TYPO3 commerce

Project Description

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Version 1.7.0

The content of this document is related to TYPO3

- a GNU/GPL CMS/Framework available from www.TYPO3.com

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1. Overview

Project name
TYPO3commerce

Abstract
The goal is to create an advanced Shop Extension that fulfils almost all current requirements for e-commerce software. The shop extension will be scalable to match all further requirements: An API for external processes, like connecting to a credit card gateway or address verification, will be basically developed. Some exemplary systems that connect through this API will be developed as well. Basic BE modules for order handling, statistics and product/article editing will be included. This extension is NOT a modification of tt_products, in fact it's a complete state-of-the-art new development, utilising DBAL, FlexForms, services and DAM.
Further discussion on this extension can be found at http://wiki.TYPO3.org/index.php/Ext_commerce.

This document describes the “project team intention” . All further planning, developing and implementing will be based on it. If you'd like to participate by input, programming, planing or even sponsoring the project feel free to contact any of the project members.

The feature list gives you a brief overview on the current status. All items that appear on the general feature list will be available in the first release. The items listed under sponsored features are just “nice to have” and will be implemented only if a sponsor is found. The features listed as unimplemented are extremely specific. Since they would only be needed in a very few projects an implementation at this stage would cause too much additional effort. Those features would also require a very complex prior planing phase. If you absolutely need one of those features and are willing to contribute the required conceptional input, feel free to contact the project team team@TYPO3-commerce.org :-).

Status of this document
Current Version is 1.7, based on the findings of the latest workshop in Roskilde, Denmark, Germany on February 25th to 28th March 2006.

Extension type
Backend modules with basic functions, frontend plug-ins .

Status
New development. Programming phase. First implementation in productive system availiable:

- Surf0800 (http://www.surf0800.de), complete shop with automatic order processing to afterbuy
- Beurer (http://www.beurer.de), international product catalog with product finder based on article attributes
- Sanicur (http://www.sanicur.de), complete shop with dynamic pricehandling
- Planet Botanic (http://www.planetbotanic.com), complete shop with barclaycard integration for payment
- profieinkauf.de (http://www.profieinkauf.de), complete shop, using the commerce backend.

Currently this extension is in a closed beta phase, as the project team want to achieve a high quality of code in the project and a high reliability especially concerning the calculation and payment methods. This extension deals with real money, so this quality is absolutely necessary! The project team is currently looking for implementations outside of Germany to improve the general concepts of tax handling, payment and the support of non iso latin-1 charactersets. Feel free to contact the project team at team@TYPO3-commerce.org.

Compliance
The implementation will be based on the latest productionTYPO3 Version (V3.8.1), is also stable on the current 4.0 branch. PHP 4.3.x will be supported.

2. Description

2.1 What is the problem?

TYPO3 doesn't offer an e-commerce solution that fulfils current requirements. tt_products isn't as flexible as it is supposed to be.
So integrating all required features into tt-products would be more time-consuming than creating a new extension based on a good concept.

2.2 What are the objects to be dealt with? Input and Output?

The following features need to be implemented:

- Backend administration of products, articles and categories
- Frontend display of products, articles and categories
- Backend processing of customers and orders
- Frontend GUI allowing customers to manage their orders
- Shopping cart and checkout
- Interfaces to external applications, e.g. ERP and credit card clearing services
- Backend plug-in for the administration of customers and orders
- product management with extended intelligence as opposed to standard datasets
- separate module with tree structure to manage products (see DAM)
- plug-in to reproduce the product structure in the websites structure

- ## Who are the users?

Customers, shop operator, (order processing, product management , board of editors), administration

Typical setup:

- Editor / product management: Enters product information online, maintains stock, supplies additional content for the shop pages.
- Customer: purchases, manages addresses and orders.
- Order management: Manages orders and customer information
- Admin: installs shop, maintains and adapts software, creates layout and includes external systems.

