ABOUT THIS GUIDE

This guide is intended to provide an overview of how to set up an ecommerce web store using Magento Community edition (CE) on a Linux system. It provides a quick guide through the most important steps of setup process and also provides some tips on troubleshooting. It starts with an overview of Magento, the various editions and then follows the setup and installation of the ecommerce system and two extension software; MSemantic and Beetailer. The last section includes a number of test scenarios for checking the usability of the ecommerce system.

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Table of Contents

SECTION 1	4
1.0 Introduction to Magento	4
1.1 Magento editions	4
1.1.1 Magento CE	4
1.1.2 Magento Enterprise edition	4
1.1.3 Magento Go	4
1.2 Some fascinating facts about Magento	5
1.3 Choice of Magento CE for lab project	5
SECTION 2: Magento Community Edition	6
2.0 Overview of Magento Community edition (CE)	6
2.1 Magento CE License	6
2.2 Interfaces of Magento CE	6
2.2.1 Front end	6
2.3 Magento Connect	8
2.4 Magento extensions	9
SECTION 3: HOW TO SET UP A WEBSTORE USING MAGENTO COMMUNITY EDITION	10
3.1 Introduction	10
3.2 System requirements	10
3.3 How to obtain Magento CE software	11
3.4 Getting sample data for Magento CE	11
3.5 Setting up Magento CE with or without sample data on Apache Server	11
3.5.1 Setting up the required environment for Magento CE	11
3.5.2 Creating your Magento CE database	12
3.5.3 Installing sample data (Optional)	12
3.5.4 Installing Magento	13
3.6 Installing Magento CE on your internet domain	16
3.6.1 Basic configurations	16
3.6.2 Creating your Magento CE database	17
3.8 Theme installation	18
3.8.1 Installing a sample theme	19
3.9.2 MSemantic extension	

SECTION 4: ROMIS Multimedia store	25
4.1 Introduction	25
4.2 Front end of ROMIS multimedia store	26
4.3 ROMIS multimedia store on Facebook, setup using Beetailer extension	27
4.4 Backend of ROMIS integrated with Beetailer extension	28
4.5 Backend of ROMIS multimedia store with MSemantic extension installed	29
4.6 Using Google's structured data testing tool to test the effect of the MSemantic extension on ROMIS webstore	29
SECTION 5: Usability test cases	31
5.1 Scenario	31
5.2 Activities	31

SECTION 1

1.0 Introduction to Magento

Magento is an open-source content management system for e-commerce web sites. The software was originally developed in early 2007 by Varien Inc., a US private company headquartered in Los Angeles, with assistance from volunteers. It is currently an ebay company. Magento employs the MySQL relational database management system, the PHP programming language, and elements of the Zend Framework. It applies the conventions of object-oriented programming and model-view-controller architecture. Magento also uses the entity–attribute–value model to store data. This eCommerce system provides three distinct platforms:

- Magento Community Edition
- Magento Enterprise Edition
- Magento Go

1.1 Magento editions

1.1.1 Magento CE

It is a feature-rich eCommerce platform, built on open-source technology that provides online merchants with the flexibility and control of the look, content and functionality of their eCommerce store. Developers can modify the core and add features and functionality by installing extensions from the Magento Connect marketplace.

1.1.2 Magento Enterprise edition

Magento Enterprise Edition is derived from the Magento Community Edition and has the same core files. However, this is not free, but has more features and functionality. This edition is designed for large businesses that require technical support with installation, usage, configuration, and troubleshooting.

1.1.3 Magento Go

Magento Go is a cloud-based eCommerce solution, which also includes web hosting by Magento Inc. This was launched in February of 2011 in order to support small businesses as it has no need for software installation. Magento Go still has many built-in modules and can add Magento extensions for more functionality, but is also the least customizable platform.

1.2 Some fascinating facts about Magento

In a short period Magento has gained a striking attention in the world of ecommerce. Below are a few researched facts.

- According to Google trends, Magento has been "googled" more than ecommerce.
- Based on Alexa ranking, it is found that Magento is used by 26% of the top 1 million websites.
- According to the research conducted by aheadWorks in April 2014, Magento's market share among the 20 most popular e-commerce platforms is about 34%.
- According to the research conducted by aheadWorks in April 2014, Magento's market share among the 20 most popular e-commerce platforms is about 34%

1.3 Choice of Magento CE for lab project

We chose Magento CE for the project because it is free to download, open source and also has a lot of extension software available in the Magento marketplace.



