty("odaUser", dbparams.getDbUser());
this.setExtensionProperty("odaPassword", dbparams.getDbPassword());
```

This is how the reports find out how to connect to the database. The *konakart.rptlibrary* file defines the location of the *konakartadmin.properties* file (or it could be your own file so long as it defines the appropriate database connection parameters). Therefore you must verify that the filename is correct for your environment. The default location is as illustrated above which shows the default location when installed on Windows. (This should be set automatically by the installation wizard but could well be set incorrectly if you used the manual zip-based installation).

Chapter 17. Portal Integration

Introduction

We realize that many people require eCommerce functionality integrated within their portal servers or Content Management Systems. For this reason we have integrated KonaKart with some popular products that support the JSR 168 portlet specification. We currently have support for:

- Apache Jetspeed Portal
- Liferay Portal (Store Front and Admin App)

The generated portlets may work in other portals supporting the JSR 168 standard, although they haven't been tested.

Creation of portlet WAR files

In order to create the WAR file that can be loaded into a portal, you must first install KonaKart normally and ensure that it is working correctly.

Navigate to the *KonaKart\custom* directory and run the command *.\bin\ant -p* to view the ant targets in the supplied build file.

```
C:\Program Files\KonaKart\custom>.\bin\ant -p
Buildfile: build.xml

Main targets:

 build                          Compiles all the custom code and creates all the jars
 clean                          Clears away everything that's created during a build
 clean_admin_portlet_war        Clears away the admin portlet war
 clean_portlet_war              Clears away the portlet war
 clean_torque_classes           Clears away everything that's created during a build of the
                                torque classes
 clean_wars                     Clears away all the WARs and EARs
 compile                        Compile the customisable application code
 compile_custom_adminengine     Compile the customisable admin engine code
 compile_custom_engine          Compile the customisable engine code
 compile_modules                Compile the customisable module code
 copy_jars                      Copy the konakart custom jars to the lib directories
 create_torque_classes          Process the Custom Schema to produce torque classes
 enableWebServices              Enable Web Services in deployed server
 generate_torque_java           Process the Custom Schema to produce torque java files
 make_admin_liferay_portlet_war Create the konakartadmin portlet war for Liferay
 make_ear                       Create the konakart EAR
 make_jars                      Create the konakart custom jars
 make_jetspeed_portlet_war      Create the konakart portlet war for Jetspeed
 make_liferay_portlet_war       Create the konakart portlet war for Liferay
 make_ordertotal_module_jar     Create the ordertotal module jar
 make_payment_module_jar        Create the payment module jar
 make_shipping_module_jar       Create the shipping module jar
 make_torque_jar                Create the konakart custom torque jar
 make_wars                      Create the konakart wars
Default target: build
```

The targets that interest us for building the portlet WAR files are:

- make_jetspeed_portlet_war
- make_liferay_portlet_war

- make_admin_liferay_portlet_war

For example, in order to create the portlet for LifeRay, you must run the command as shown below:

```
C:\Program Files\KonaKart\custom>.\bin\ant make_liferay_portlet_war
Buildfile: build.xml

clean_portlet_war:
     [echo] Cleanup portlet WARs...
     [echo] Cleanup portlet WAR staging area...

make_liferay_portlet_war:
    [mkdir] Created dir: C:\Program Files\KonaKart\custom\portlet_war
    [mkdir] Created dir: C:\Program Files\KonaKart\custom\konakart_portlet\stage\konakart
    [mkdir] Created dir:
     C:\Program Files\KonaKart\custom\konakart_portlet\stage\konakart\WEB-INF\jsp
     [echo] Lay out the WAR in the staging area
     [echo] Copy (almost) the whole konakart webapp to staging area
     [copy] Copying 383 files to C:\Program Files\KonaKart\custom\konakart_portlet\stage\konakart
     [copy] Copied 35 empty directories to 2 empty directories under
      C:\Program Files\KonaKart\custom\konakart_portlet\stage\konakart
     [echo] Copy the jars reqd for the portlet to staging area
     [copy] Copying 2 files to
      C:\Program Files\KonaKart\custom\konakart_portlet\stage\konakart\WEB-INF\lib
     [echo] Copy the config files reqd for the portlet to staging area
     [copy] Copying 4 files to
      C:\Program Files\KonaKart\custom\konakart_portlet\stage\konakart\WEB-INF
     [echo] Filter the JSPs to staging area for the portlet WAR
     [echo] Filter the web.xml to staging area for the portlet WAR
     [echo] Filter the struts-config.xml to staging area for the portlet WAR
     [echo] Create portlet konakart.war
      [war] Building war: C:\Program Files\KonaKart\custom\portlet_war\konakart.war