2.3 User interface

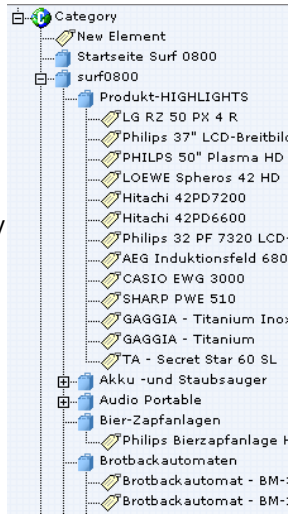
- Display of products and articles
- Shopping cart
- Checkout
- Customer management (in customer frontend)
- Navigation created by categories

3. Implementation Details

The complete shopping-extension will be divided in 3 interacting modules to constitute the complete extension. In specific environments the parts could also be used as stand-alone modules, according to project needs. You could present the complete product-catalogue without any cart and order procession features. Or just use the checkout system only for auctions or selling theatre tickets.

The extension will make use of the localization features of TYPO3, so then all extension elements can be translated via the locallang mechanism, all data entries can be translated to a mechanism similar to TemplaVoila (FlexForms).

3.1 Display for products and articles

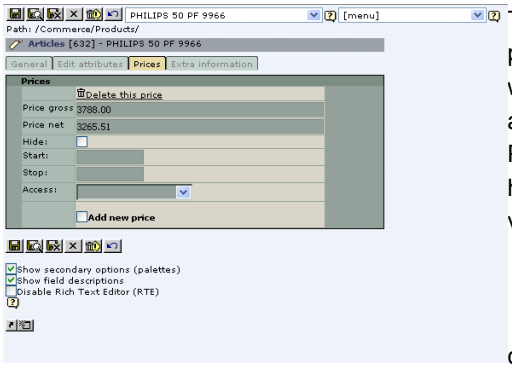


This part will handle all issues concerning the display of product-categories, products and articles. A hierarchical tree-structure will be used to represent the inner structure of these items.

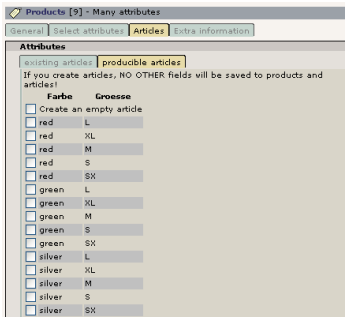
Product categories are the topmost elements for this structure, a product category has to be the root-node. A product category can contain other product categories (via a recursive data structure) and products.

Product categories can have related product categories and even multiple parent categories to implement additional references to product categories on different tree-parts (e.g. batteries in mp3 players as well as in CD players). A product category will have the normal TYPO3 access-features (hidden, group, time). Via the group feature an implementation for a closed user group would be easy to built via a FE user group.

Product categories can be described by title, subtitle, description (long text, RTE) and pictures. Sub elements of product categories (either products or product cageories) will be sorted by a TYPOScript defined Database field.



The product contains a saleable article in the shop. A product must have at least one article (optionally several), which is the smallest element in this structure. Only an article can have an assigned article number, EAN code etc.. Prices are assigned as separate data to the article, for handling different prices for different FE-Usergroups, times via the normal TYPO3 access mechanism.



Within this structure you can easily create different product variants and different sizes. As an exaple: if the product would be a jeans labelled T3 – 404 the articles then would be it's different sizes and colours like 32-30 black, 32-32 black, 32-30 green, ...

Articles could be easily created by select attributes, an automatic matrix is build, on which you can decide the articles to create.

Products can have more that one parent category to assign a product to different tree-parts. The access to products can also be handled via the normal TYPO3 features (hidden, group, time).

Products be described by title, subtitle, description, search key words, link to other information and pictures.

Articles will always require a parent product, to have a unique relation between products and articles. The access to articles can also be handled by normal TYPO3 features (hidden, group, time). In this way, you can

have special articles for a specific FE group, or you can implement a special article for a FE group (eg. existing customers).