SECTION 2: Magento Community Edition

2.0 Overview of Magento Community edition (CE)

This open source version of Magento has been designed to provide flexibility in the functionality, look and feel of a webstore. The various versions of Magento CE are

- Magento Community Edition 1.6
- Magento Community Edition 1.7
- Magento Community Edition 1.8
- Magento Community Edition 1.9

2.1 Magento CE License

Magento CE is licensed under the Open Software License (OSL) v3.0, an open source certified license. More information is available at http://www.magentocommerce.com/license/

2.2 Interfaces of Magento CE

2.2.1 Front end

The front end is the view of the web store which customers can interact with using a standard web browser. It shows the products, product categories, and promotions as well as provides customers with ordering, payment, and purchase tracking features. Customers can also create accounts here, browse through products, add products to wish lists and also purchase products. The figure below shows a sample front end interface of a webstore setup with Magento CE and sample data.



Figure 1: Sample front end interface of Magento CE webstore with sample data

2.2.2 Backend

The backend is the password-protected view of the back office features that enable a web store administrator to setup the products and purchasing options and manage orders and all other store functionalities. Various functionalities provided at the backend include the dashboard, which gives an overview of the lifetime sales, average orders and statistics of most searched items. In this same interface, the administrator of the webstore can manage the sales activities, catalogs, customers as well as perform various configurations of the store. A view of the backend indicating the authentication page and the main backend page is shown below.



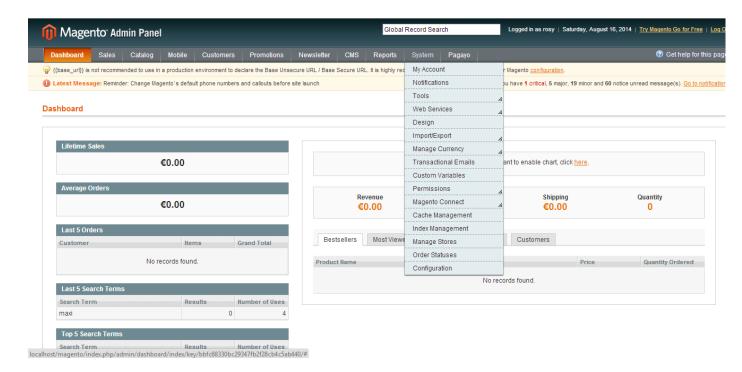


Figure 2: Sample backend interface of Magento CE

2.3 Magento Connect

Magento sConnect is a marketplace that allows Magento community members and partners to share their open source or commercial contributions such as extensions, language packs and design interfaces for Magento with the community. On a webstore that has been setup using Magento, the "connect manager" can be located at the backend. Using the interface in the figure below, one can download and install extensions from the Magento Connect marketplace.

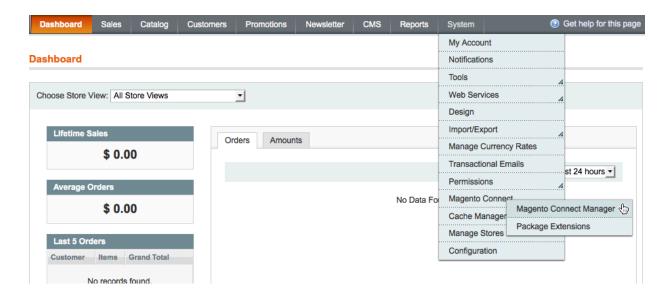


Figure 3: Magento connect manager at the backend of a Magento store

2.4 Magento extensions

In the Magento Connect webstore, there are extensions for various purposes including Search engine optimization, marketing, site and customer management.

Magento characterizes its extensions into three main types:

Magento Core Extensions: These are open source extensions created by the Magento Core team, released under an OSL 3.0 license and distributed for download through PEAR.

Magento Community Extensions: These are open source extensions created by Magento Community members or partners also released under an open source license and distributed for download through PEAR.

Magento Commercial Extensions: Magento Commercial extensions are contributions offered for sale by Magento community members or partners. However, the sale transaction, distribution and licensing is managed by the seller and occur outside Magento.

SECTION 3: HOW TO SET UP A WEBSTORE USING MAGENTO COMMUNITY EDITION

3.1 Introduction

Due to the flexibility of this platform, one has the option to install sample data provided by Magento alongside the software package or to install without the sample data.

