User Manual

For

Implementation of E-commerce workflows using Apache OFBiz ERP

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"15 September 2014"

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1. GENERAL INFORMATION

1.1 Why OfBiz

OFBiz is an open source enterprise E-commerce platform created by the Apache Software Foundation. There are developers and professionals all over the world contributing to this project making OFBiz one of the most powerful platforms for conducting enterprise eCommerce. Here we look at implementation of E-commerce workflows using Apache OFBiz ERP.

1.2 System Overview

In its simplest form E-commerce is the buying and selling of products and services by businesses or consumers over the World Wide Web.
People use the term "E-commerce" or "online shopping" to describe the process of searching for and selecting products in online catalogues and then "checking out" using a credit card and encrypted payment processing. Internet sales are increasing rapidly as consumers take advantage of

- lower prices offered by vendors operating with less margin than a bricks and mortar store
- greater convenience of having a product delivered rather than the cost of time and transport and parking of going to a store
- sourcing product more cheaply from overseas vendors
- great variety and inventory offered by online stores
- comparison engines that compare and recommend product
- auction sites, where they did for goods

1.3 Authorized Use Permission

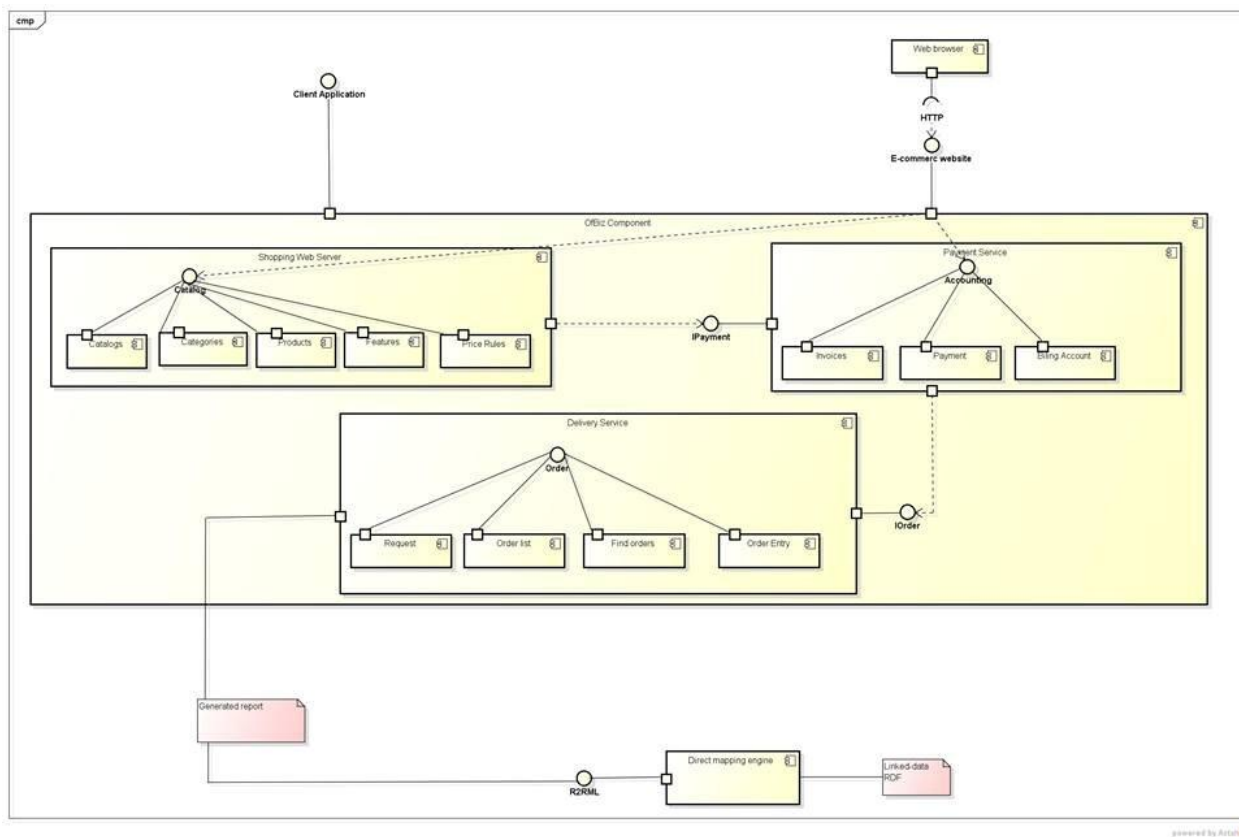This system is designed for lab project study in Enterprise Information Systems

2. SYSTEM SUMMARY

2.1 System Configuration

- Java jdk1.7.0_45
- Apache-ofbiz-11.04.04
- Windows operating system

- Browser
- apache-ant-1.9.4

2.2 Function Flows

The below diagram depicts the normal flow of the E-commerce implementation by OFBiz.

There are 3 workflows of E-commerce implementation:

- Shopping
- Payment
- Delivery

2.2.1 Shopping

The OFBiz catalog manager is a powerful tool to create catalogs, categories and products. It has various features like promotion and price rules. In this section we will show you how to create a catalog, category and product.

2.2.1.1) Catalog creation

There are two main terms in OFBiz catalog manager tool, Category and product. A category is a group of products which would be presented to the end-user using front-end OFBiz pages. Also a category can contain so many sub categories. A catalog is a collection of products that are grouped in categories. In this section we will create a simple catalog.

First step is to go to the "Catalog Manager" using main menu of Administrator page. Then select "Catalog" submenu(Figure 1).
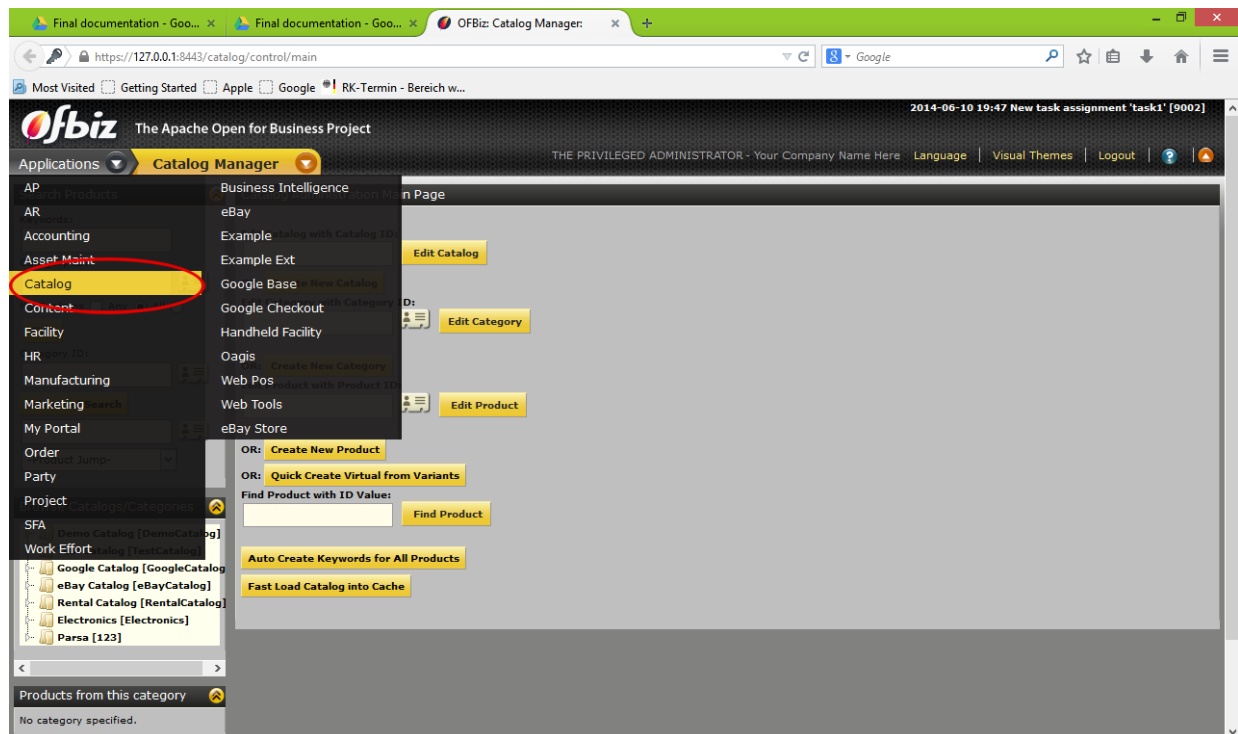
Figure1: Catalog submenu selection