The article stock could be handled via an API/Hook. The extension will contain some simple stock handling, so you can easily extend this feature to your needs. There will also be a hook for implementing special tax handling schemes.

Articles can be described via title, subtitle, number, eancode, multimedia-content, %tax, minimum-order-unit, links to internal/external pages, action attributes (new, price off ..).

The technical characteristics of an articles can be described via attribute and attribute values. Attributes are general technical definitions, like weight, size, voltage, colour, ... These attribute definitions should be defined consistently for the entire shop. The detailed article definition will be stored in an attribute-value relation to each article.

Product categories and products can include definitions for attributes. These attributes will be displayed when editing the article in the BE. There will be different attribute definitions, a can definition that is optional, a should definition that is requested, a select definition on which articles could be created, a product definition and a filter definition. These different definitions will only change the display on the BE-article page. A “must” definition won't be implemented, because a change of a mandatory definition per category would result in subsequent manual changes of all articles, attributes, and value data under this category.

Product categories can be inserted into the normal page tree, via extension plug-ins. The starting point for the product-tree can be defined in each inserted plug-in. Navigation menus should be rendered by the extension according to the style defined by TS. This allows you to add more than one product category link to yourTYPO3 page.

3.2 Shopping-cart

The shopping-cart will be transparently carried along during the user session. This cart can only contain articles (as smallest item in the product tree).

The cart will have an API/Hook for adding, storing and changing items in the cart, this API will also be used to add/change/delete articles from the user cart. The cart will be able to handle multiple languages, so you could possibly switch the language during you visit.

There will be extension plug-ins for displaying the complete cart, displaying an abstract (your cart contains 5 different articles, total 3,59 €) and displaying a link to the cart.

3.3 Checkout

The checkout is handling the complete user interaction process for acquiring the user data to fulfil the order. The checkout is separated from the cart, to have the pure API for the cart and to have a completely separated process for the checkout. The result of the complete checkout will be an order (see 3.4).

The “registered user” function, will be implemented via the TYPO3 FE-Users mechanism, to gain maximum flexibility from other extensions. After the checkout process a new user (if needed) will be created in the FE-users table. The checkout process will be able to handle a different delivery address.

The extension will have a hook/API for several payment gateways for different payment methods. The extension will provide demo and live connections for some payment methods. With these system, you could easily implement different payment methods for different customer groups.

The extension will have a hook/API for different kinds of shipment, including a demo implementation for some simple delivery methods. Via this system you could also add a function to handle different shipment costs depending on weight or number of items.

The extension will have a hook/API for adding affiliate codes (eg. Affilinet/Google/xanox) at the end of the checkout process, like for adding an special count pixel.

The checkout will be rewritten completely for Version 1.1, as projects will need a more flexible way of

implementing own checkout solutions. The new checkout will be available as a new frontent plugin during at least on subversion, a migration could be possible to the new checkout during this time.