3.2 System requirements

Supported Operating Systems: Linux x86, x86-64

Supported Web Servers: Apache 1.3.x, Apache 2.0.x, Apache 2.2.x, Nginx (starting from CE 1.7)

Supported Browsers:

- Microsoft Internet Explorer 7 and later
- Mozilla Firefox 3.5 and later
- Apple Safari 5 and later on Mac only
- Google Chrome 7 and later
- Adobe Flash browser plug-in should be installed

PHP Compatibility:

- 5.2.13 5.3.24; or 5.4.x with a patch for CE
 - Required extensions: PDO_MySQL, simplexml, mcrypt, hash, Gd, DOM, iconv, curl, SOAP (if Webservices API is to be used), Memory_limit no less than 256Mb (preferably 512)

MySQL:

• EE 1.13.0.0 or later: MySQL 5.0.2 or later

EE 1.12.0.2 or earlier: MySQL 4.1.20 or later

CE (all versions): MySQL 4.1.20 or later

For a complete list, visit http://magento.com/resources/system-requirements

3.3 How to obtain Magento CE software

This edition can be downloaded from the Magento official website downloads section. Visit

http://www.magentocommerce.com/download. You can click on the "download" tab to download the

latest version of the software or obtain any of the older versions by clicking on the "release archives"

tab.

3.4 Getting sample data for Magento CE

Magento CE 1.9 uses different sample data from the other versions in the preceding list. It's important

to use the correct version of sample data with your version of CE. Magento CE sample data must be

installed before you install Magento CE.

The sample data can be downloaded under the sample data section on

http://www.magentocommerce.com/download

If you wish to setup Magento CE on your local machine using Apache server, go to step 2.3 else go to

step 2.4

3.5 Setting up Magento CE with or without sample data on Apache Server

The official support of Magento CE is Linux. By the end of this section, you will have installed Magento

and optionally, some sample data, locally on Ubuntu.

3.5.1 Setting up the required environment for Magento CE

Steps

To begin, open up a terminal in Ubuntu and enter the command

1. Update the versions of all packages currently installed on the system

command: sudo apt-get update

2. Install and configure the Apache HTTP server

command: sudo apt-get install apache2 -y

3. Install PHP

command: sudo apt-get install php5 php5-curl php5-gd php5-mcrypt php5-mysql-y

4. Install MySQL database server

command: sudo apt-get install mysql-server -y

5. Restart apache server

command: sudo service apache2 restart

3.5.2 Creating your Magento CE database

- 1. Log into MySQL with the following command mysql -u root -p
- 2. Create a new database for

command: create database databasename;

Note: databasename is the name you give to the database **pathtodownloadeddata** is the path to your downloaded data, eg

/home/rosy/Desktop/sampledata

If you wish to install sample data provided by Magento, go to 3.5.3 else go to 3.5.4

3.5.3 Installing sample data (Optional)

- Download Magento sample data from the Magento website. Rename the folder as "sampledata"
- 2. Extract the files

Eg command: tar -xzvf sampledata.tar.gz

3. Import the sql dump of the sample data into the database you created in step 2.3.2

command: SOURCE pathtodownloadeddata/magento_sample_data_for_1.9.0.0.sql;

3.5.4 Installing Magento

- 1. Download Magento CE from the official website. Rename it as "magentostore"
- 2. Move the downloaded folder into the "html" folder in the apache directory command: mv sourcelocation /var/www/html
- 3. Set the permissions on your "magentostore" folder to make it rewritable.
- chmod -R o+w /magentostore/app/etc/
- chmod -R o+w /magentostore/var
- chmod -R o+w /magentostore/media
- 4. copy the "catalog" from your "sampledata" folder into your "magentostore" folder

Eg mv /home/rosy/Desktop/sampledata/media/catalog /home/www/html/magentostore/media/catalog

5. Open your browser and type "localhost/magentostore

The following welcome page should be displayed



Figure 4: First interface of Magento installation wizard

- 6. Click on the **check box** next to "I agree to the above terms and conditions" and click on the **Continue** button.
- 7. Now, choose the preferred Time Zone, Locale and Currency and press the **Continue** button.
- 8. Next, enter the details of the database you created in the earlier step: Database Name, User Name and User Password. You can leave the other options intact. Then, click the Continue button to proceed.