BUILD SUCCESSFUL
Total time: 32 seconds
```

A file called konakart.war is created in the \KonaKart\custom\portlet_war directory. This is the file that you must import into your portal.

Note:

- The GWT based One Page Checkout code cannot be used for the portlet implementation. It is disabled automatically.

Installation Instructions

Jetspeed

- Place konakart.psml (found in KonaKart/custom/konakart_portlet/jetspeed) into the Jetspeed deployment under /Jetspeed-2.1.3/webapps/jetspeed/WEB-INF/pages for Jetspeed 2.1.3 and under the /Jetspeed-2.2.0/pages directory for Jetspeed 2.2. This will create a KonaKart folder.
- Deploy KonaKart by putting the generated konakart.war file into /Jetspeed-2.x.x/webapps/jetspeed/WEB-INF/deploy.
- Run Jetspeed. After logging in, you should see a KonaKart folder which contains the KonaKart application.

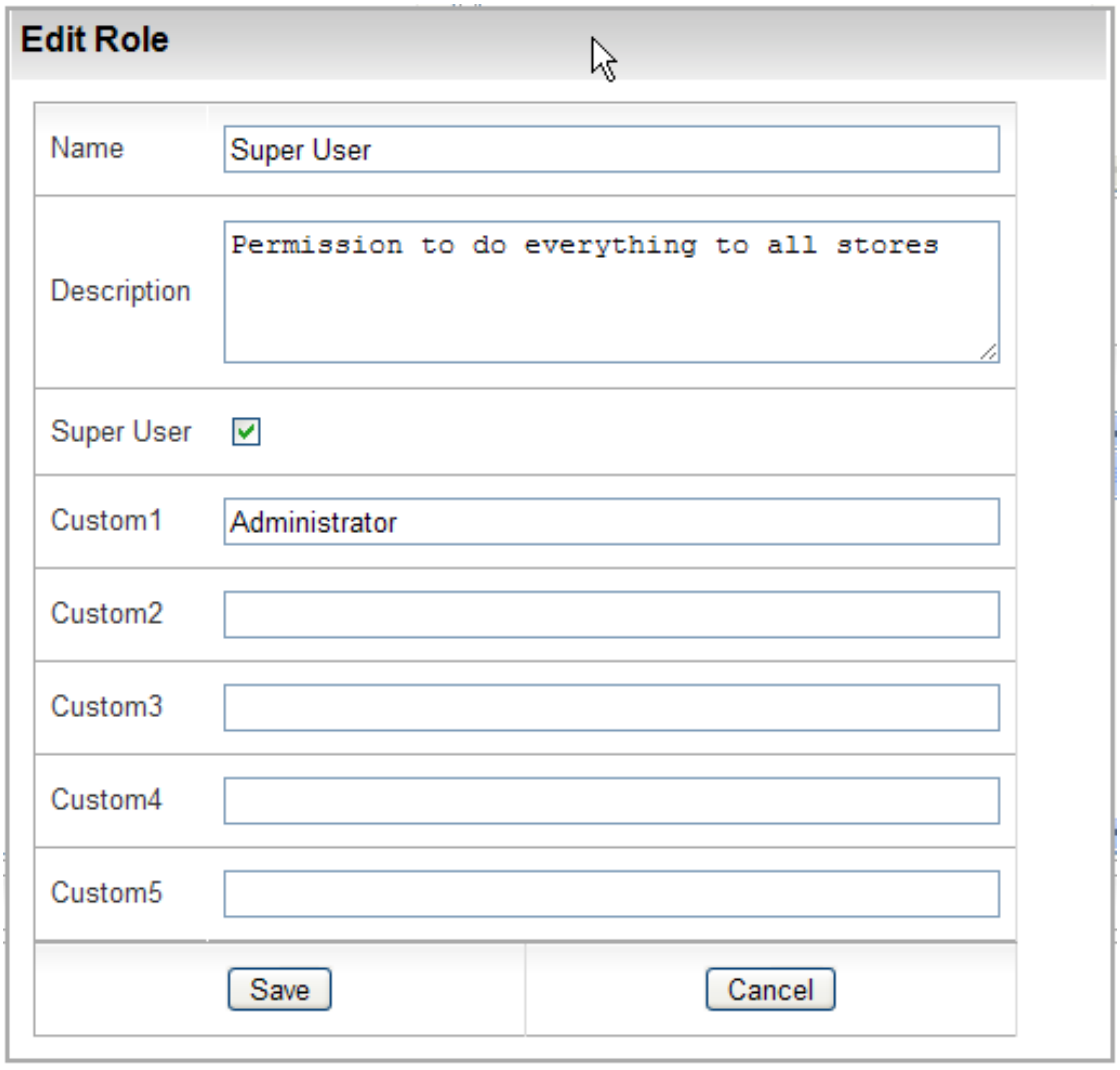
Liferay

- Using the Liferay plugin installer, install the generated konakart.war file.

- Add a page to Liferay and give it a 1 column layout template.
- Using the "Add Application" tool, add the newly installed KonaKart application to the page.

Liferay for the KonaKart Admin Application

In order for Liferay users to be able to seamlessly log into the Admin App, the KonaKart roles must be edited to add information so that they can be matched with the Liferay roles. The name of the Liferay role must be written into the Custom1 field of the KonaKart role that should be used. For example let's assume that there is a Liferay role called "Administrator" and we want all Liferay users with this Administrator role to log into KonaKart using the KonaKart "SuperUser" role. To do this we must edit the SuperUser role and add the text "Administrator" to the Custom1 field as shown in the diagram below.



Edit Role

A slight complication occurs when running in multi-store mode. In this case the Liferay role name must be in the form role_store. i.e. catalog_store2, order_store1. In the case of catalog_store2, the string "catalog" must be written in the custom1 field of the KonaKart catalog role and the software will ensure that the user will be logged into store2 with that role.

Once the roles have been matched, you can generate and install the WAR using a process similar to the store front application. Note that the WAR for the KonaKart Admin application can also be generated for JBoss by adding "-Djbossliferay=true" as below:

```
C:\KonaKart\custom>.\bin\ant make_admin_liferay_portlet_war -Djbossliferay=true
```

Now to import the WAR into Liferay:

- Using the Liferay plugin installer, install the generated konakartadmin.war file.
- Add a page to Liferay and give it a 1 column layout template.
- Using the "Add Application" tool, add the newly installed KonaKart Admin application to the page.

There are some additional installation notes for installing KonaKart in Liferay in the document included in the installation package at:

- {KonaKart-Home}/custom/konakartadmin_portlet/liferay/doc/Installation.pdf