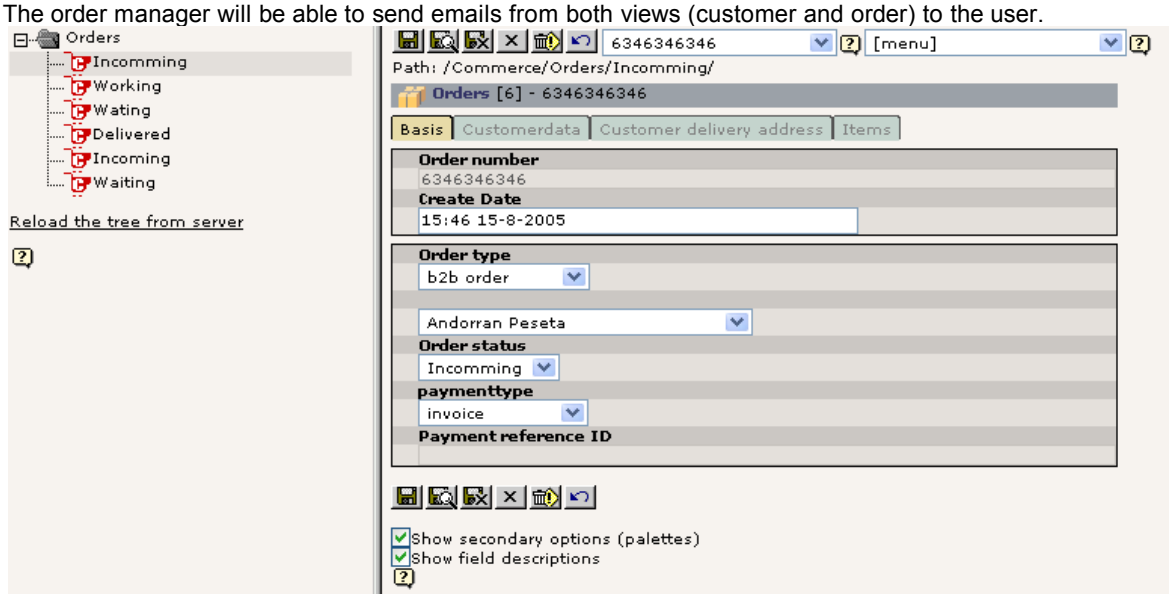
The new Checkout will use Formidable as external Extension to have a fine way to generate and handle forms.

3.4 Customer information portal

The Customer information portal is a FE-User specific area in the shop, where a customer (FE-User) could manage his data, the last orders, delivery and invoice addresses. This feature is implemented at a very basic level. Within the rewrite of the checkout, this part will be extended as well. For this phase a sponsoring of at least 5 days is needed.

3.5 Order processing

The extension will have a separate backend module for handling the orders. The implementation BE-Modules allows the administrator to configure the order management user similar to the normal BE-Users. The BE-Module will have separate views for order and customer data. There will be user defined categories for both datasets, to manually classify orders and customers (b2b order, b2c order, good customer...). Both kind of data can be displayed in a list view with manual sorting and filtering by categories. For order datasets there will be different status information about processing the order (eg. money received, address ok). These stati can be extended via custom plugins. There also will be an option to search for customer and order data. The order manager will be able to send emails from both views (customer and order) to the user.



Order and customer datasets will have a tracking system that already collects some tracking data in the basic module. This tracking system can be extended via an API and Hooks.

Order related documents like invoices or confirmations will be generated as html-documents and/or pdf.

A Basic order tracking system will be implemented, open to add own user functions or external systems like dhl, ups.

3.6 Statistics

The extension will create simple order statistics like order per day, new customer per day. The extension will record as much data as possible for extended statistic functions, that can be developed separately. (See sponsored features)

4. Featurelist

4.1 Implemented Features

General

- Catalogue import via XML
- Catalogue import from tt_products
- Catalogue import from csv
- Catalogue export as XML
- General Hooks for selling DAM Content, but no implementation of the designated special shopping process (Download link, verifications, re-download)
- Product-Search

The product pages will be indexable for the index-search, an additional search engine is therefore not needed for the time being.

- System exporting data for order portals like Kelkoo, Preispiraten, pangora, froogle (as separate extension)

4.2 Sponsored Features

General

- Catalogue import from other formats for migration from other systems (eg. csv)
- Catalogue export in csv format
- Implementation of the shopping process for selling DAM Contents (see 2.6.1).
- Implementation of selling access to parts of the website
- Basic implementation for payment gateways
- Product-Search – External systems like fact-finder
- Wish list like Amazon
- Coupons (Gift certificates)
- Handling of different delivery/payment addresses per customer by extending FE-Users
- BE: Multi-Language Layout for Backend detail relations (Order type, customer type, see

Display of products and articles

- Manufacturer

Different manufacturers will be defined in a sysfolder. A manufacturer would consist of name, address, logo, description, rating, link. You can choose one manufacturer per article.

There will also be an extension plug-in for displaying a list of all manufacturers and a plug-in for displaying the single manufacturer data as well as a list per manufacturer of all articles for this manufacturer.