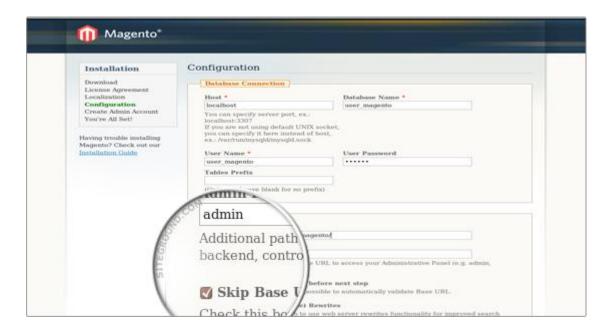


Figure 5: Page requesting for signup information

9. At this point you should enter the personal information and the admin login details which you want to use. You can leave the Encryption Key field empty and the script will generate one for you. Once more, click the Continue button.

Installation	Create Admin Account				
Download	Personal Information				
License Agreement Localization	First Name *	Last Name *			
Configuration Create Admin Account You're All Set!	My Name	My Family			
	Email *				
	admin@yourdomainname.com				
laving trouble installing					
Magento? Check out our	Login Information				
Installation Guide	Username *				
	admin				
	Password •	Confirm Password *			
	*****	******			
	Encryption Key				
	Lawyean rest				
	Magento uses this key to encrypt passwords, credit cards and more, if this field is left empty the system will create an encryption key for you and will display it on the next page.				

Figure 6: Create an account page

10. Store setup has been completed successfully

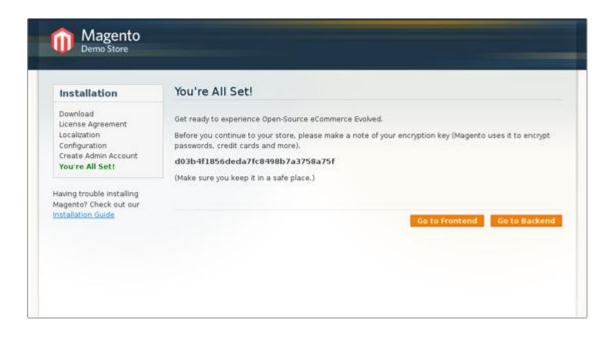


Figure 7: Confirmation of successful installation page

- 3.6 Installing Magento CE on your internet domain
- 3.6.1 Basic configurations
- 1. Update the versions of all packages currently installed on the system

command: sudo apt-get update

2. Install and configure the Apache HTTP server

command: sudo apt-get install apache2 -y

3. Install PHP

Command: sudo apt-get install php5 php5-curl php5-gd php5-mcrypt php5-mysql-y

4. Install MySQL database server

command: sudo apt-get install mysql-server -y

5. Restart apache server

command: sudo service apache2 restart

6. Ensure that you belong to the same group as the Apache process. Note that after entering the command you must log out and then log back in before the system will recognise that you belong to a new group.

command: sudo usermod -a -G www-data dev

7. Change the permissions so that both you and Apache can have read and write access to the public_html directory.

command: sudo chmod 2750 /home/dev/public_html

- 8. Use the groups command to check that you belong to the www-data group. command: chgrp www-data /home/dev/public_html
- 9. Create the directory that Magento will be served from and it will be given the www-data group automatically.

command: mkdir -p /home/dev/public_html/magentostore.com/{public,log}

3.6.2 Creating your Magento CE database

1. Log into MySQL with the following command mysql -u root -p

2. Create a new database

command: create database databasename;

Note: databasename is the name you give to the database

3.6.3 Downloading Magento and sample data

1. Change into the directory where we wish to perform the install.

Eg command: cd /home/dev/public_html/magento-store.com/public

2. Download the latest version of Magento into the directory which you have opened.

3. The source code is located in a directory called magento. Since we don't want Apache to serve

Magento from this sub-directory we need to move the source code out of it.

command: mv magento/* magento/.htaccess.

4. To install sample data, download it from the Magento site and follow the steps in 3.5.3

5. Use the chmod command to give write permission to the ww-data group.

chmod g+w var var/.htaccess app/etc

chmod -R g+w var/package/ media

6. Open your browser and type in the web address of your store. Follow the steps provided on the

welcome page.