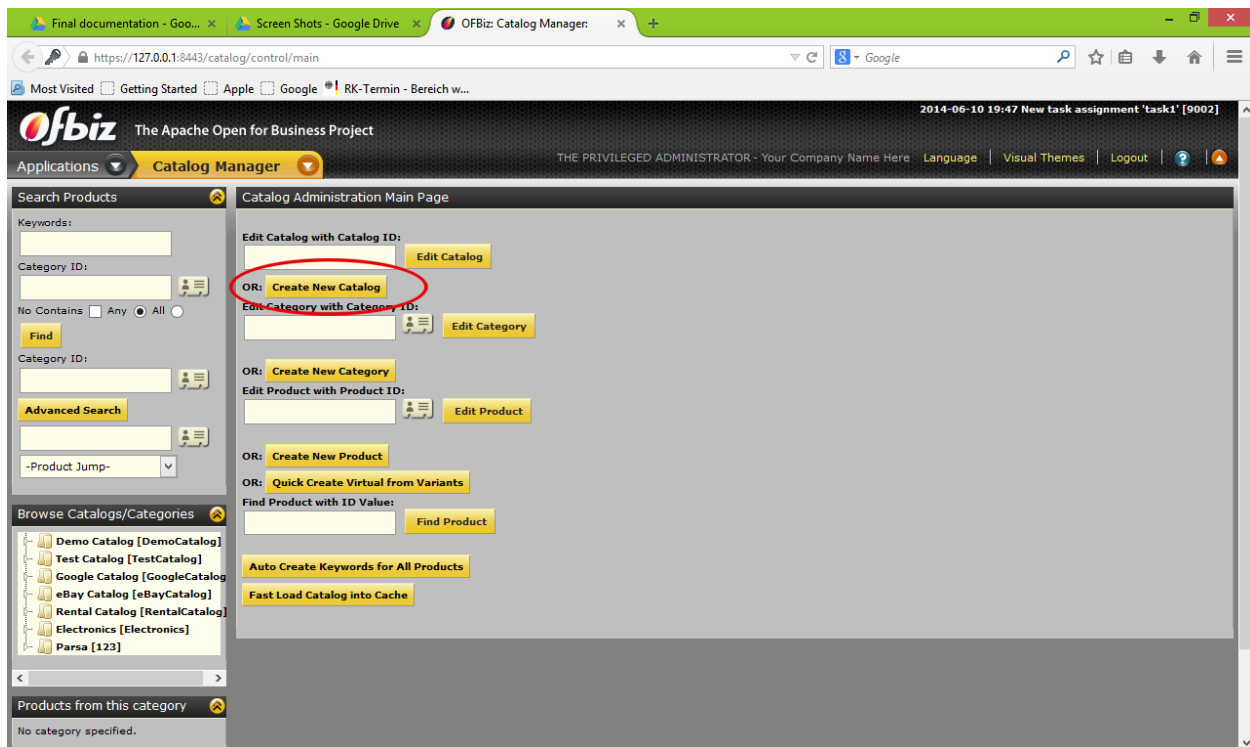Then click on "Create New Catalog" button to create a catalog(Figure 2).

Figure 2: Create New Catalog button

In this page some fields should be filled which are related to the catalog. CatalogID is a ID of each catalog and they should be unique. Normally if you leave CatalogID blank OFBiz will generate a new ID for this catalog. Enter a name for catalog inside Catalog Name field and set "Use Quick Add" to "N" if you do not want to use the special quick add category. Then press "Update" button(Figure 3).
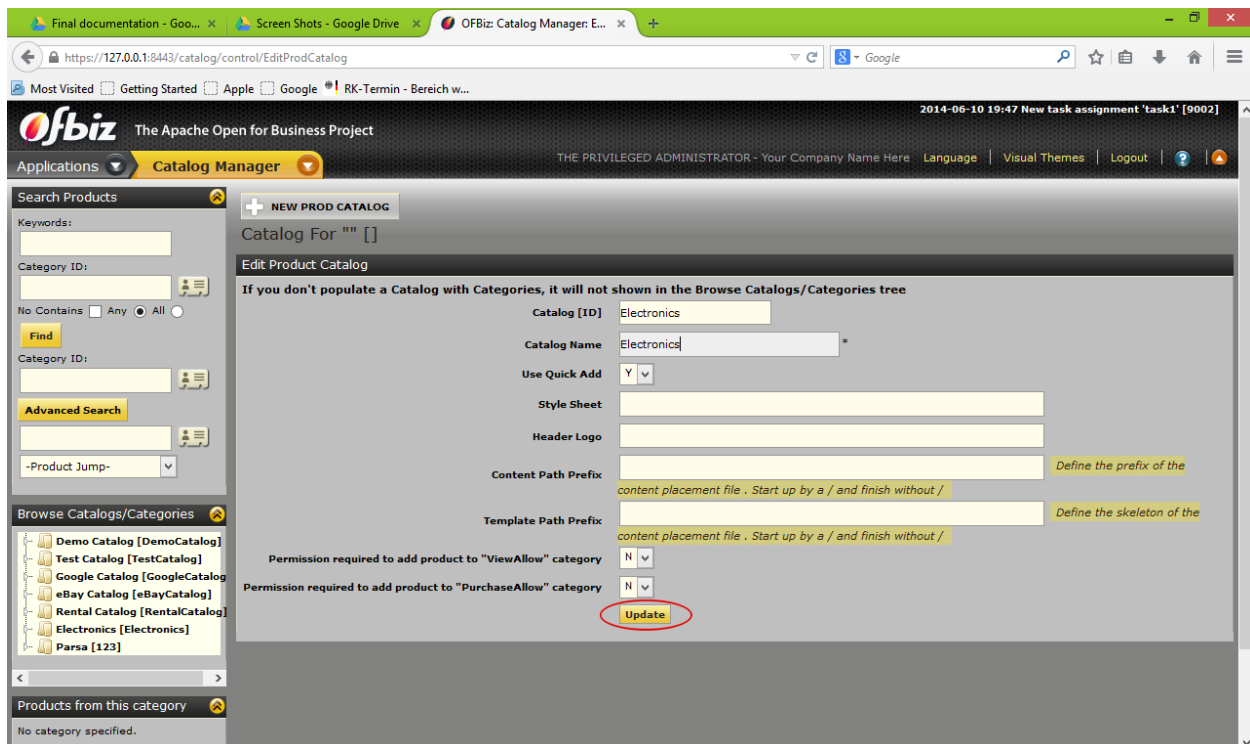
Figure 3: Entering catalog information

After pushing down the "Update" button you can see the created catalog in the left bottom panel "Browse Catalogs/Categories" (Figure 4).

Figure 4: Browse Catalogs/Categories panel

2.2.1.2) Category creation

We will now create a "Root" category under "Electronics" catalog then we can create sub categories and products. To create category select "Categories" from main menu and click on "Create new category" link(Figure 5,6).
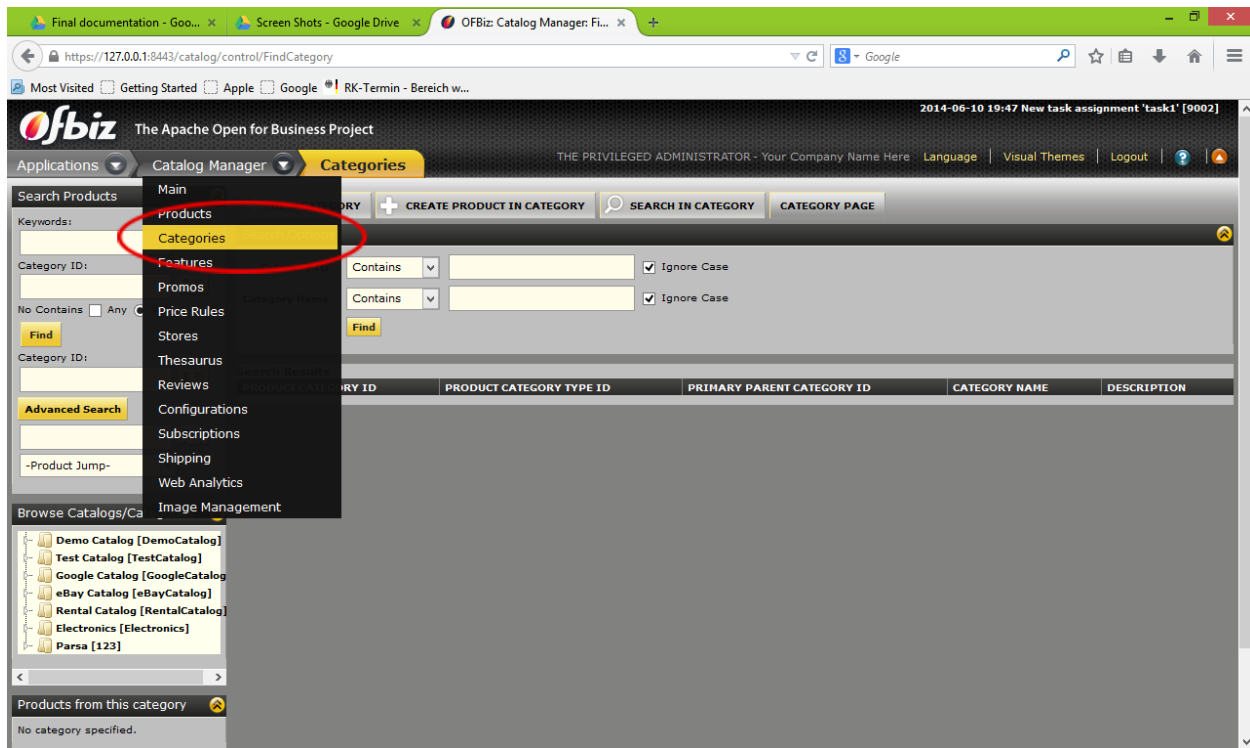
Figure 5: Select Categories from main menu
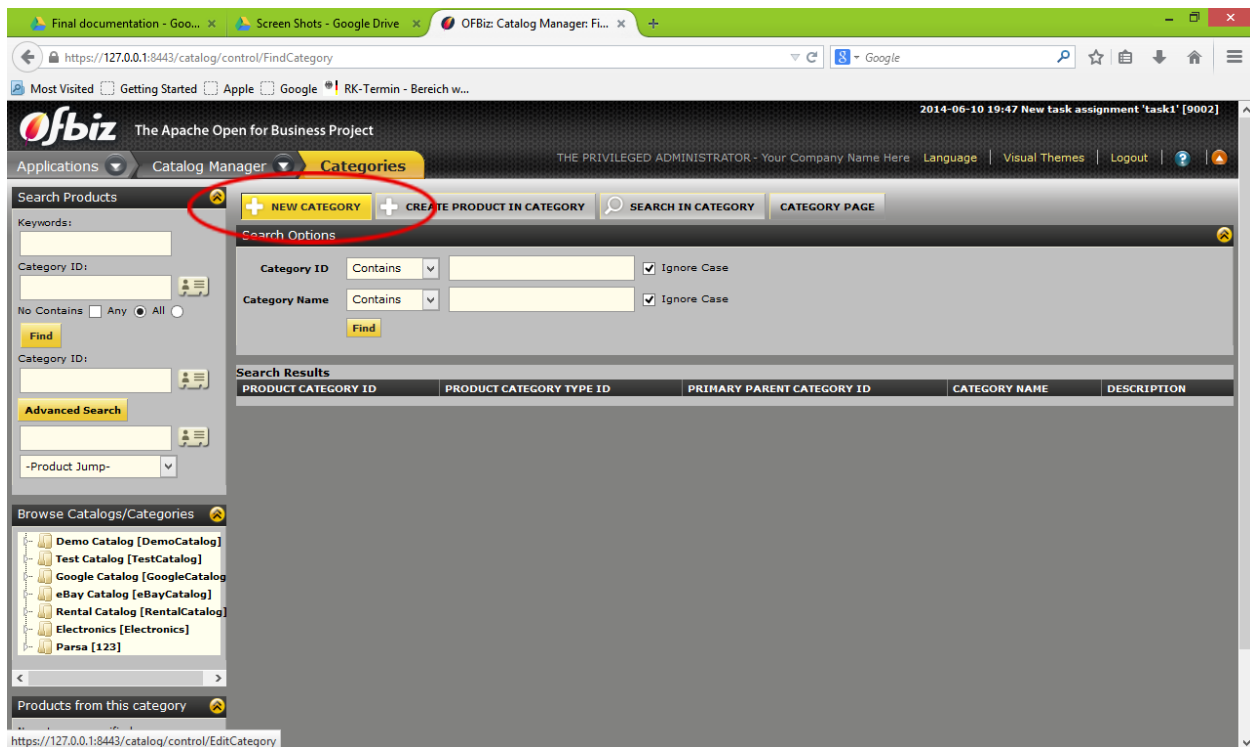
Figure 6: Click on "New Category" to create new category