- Shopping list

A shopping list allows you to save the current articles in your basked for further visits.

- Individual sorting

The function enables the frontend user to change the product / product category sorting on the fly (name, price, article-number, EAN code, date, manufacturer). The prevalent sorting will be saved within the user session.

Customer information portal

To be described more detailed in a further version of this document, also see 3.6

Order processing

- Internal order tracking

Extension for the basic order tracking system providing more informations about the order.

- External order tracking

Extension for the basic order tracking by external resources, as parcel delivery services, warehouse systems, etc

- PDF Documents

Gererating order related documents as static PDF files and sending automatically to the customer. The amount for this feature has been raised, it will be present in 1.0 as Frontend Plugin.

Statistics

During the implementation of this extension more than the basic implemented statistics could be realised. Some suggestions:

- best products/ top seller
- top ordering hours/days

4.3 Unimplemented Features

General

- Real time price calculators / configurators eg. for cars or computers
- Multi-Country-Layout

A Multi-Country-Layout for this extension, especially for products and articles could be implemented via different product trees. Usually a company will have separate prices, article-numbers, EAN codes for articles sold in different countries. The way these informations are registered differs from company to company. Since TYPO3 is differentiating by language (not by country), an implementation for a multi-country layout would require a rewrite of the TYPO3 core.

Since this extension will be able to handle all localization features of TYPO3 and you can have a different page tree (and by that a different product tree altogether), you could implement a virtual mulit-language-layout all by yourself.

- Multi currencies

An multi-currencies implementation and in time changes for currencies during the user session would require that you have access to the current rate of exchange during the user session. For all EURO currencies this wouldn't be a problem (fixed exchange rates), but for all other currencies you must have on line access to an exchange rate gateway. Further more, usually prices in separate currencies are not only converted via the exchange rate but also adjusted to price borders (9.99).