3.7 Some useful tips

Problem: Sample data loads but all the links are broken on the website

- 1. Log into the backend of the store
- 2. go to system --- configuration---Search engine optimisation
- 3. set use web server rewrites to no
- 4. You then have a working system

Problem: php extension mcrypt must be loaded

use the commands below

- 1. sudo php5enmod mcrypt
- 2. sudo service reload
- 3. sudo service apache2 restart

If you wish to proceed downloading Magento packages online, please set all Magento folders to have writable permission for the web server user (example: apache)

use the command below on your magento folder chmod -R o+w /var/www/html/magento

3.8 Theme installation

To improve the "look" of your webstore, Magento has provides a good number of themes to choose from.



NOTE: ALWAYS backup your database before performing any modifications

3.8.1 Installing a sample theme

Steps

- 1. Go to Admin->system
- 2. Under system -> Magento Connect -> Magento Connect Manager
- 3. Enter login information and click login button
- 4. On the next page that is displayed, paste the extension key of the theme you wish to install in the textbox provided or click **Magento Connect** Option as seen below

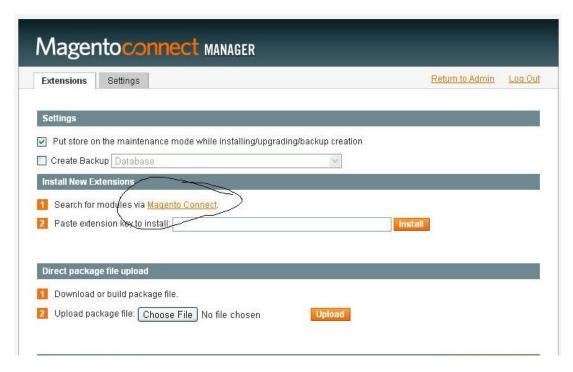


Figure 8: Interface to search for themes via Magento connect

- 5. You will be redirected to the Magento connect website. Locate the "theme tab" and select the theme you wish to install from any of the categories provided. On the new page displayed for the theme information, click on the "install" button.
- 6. On the new page displayed, select the version of Magento you are using (either Go, community or enterprise), select the version of Magento connect (the current one is 2.0)
- 7. Check and agree to the extension license and click on the get extension key button.

8. An extension key will be generated. Copy the key, go back to your Magento Connect manager and paste the key in the textbox as shown below and click the install button.

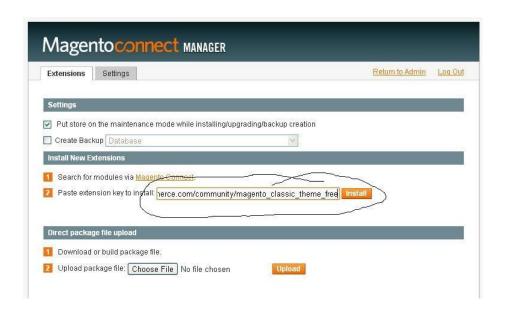


Figure 10: pasting the extension key in the textbox provided by Magento Connect

- 9. A new table is displayed showing the channel, package name, version and status. Click on the proceed button beneath the table. After a successful installation, refresh the page.
- 10. To switch to this new theme, Go to system->Design
- 11. Click Add Design Change Button
- 12 Select **Custom Design** Tab in Drop Down list. Select your installed new theme and Click Save Button.
- 13. Refresh your home page and the theme has now been changed to this new one.



If you receive an error message indicated in the figure below, go back to the Magento Connect website and navigate to the page of the extension you are trying to install. Locate the Magento connect version and click on the change link to select the version which corresponds to the version of your store's connect manager. Also make sure that you have selected the right platform (community, go or enterprise). Then click on the generate key again and repeat the steps.

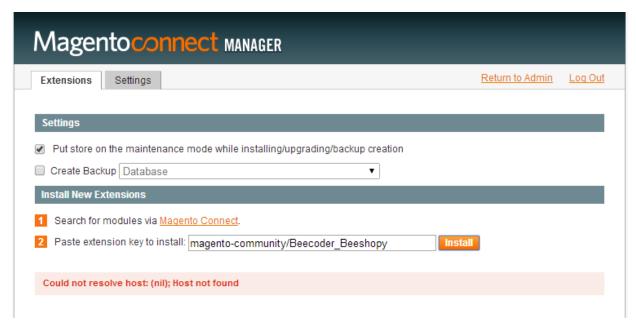


Figure 11: Error message which is displayed when the correct Magento connect version is not chosen and a wrong key is generated.