3 fields such as Category id, Category name and Category type should be filled. For Category type "Catalog" should be selected. Then click on "Update" button to finish(Figure 7).
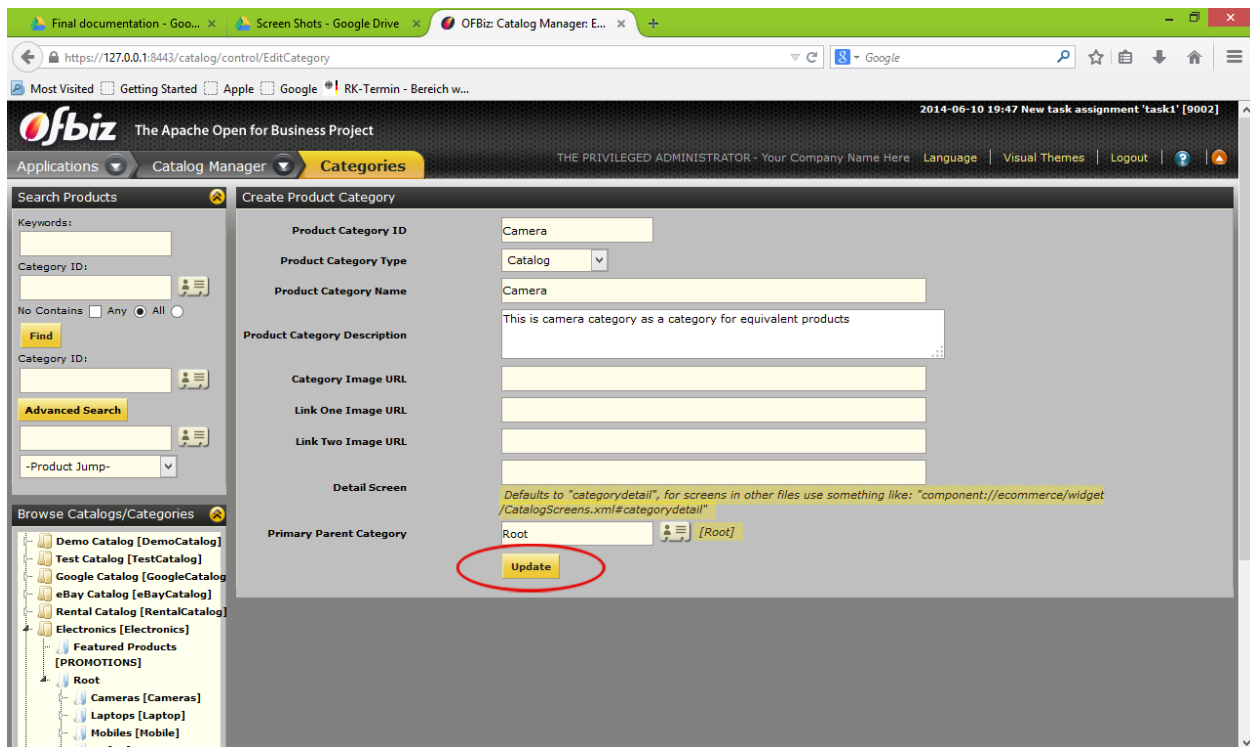
Figure 7: Create new Category page

Now we should add this category as a subcategory for "Electronics". For this, after clicking on update button click on "CATALOGS" tab. In a section "Add a catalog to this category" select the type as "Browse Root" and enter the from date and click on "Add" button. This will add Browse Root category to the "Electronics" Catalog. Browse Root is parent of all browse categories. The important thing about the Browse Root (Only) catalog category type is that this category is not shown to the customer on the eCommerce site. Only sub-categories are shown. Similarly add other subcategories to Root as shown above. But the only difference is that you have to fill "Primary parent category". For example here select Root as a parent category because you want to add a subcategory for Root category. You need to explicitly set up the child categories (Cameras, Laptops,...) to the parent category (Root) through "Rollup" tab. Then you can see categories and subcategories in the left panel(Figure 8).

Figure 8: Subcategories created

In a same way you can create subcategories for "Cameras" subcategory. To do this you have to select "Cameras" as a Primary parent category field. Also select Cameras as a parent category through "Rollup" tab(Figure 9).

Figure 9: Subcategories for Cameras created

2.2.1.3) Product creation

You have created all the required catalog, category and subcategories. Now, this is time to add all the products to the corresponding category. to add a product go to Category page and click on "Create product in category"(Figure 10).
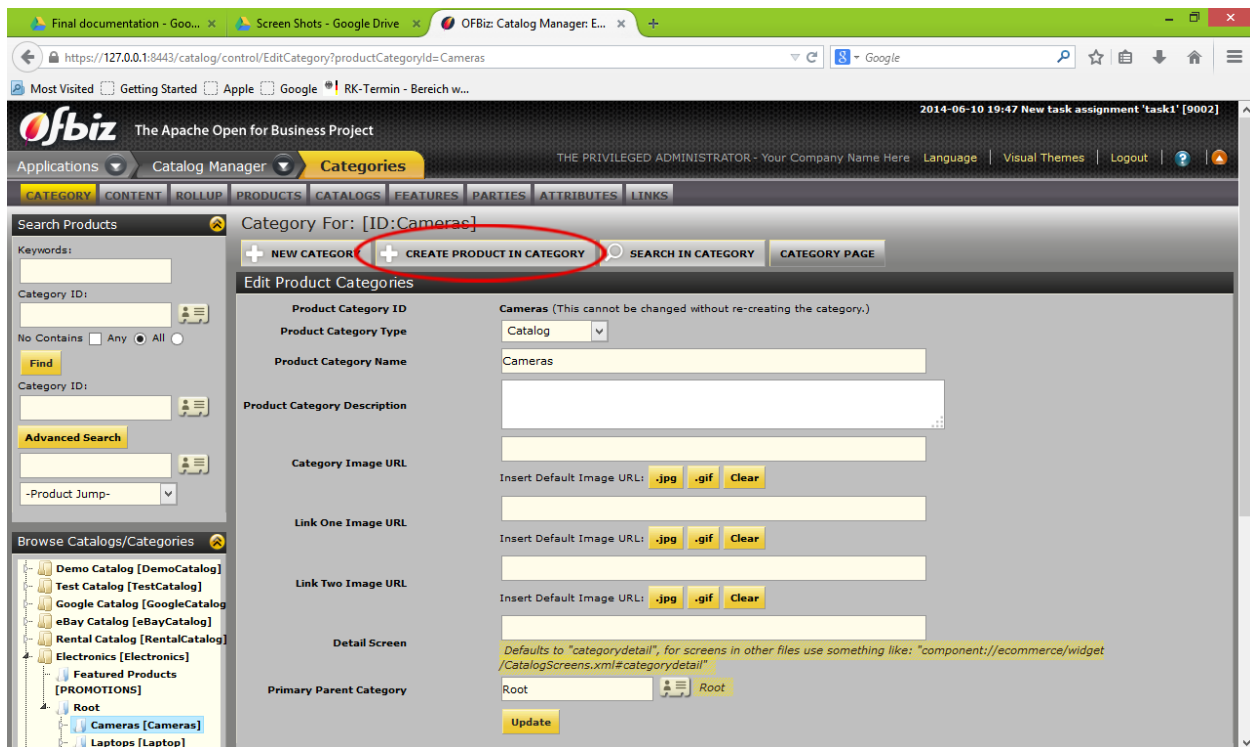
Figure 10: Click on Create product in category