3.9 Installing Magento extensions

Installing extensions follow almost the same process shown in step 3.8. For our lab project, we installed two extensions namely beetailer and MSemantic.



3.9.1 Beetailer extension

This extension helps integrate Magento stores with Facebook and other social networks like Pinterest or Twitter.

- 1. To install this extension, follow the steps in 3.8 to get the extension key for Beetailer.
- 2. Open Magento Connect Manager of your webstore and paste the extension key in the textbox provided.
- 3. Click on the "install" button. A new table is generated for the extension. Click on the proceed button below the table.
- 4. When the extension is installed successfully, the interface below is displayed.

Figure 12: Interface showing the successful installation of the Beetailer extension

- 5. Click on the refresh button
- 6. Navigate back to your admin page. The tab has been created for the extension in the admin panel as shown in the figure below.

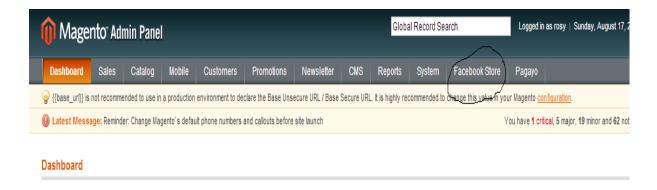


Figure 13: Beetailer extension displayed as one of the tabs on the Magento Admin panel

- 7. Click on the "facebook store" tab and click on "add my store to Facebook button"
- 8. A new page is displayed as shown in the figure 14 below. Follow the steps to setup your store on facebook.



You need to have already created a facebook page for your store before following the process in step 8

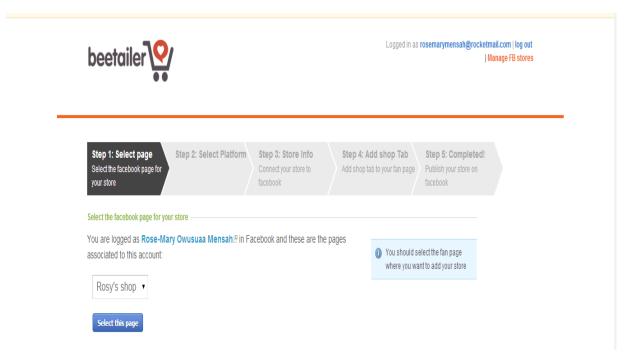


Figure 14: Steps to install the Beetailer extension

3.9.2 MSemantic extension

- 1. Install the extension with the extension key from magento connect (remind allowing beta extensions)
- 2. Refresh your cache
- 3. Logout from backend and re-login
- 4. Go into your magento folder and search for the files below
 - files 1column.phtml
 - 2colums-left.phtml
 - 2colums-right.phtml
 - 3colums.phtml
- 4. Set the new doctype in your root template and product single view template. This has to be made in the files 1column.phtml, 2colums-left.phtml, 2colums-right.phtml, 3colums.phtml in your magento folder. Remove the doctype declaration and add the two lines instead.

```
<?php echo '<?xml version="1.0" encoding="UTF-8"?>'; ?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML+RDFa 1.0//EN"
"http://www.w3.org/MarkUp/DTD/xhtml-rdfa-1.dtd">
```

5. Remove the "lang" attribute from the html opening tag so that it looks as follows:

```
<html xmlns="http://www.w3.org/1999/xhtml" version="XHTML+RDFa 1.0"
xml:lang="<?php echo $this->getLang() ?>">
```

- 6. Go to the Magento Admin Panel, click on the configurations link. Locate the MSemantic section on the left hand side of the page.
- 7. Click on the Semantic SEO Settings. Under "basic settings" and make sure the folling fields are correctly set.
 - Enable -> Yes
 - Semantic Web Ready Link -> No.

SECTION 4: ROMIS Multimedia store

4.1 Introduction

This section shows the results of our successful lab project. We setup an online store (ROMIS multimedia store) using Magento Community edition. The store has the following features

Domain: http://test01.cristoleiva.com/

Main setup: Magento Community edition

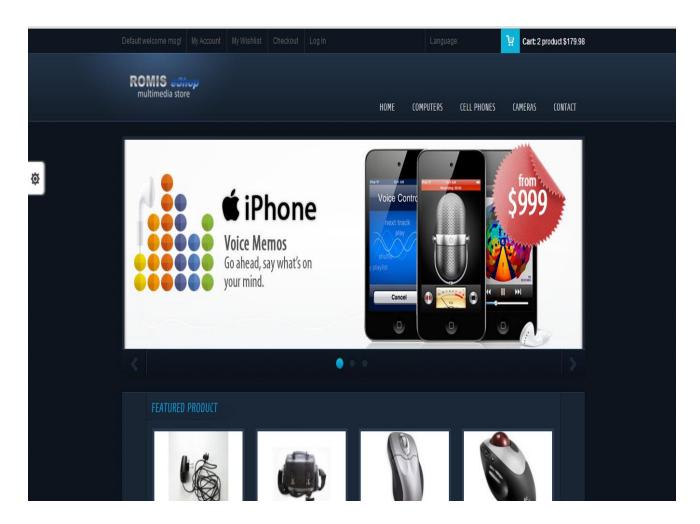
Store theme: Ves hitech magento theme, this theme installs with sample data for electronics

Extensions

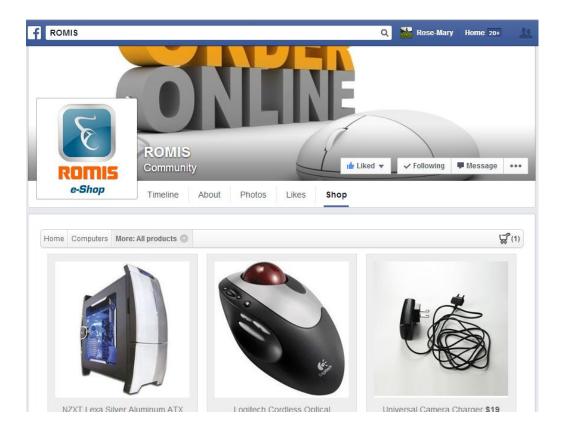
- Beetailer –used to integrate our web store with facebook
- Msemantic enables Search Engine Optimisation based on Semantic Web / Linked Data Technology.

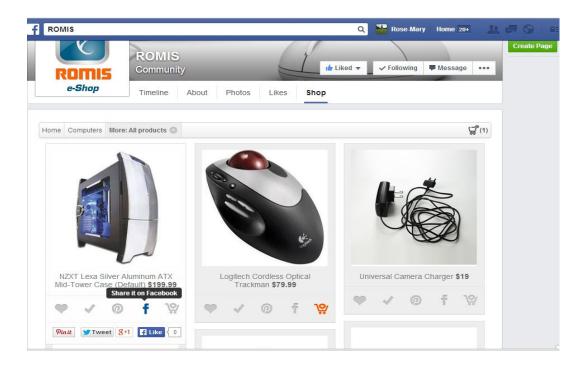
Extra features: A Java standard application with Graphical user interface to export the data in the SQL database into RDF format using D2RQ.