In this page some fields such as Internal name, Product name and default price should be filled. Then click on "Check existing" to check if this product exists in the database or not(Figure 11).
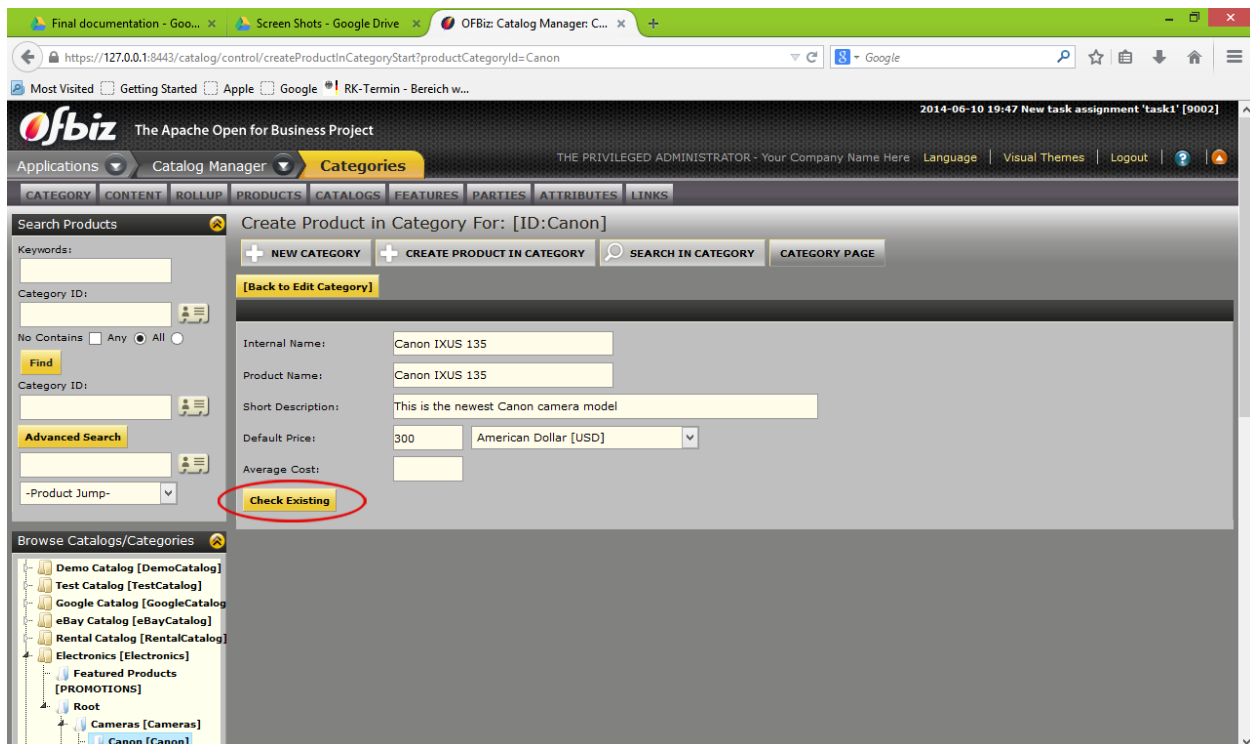
Figure 11: Create new product fields

Also, there are so many fields to fill like uploading pictures for one product which you can fill in "Content" tab(figure 12,13).
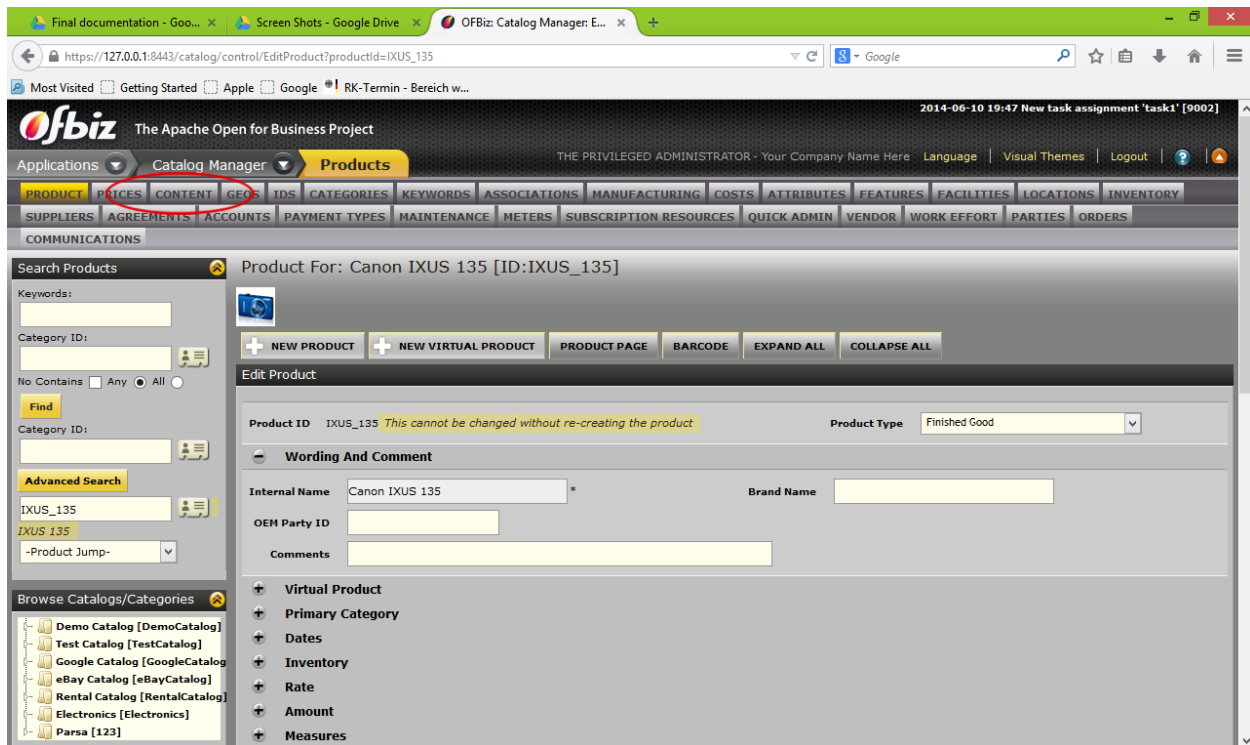
Figure 12: Create new product-Content tab
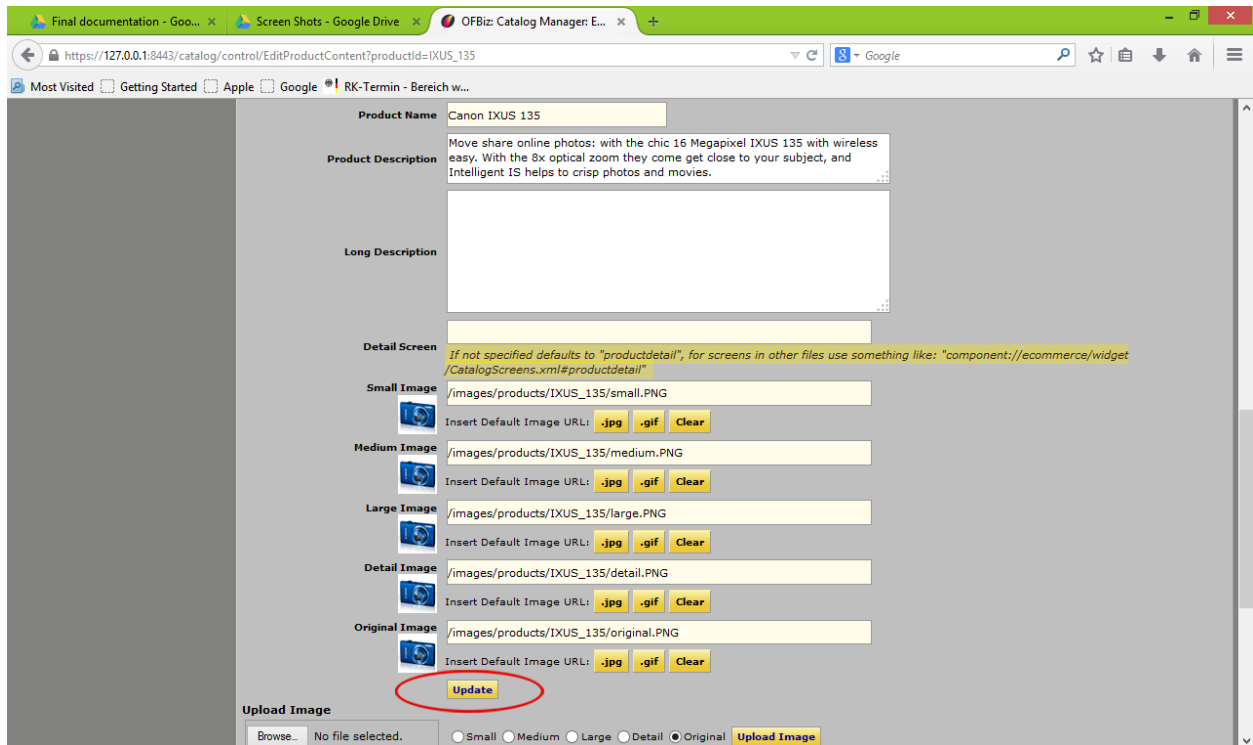
Figure 13: Create new product-Content tab

2.2.2 Payment

By default OFBiz provides all the payment methods, including Credit Card, PayPal, Gift Card and so on. This is really important to customize it regarding to our project. In this project we use Credit Card and PayPal.