4.2 Front end of ROMIS multimedia store

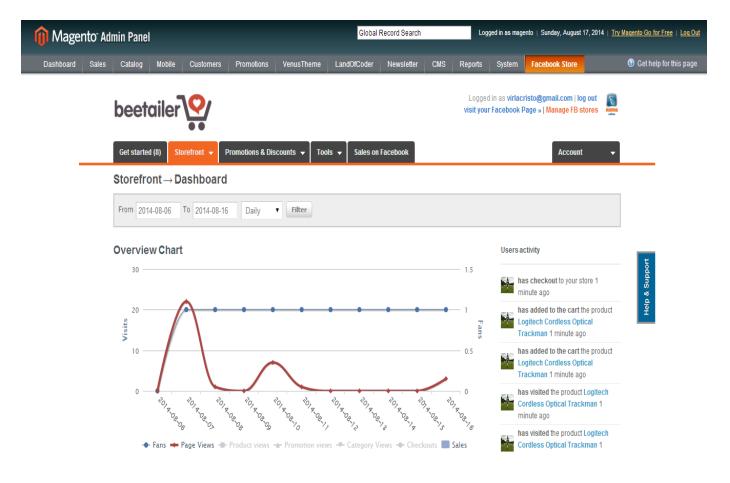


4.3 ROMIS multimedia store on Facebook, setup using Beetailer extension

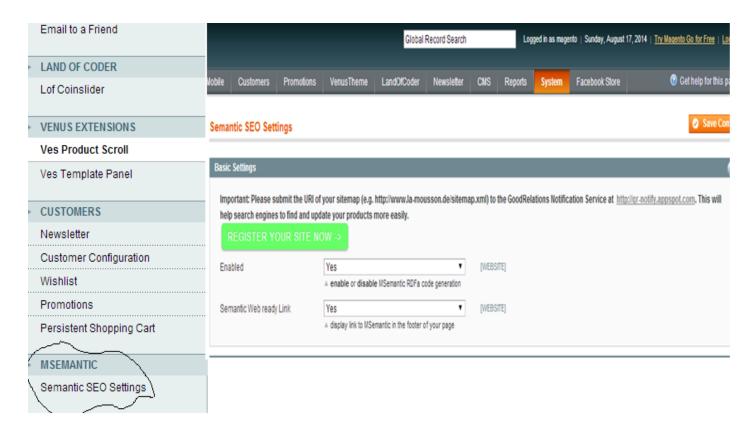




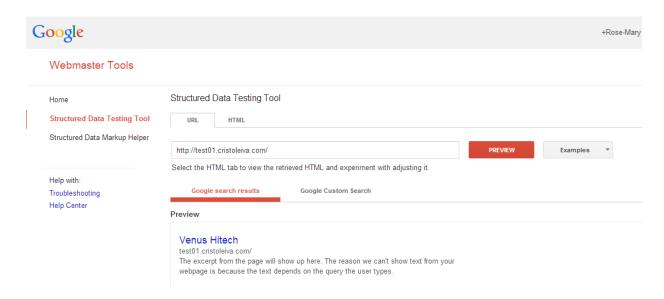
4.4 Backend of ROMIS integrated with Beetailer extension



4.5 Backend of ROMIS multimedia store with MSemantic extension installed



4.6 Using Google's structured data testing tool to test the effect of the MSemantic extension on ROMIS webstore





Webmaster Tools

Home

Structured Data Testing Tool

Structured Data Markup Helper

Help with:

Troubleshooting Help Center

Extracted structured data

rdfa-node

type:

relationship:

name:

child:

type: Address

property:

country-name: United States

href: http://test01.cristoleiva.com/#address

BusinessEntity

adr

name: url

href: http://test01.cristoleiva.com/

name: offers

child:

type: Offering

relationship:

name: isDefinedBy

href: http://test01.cristoleiva.com/

name: eligibleCustomerTypes

href: http://purl.org/goodrelations/v1#Enduser

property:

validFrom: 2014-08-17T15-10-07-08-00

SECTION 5: Usability test cases

To test the usability of the ROMIS Multimedia web store, we developed a number of test cases for people to follow

5.1 Scenario

You are visiting your family this Summer period for holidays. As a tradition, you need to buy presents for them. This time, you have decided to buy electronics. A friend introduced you to romis.net, an online shop for electronic devices. You would like to purchase one laptop, two cell phones and one camera case. To ensure a smooth ordering process, your friend gave you this guide to the webstore. Go through the guide and locate the devices of interest and purchase them. However, the cost of each device should be under 1000 euros. You are also encouraged to give feedback on the whole virtual shopping experience using the feedback form of the web store. Lastly, please subscribe to romis.net newsletter if you are interested in receiving product announcements from us.

5.2 Activities

Activity 1

1. Visit http://test01.cristoleiva.com/

Or

the facebook page of the webstore

https://www.facebook.com/pages/ROMIS/304540899720533?sk=app 184367687735

If you already have an account with the webstore, go to activity 3 else go to activity 2

Activity 2

Sign up

- 1. Click on the "login in" icon
- 2.Click "create an account" button on the new page displaye
- 3. Follow the instructions on the create an account page
- 4. Click on the submit button

Activity 3

Sign in

- 1. Click on the "login in" icon
- 2. Follow the instructions on the "login page"
- 3. Click on the "login" button"

Activity 4

Adding a product of shopping cart

- 1. Click on the item you would like to buy.
- 2. Type the quantity of the products you would like to buy.
- 3. Click on "add to cart button"

Activity 5

Payment and check out

- 1. Click on the shopping cart button on the top right corner of the store.
- 2. Check that you have selected the right products in their right quantities.
- 3. If there is an error, click "update shopping cart" button else click "proceed to checkout" and follow the steps.