2.2.2.1 PayPal payment setup

1. Go to Accounting – Payment Gateway Config and select "PayPal Payment Gateway" (Figure 14)

Figure 14: PayPal Payment Gateway

*Api Username/Password/signature are required for the validation of external account
*PayPal returns data back to your site via what they call IPN. It is really just a callback to a URL
you specify. You can set this URL via the variable notify_url you can send to PayPal(1).

2. Go to Catalog – Stores – Select the Store (OFBiz E-commerce Store)(Figure 15)

Figure 15: Stores

3. Go to Payments tab(Figure 16)
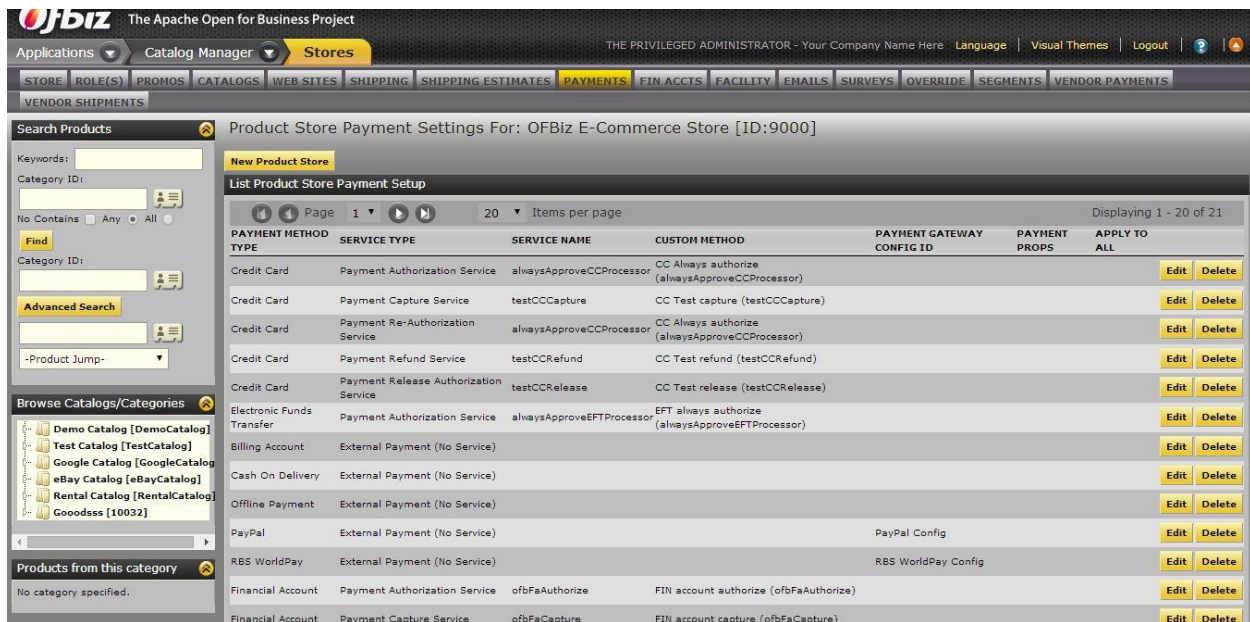
Figure 16: Stores-Payment tab

4. Edit the Payment Method Type PayPal and choose as Payment Gateway Config Id "PayPal Config"(Figure 17)
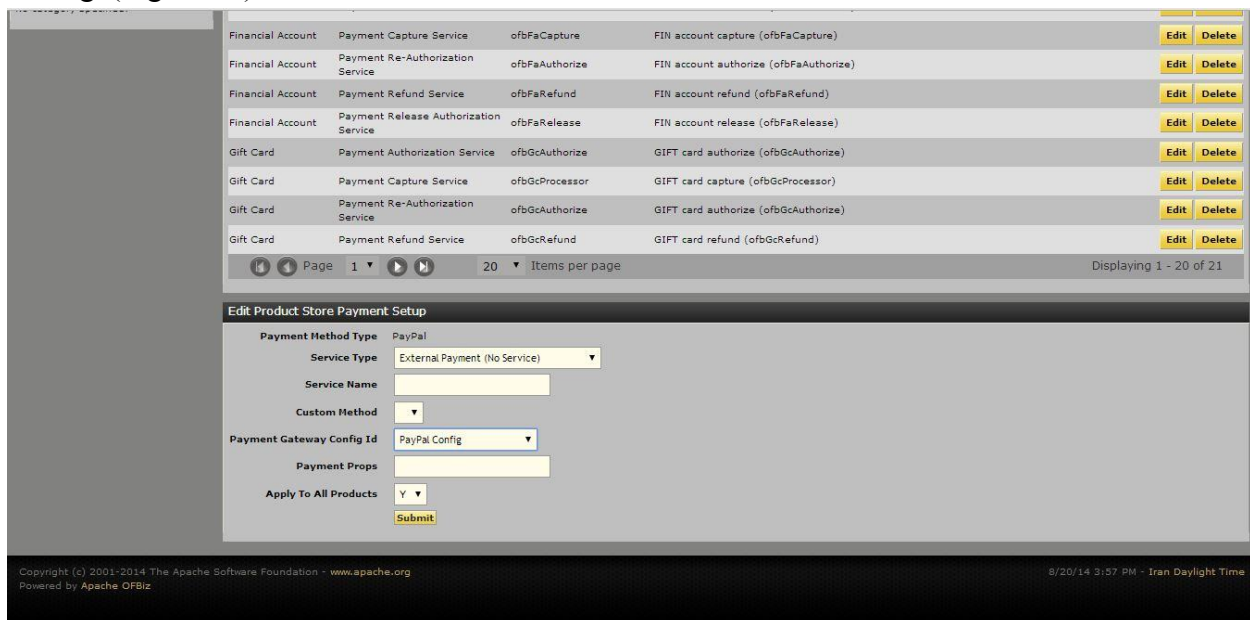
Figure 17: PayPal Config

These steps are the OFBiz side; also for PayPal website we should have an account

2.2.2.2 Credit Card

To setup Credit Card processing just specify the services to use for each following processes(Figure 18):

1. Payment Authorization Service
2. Payment Capture Service
3. Payment Reauthorization Service
4. Payment Refund Service
5. Payment Release Authorization Service

Figure 18: Credit Card

After selecting each service we can edit them(Figure 19).

Figure 19: Credit Card-Editing part

The main page of Payment is Find. In this page three options are available: Create New Payment, Find Sales Invoices by Due Date and Find Purchase Invoices by Due Date. The 'Due Date' can

be defined as the last possible date that payments can be received for the invoice without triggering late payment penalties.

2.2.2.3 Find Page

Payments can be incoming or outgoing and the demo data contains a list of payment type descriptions that describe the reason for the payment in more detail (e.g. Customer Deposit, Tax Payment, Commission Payment etc.).

How to locate an existing payment?

1. Enter the 'Payment ID' if known

2. Enter a word from the payment comments in the 'Comments' field if known

3. Enter the 'Payment Type Id' if known

4. Enter the 'From Party Id' if known (NOTE: In most cases for an incoming payment this will be the customer party id)

5. Enter the payment amount in the 'Amount' field if known

6. Enter some details from the payment reference number in the 'Reference No' field if known

7. Enter the status of the payment in the 'Status Id' field if known

8. Enter the 'To Party Id' if known (NOTE: In most cases for an incoming payment this will the customer party id. For outgoing payments this will be the supplier id, or customer id for a refund)

9. Press the 'Search' button to view all payments

10. All payments that meet the search criteria will be displayed.

2.2.2.4 Create New Payment

Payments can be incoming (e.g. from a customer) or outgoing (e.g. to a supplier).
If the payment is an incoming payment then the payment type is currently limited to the following:

- Customer Deposit
- Customer Payment
- Interest In
- POS Paid In (NOTE: POS= Point of Sale)
- Gift Certificate Deposit

If the payment is an outgoing payment then the payment type is currently limited to the following:

- Commission Payment
- Customer Refund

- Gift Certificate Withdrawal
- POS Paid Out
- Income Tax Payment
- Pay Check
- Payroll Payment
- Payroll Tax Payment
- Sales Tax Payment
- Tax Payment
- Vendor Payment
- Vendor Prepayment (NOTE: I think this means that this is a payment in advance to your supplier before delivery of any goods)

Payment Page

How to create a new incoming payment?

1. Press the 'Create New Payment' button
2. The New Incoming Payment / New Outgoing Payment screen is displayed
3. Leave 'Organization Party Id' with its default of 'Company' https://localhost:8443/accounting/control/ListCompanies
4. Select the 'Payment Type Id' from the drop down box (NOTE: This is currently limited to the following: Customer Deposit, Customer Payment, Interest In, POS Paid In and Gift Certificate Deposit)
5. Enter the payment amount in the 'Amount' field
6. Enter or use the lookup to find the 'From Party Id'
7. Select the 'Payment Method Type' from the drop down box (e.g. how the payment was paid -cash, cheque, money order etc.)
8. Press the 'Create' button

9. The payment header is created and the default header screen will be displayed

How to create a new outgoing payment?

1. Press the 'Create New Payment' button
2. The New Incoming Payment / New Outgoing Payment screen is displayed
3. Leave 'Organization Party Id' with its default of 'Company'
4. Select the 'Payment Type Id' from the drop down box (NOTE: This is currently limited to 11 entries including Commission Payment, Customer Refund, Vendor Payment, Income Tax Payment)
5. Enter the payment amount in the 'Amount' field
6. Enter or use the lookup to find the 'To Party Id'
7. Select the 'Payment Method Type' from the drop down box (e.g. how the payment is to be paid -cash, cheque, money order etc.)
8. Press the 'Create' button
9. The payment header is created and the default header screen will be displayed

Notes:
- The 'Due Date' can be defined as the last possible date that payments can be received for the invoice without triggering late payment penalties.
- The 'Invoice Date' can be defined as the date that the invoice was created and this is normally based on when products were shipped or services were provided.
- Organization Party Id': Normally this will be Company
- Enter the 'Party Id' that the Sales Invoice: Normally this will be the Customer Party Id

2.2.2.5 Invoices
Invoices are created automatically by system when an order for an item is received. This order can be sale or purchase.
For sales orders, for digital goods an invoice will be created when the order is placed, and that invoice will be for all digital goods in the order
For purchase orders, an invoice will be created from a shipment when the shipment goes into the Received status.

Invoice Page

How to create new purchase invoice:

1. Press the 'Create New' button
2. The New Sales Invoice / New Purchase Invoice screen is displayed
3. Leave 'Organization Party Id' with its default of 'Company'
4. Enter or use the lookup to find the 'From Party Id'(e.g. DemoSupplier)
5. Press the 'Create' button in the bottom part of the screen

How to create new sales invoice:

1. Press the 'Create New' button
2. The New Sales Invoice / New Purchase Invoice screen is displayed
3. Leave 'Organization Party Id' with its default of 'Company'
4. Enter or use the lookup to find the 'From Party Id'(e.g. DemoSupplier)
5. Press the 'Create' button in the bottom part of the screen

2.2.2.6 Agreement

An agreement is a way of recording a business arrangements or contract that your business makes with other companies or individuals. Common examples include Payment Terms (where you allow a customer up to 30 days to pay you) or Prompt Payment Discounts (where you offer a reduction on the amount owing if your customer pays you before a certain date).

Agreement Page

Some of the use of Agreements:

- Defining Payment Terms for customer and supplier
- Defining sales commissions
- Defining late penalties

The next figure is an example of an Agreement for a Samsung TV product which is validated from 26th of August 2014 to 29th of August 2014.

2.2.3 Delivery

The last part to complete an online shopping procedure is performed by delivery method which is support delivering the customers orders into their address.

2.2.3.1) Order Entry and Ship Groups

Here we see how we can handle a manual order entries in OFBIZ.

What we need is to place a sales order on behalf of a customer (order received by fax, by mail, by phone etc..). The order contains several items and the customer asks that the order is shipped with two (or more) shipments with different delivery dates and/or to different postal addresses and/or with different shipping methods or shipping instructions. The customer clearly specify the items to be assigned to each shipment.

OFBIZ makes it really easy:

We can easily place an order by defining **multiple ship groups**: ship groups represent a way to group into different sets the items of an order and each ship group has its own shipping options:
- Delivery dates
- Shipment address.

Ship groups are created during order checkout.

An Example scenario to do delivery part in OfBiz:
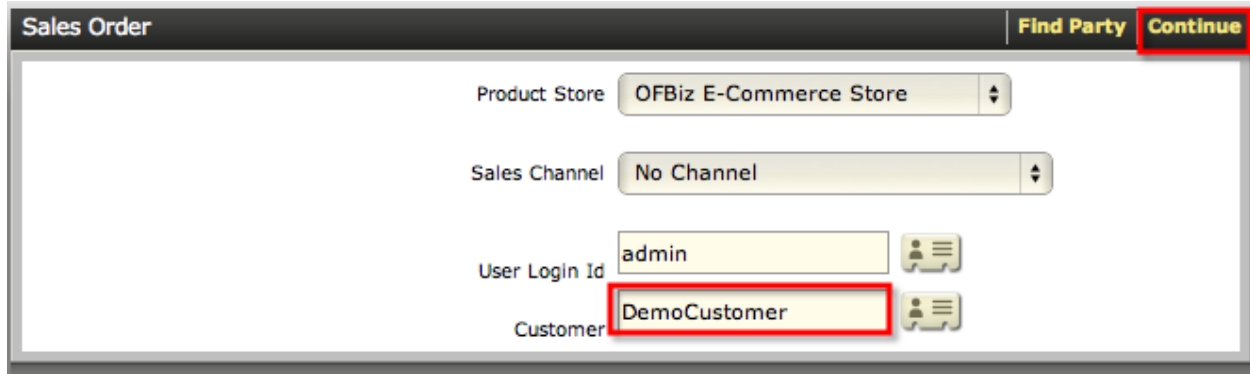
Let's suppose that the order clerk has to place an order for 10 units of the product with id WG-1111 and 5 units of the product with id GZ-1000.

The customer needs immediately 5 units of WG-1111 and prefers to pay for the quickest shipment method available, while all the 5 units of GZ-1000 and the remaining 5 units of WG-1111 (together with some promotional items) can wait and so they will be shipped using a cheaper and slower shipping method later.

Let's do this step by step.

2.2.3.2)Placing Order

The first part is easy because it is exactly like placing a standard order:
go to the order entry screen and enter the customer id (Figure 1)
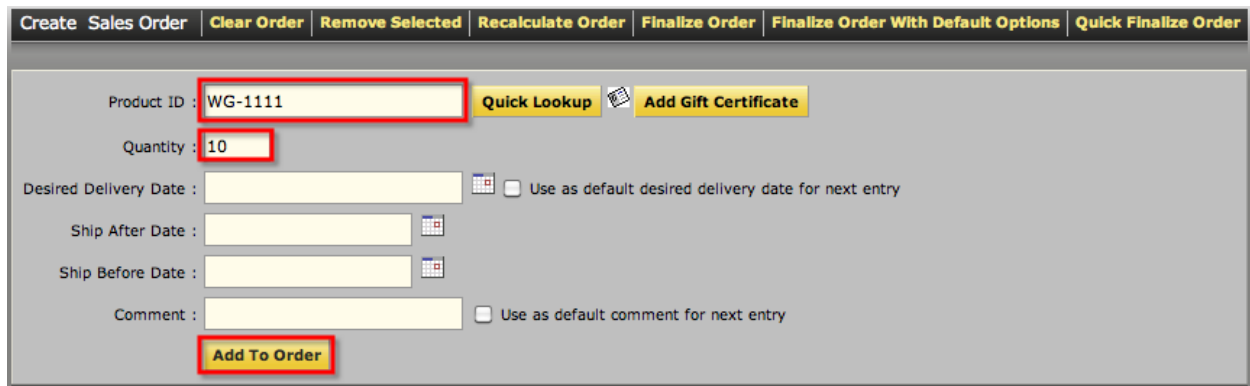
Figure 1: Customer id entering

add to the cart 10 units of WG-1111 and 5 units of GZ-1000 (don't worry about the ship groups now, you will do this at checkout), if you are running the standard OFBiz demo you will also get some promotional items. (Figure 2)
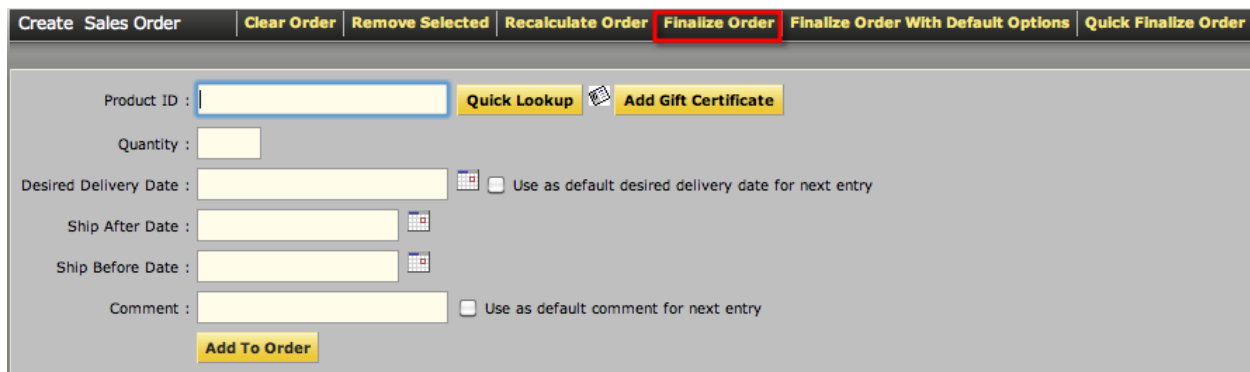
Figure 2: Entering order information

now we are ready for the checkout and we click on the "Finalize Order" button. (Figure 3)

Figure 3: Finalizing the order

2.2.3.3)Shipment Address and Confirm Order

The first checkout screen let us select the shipment address and this is where we add the second ship group that we need by clicking on the "New Ship Group" button. (Figure 4)
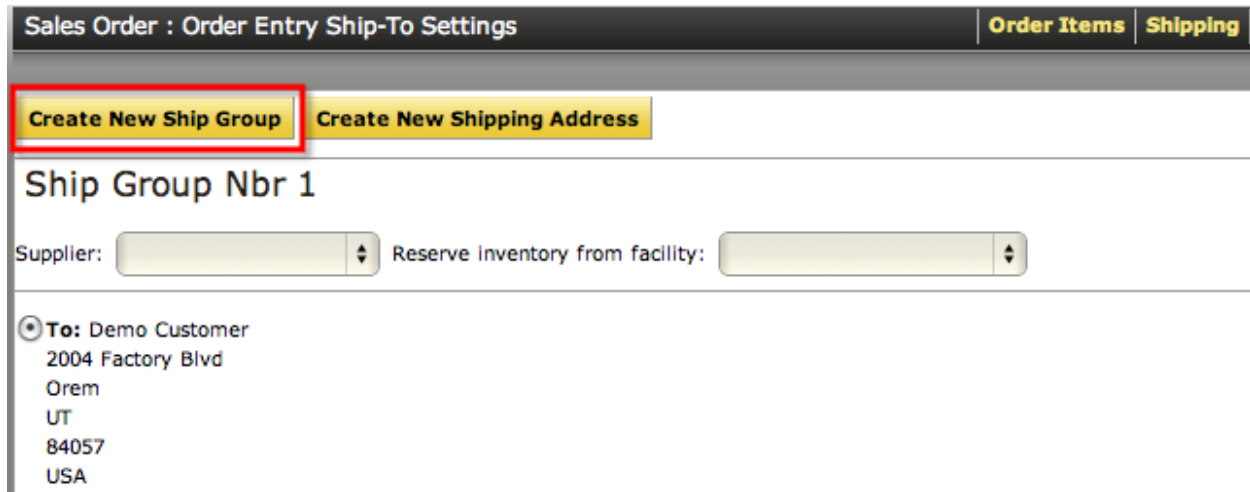
Figure 4: Entering shipment address

the page will reload with two ship group sections, set the shipment address for each of them and click on the "Continue" button. (Figure 5)
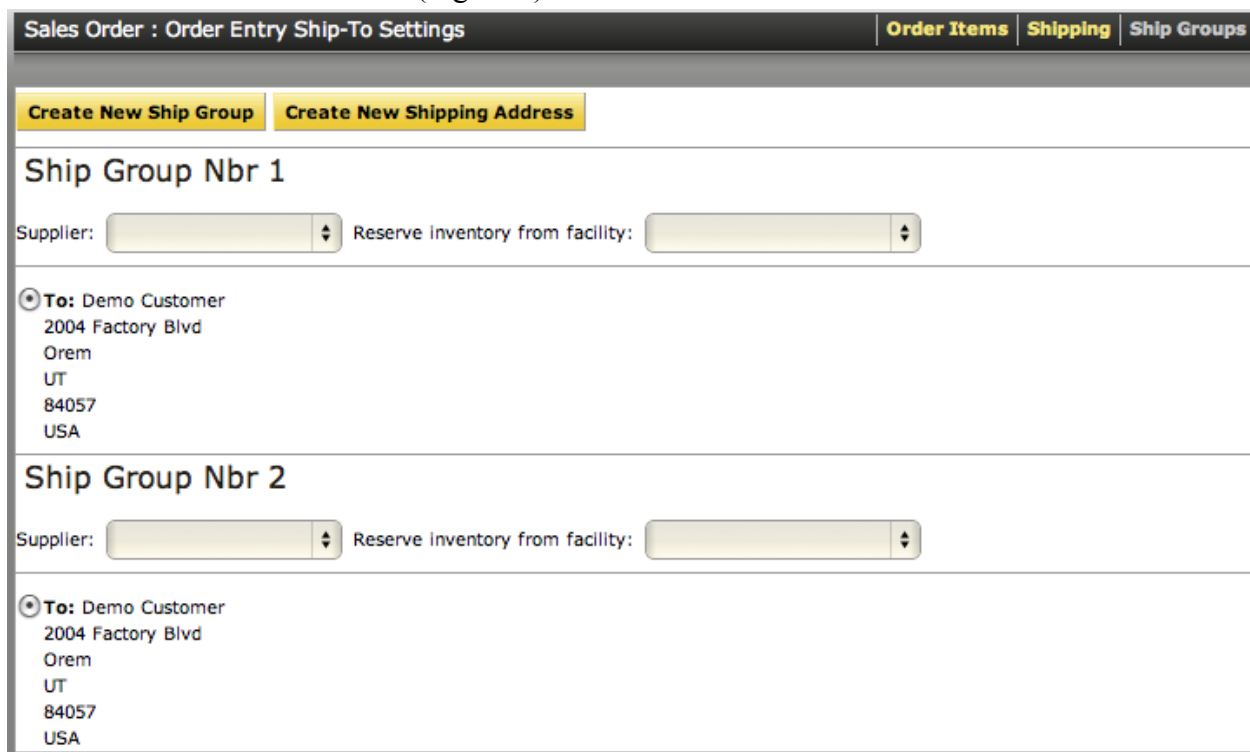
Figure 5: Entering shipment address

in the next screen you will have the ability to move the items from one ship group to the other; initially all the items will be in the first ship group and the second one will be empty. (Figure 6)

Figure 6: Editing shipment group

using the drop down boxes and the quantity field near each item you can move the items to the second ship group. (Figure 7)

Figure 7: Editing shipment group

now click on the "Continue" button, the next screen will let you set the shipment method and options for each ship group, just make sure you select the proper method for each group. (Figure 8&9)

Ship Group Nbr 1

Shipment Method

⦿ UPS Guaranteed Next Day - $0.00
◯ UPS Air - $0.00
◯ UPS Ground - $0.00
◯ USPS Express - Calculated Offline

**Figure 8: Selecting proper shipment
method in first group**

Ship Group Nbr 2

Shipment Method

◯ UPS Guaranteed Next Day - $0.00
◯ UPS Air - $0.00
⦿ UPS Ground - $0.00

**Figure 9: Selecting proper shipment
method in second group**

The next steps are exactly the same as a standard order, so complete the checkout and confirm the order.

The steps is now complete!

If you visit the order detail screen you will notice that there are now two boxes for the shipment information (one for each group). (Figure 10)

Figure 10: Entering shipment information

You can now fulfill the order as usual and the only difference is that you will create two different shipments (one for each ship group): when the shipment is created from the ship group, OFBiz will create a shipment containing the items assigned to that ship group only.[1]

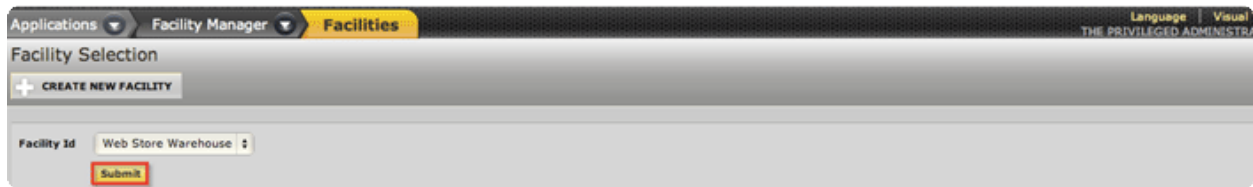*Now how to fulfill a sales order that has more than one ship group?*

2.2.3.4)Multiple shipment order

we learned how to place a sales order comprising of multiple ship groups. Now we see how to fulfill a sales order containing more than one ship group which is yet another interesting feature present OOTB.

The items in the ship group may differ from the previous tutorial and is not important though but in general the tutorial will present you with a step by step guide to fulfill a sales order.

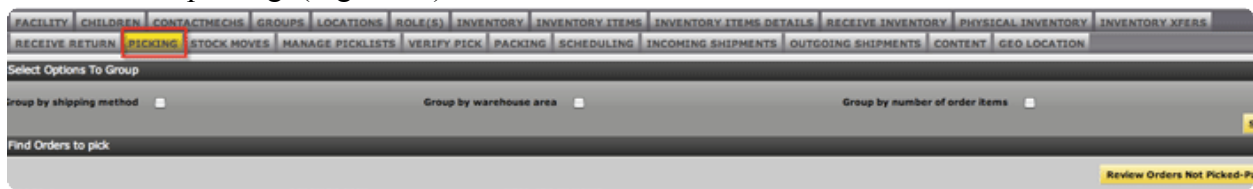*Lets get started assuming that you have a very basic knowledge of warehouse.*

The first step is to select a warehouse. (Figure 11)

Figure 11: Warehouse selecting

Select a warehouse from the drop-down and click on the submit button. Go to Picking tab to see the orders for picking. (Figure 12)

Figure 12: Orders to pick

The screen displays a list of orders that are in approved status. An order may require stock move prior to picking. There are a total of 4 grouping methods available OOTB to group the orders for picking namely: Group by Shipping Method, Group by Warehouse Area, Group by Number of Order Items and Zero grouping.

Lets just stick to zero grouping method i.e. when no grouping method is selected. From the screen below (part of the above screen) we find that order is not ready for picking yet and needs a stock move.

Stock move is moving inventory from a bulk location to a primary/pick location where a picker can actually pick the inventory items. (Figure 13)

Figure 13: Inventory moving

You cannot create a picklist until and unless order is ready for picking. Lets do the required stock move first. (Figure 14)

Figure 14: Stock move

Once we complete the stock move, the screen will show that no other stock move is required. (Figure 15)

Figure 15: Stock move

Lets go back to the picking screen and see whether the order is now ready for picking or not. (Figure 16)

Figure 16: Picking screen

Now the order is ready for picking (see the second column) and we can create the picklist as well. After creating the picklist, we need to pick the order. This can be done through Manage Picklist screen.
(Figure 17)

Figure 17: Creating a picklist

Once the order is picked, change the status from the drop-down to Picked. (Figure 18)
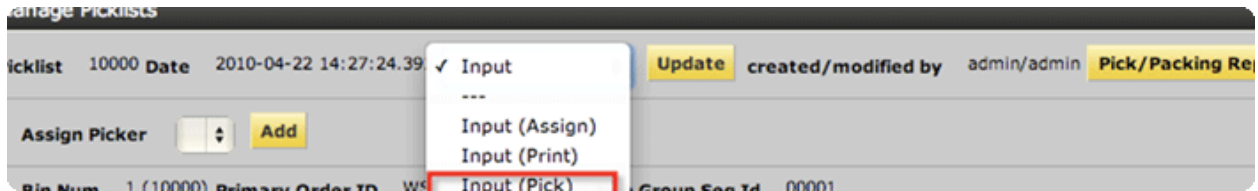
Figure 18: Determine the order status

The order picking is now complete. Lets move further and learn how to pack the order. Click on Packing tab. On the packing screen, enter the order ID (leftmost) and the ship group ID (Rightmost) in the input box. The ship group though defaults to 00001 and you may only need to change it if you are packing the order for a different ship group other than 00001.

Click on "Pack Order" button. This will show the items that need to be packed for ship group 00001.
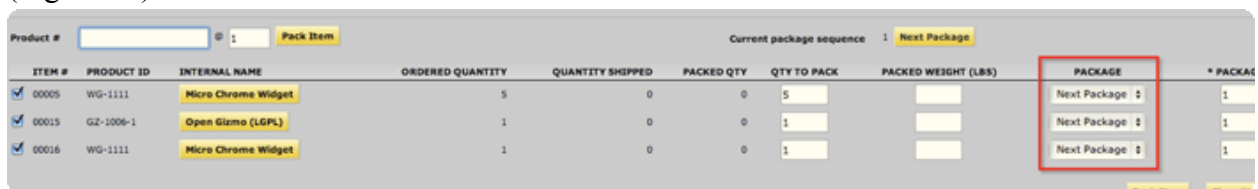
(Figure 19)

Figure 19: Order packing

Click on Pack Item button. This will pack all the items in a single package and will show the number of package and items in these packages. (Figure 20)
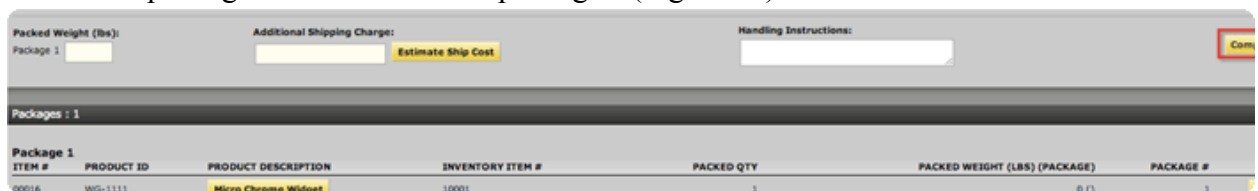

Figure 20: Control packing

Click on Complete button. This will complete the packing of order for ship group 00001. A shipment and an invoice will be generated. (Figure 21)
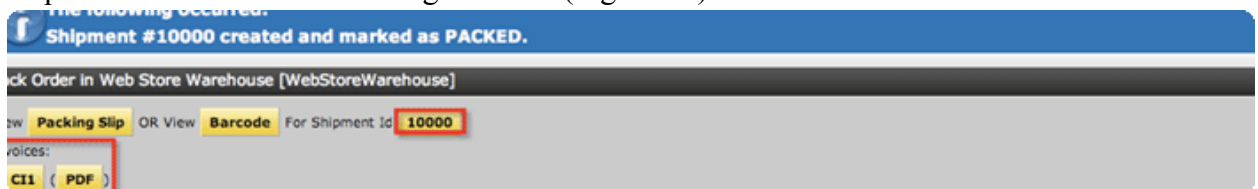

Figure 21: Invoice generation

Now lets try to print the shipping label that can be affixed on this package. For this click on the shipment ID link and then go to Route Segments tab. (Figure 22)
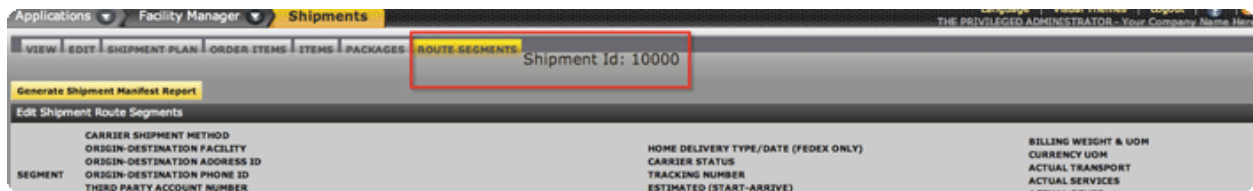
Figure 22: Printing the shipping label

Click on Confirm Shipment with UPS button to confirm the shipment with UPS. Once the shipment is confirmed, a new button "Accept UPS Shipment Confirmation" will appear on the screen. (Figure 23)
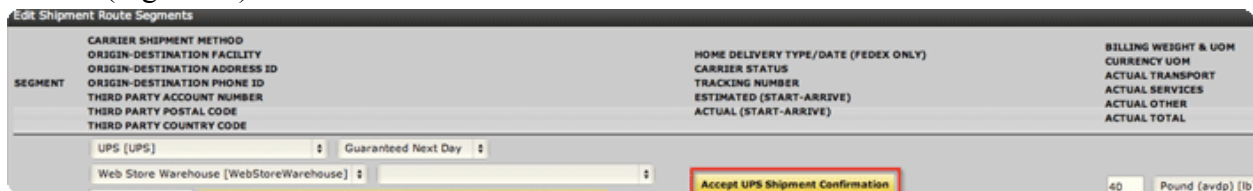

Figure 23: Shipment confirmation

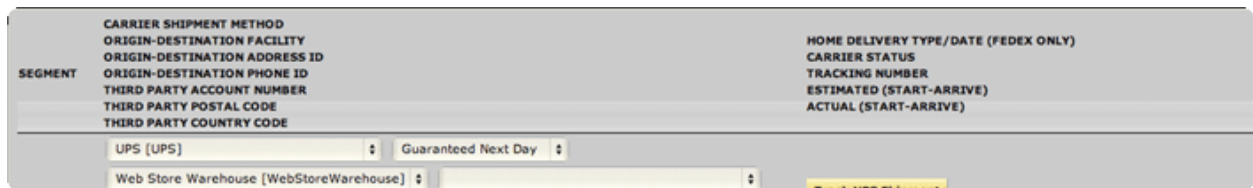Click this button and the shipping label will be received from the UPS. (Figure 24)

Figure 24: Shipment confirmation

The shipping label can be viewed from View Label Image button and once printed can be affixed on each package.

You can now perform the same steps to pack items for ship group 00002. Once the order is packed for both ship groups the status of order will change to Completed. (Figure 25)
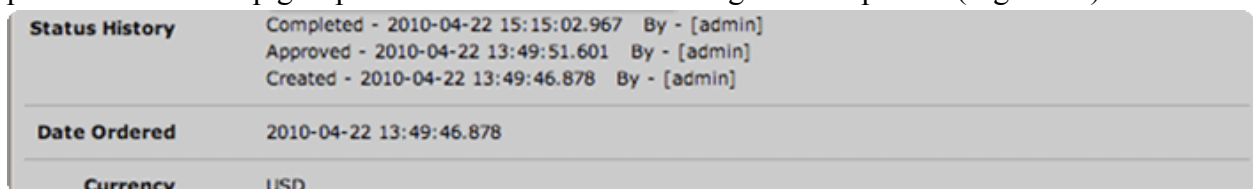

Figure 25: checking the status of the order(s)

This accomplishes the fulfillment of the order.

Vikas Mayur is a dynamic OFBiz developer working for HotWax Media as a Director of Software Development in India. He works in web based application and ERP software using OFBiz, which is a top level project of Apache Software Foundation[2].

Sources (This placed here temporarily)

1-http://www.hotwaxmedia.com/apache-ofbiz-blog/ofbiz-tutorial-order-entry-and-ship-groups/
2-http://www.hotwaxmedia.com/apache-ofbiz-blog/ofbiz-tutorial-how-to-fulfill-a-sales-order-that-has-more-then-one-ship-group/