- Multiseparated shops in one TYPO3 instance

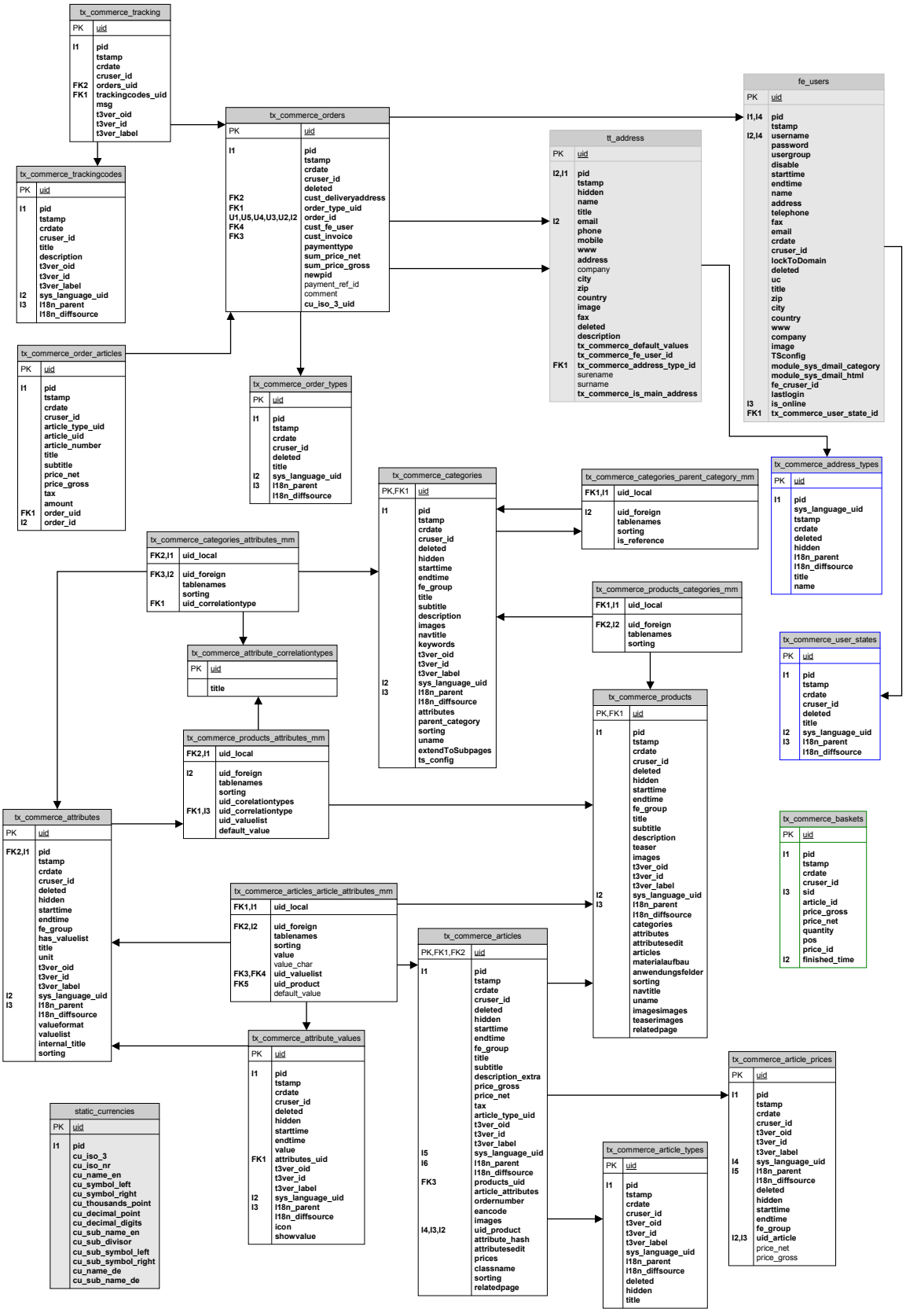
During the compexity of this extension, only one shop will be allowed in a TYPO3 installation. The Extension will have it's own backend section with sub modules. Dataprotection issues (Bundesdatenschutzgesetz in Germany) forces a separate installation.

4.4 Technical implementation done:

Done:

Class Scheme

Database scheme



4.5 Current Class-Documentation

See http://doc.TYPO3-commerce.org

4.6 developed libraries:

– DynamicFlexForms for Backend:

  Adds the ability to dynamically adjust the rendering process of the BE FlexForms, based on the desired content. This is done with special post- and preprocessing functions defined in the TCA.

– Dynamic navigation on basis of categories

  Adds the category tree to the normal menu rendering, to integrate the category tree in the navigation tree.

– Technical implementation todo:

API scheme

5. Todos

The functionality of these todos is described by the project team. Contributors for these Jobs and Sponsors are welcomed to contact the project team.

5.1 Release 1.0

BE modul for setting master data properties

- Attributes
- Attribute Values
- Shipping Costs
- Payment Costs

Module for exporting Orders and Product Data

Internal search module for products and articles, orders and customers

Ability to link directly to Products from link-popup

Related Articles

Translation “user handbook” to English and other languages

- Danish: Thomas Lorenzen <thomas@typoconsult.dk>
- English: typoconsult.dk

Translation locallalang fields to languages, current translators:

- France: Raphael GEYER <r.geyer@ameos.com>
- Dutch: Kees van der Hall <KvdHall@xs4all.nl>
- Danish: Thomas Lorenzen <thomas@typoconsult.dk>
- English: typoconsult.dk

Improvements for rendering product tree contents html output

Improvements for the backend order handling module

Update UML diagram ER scheme

As easy install as os_commerce, install and run

One article per product setting

5.2 Release 1.1

1. BE user rights

2. Print all invoices

3. API for handling articles (create, change, store)

4. Rewrite if checkout using formidable

6. Workload calculation

Until today about one man year of work has been done for this project. All basic features have been implemented. During the start of some shops running on tx_commerce might bring some slight changes and a few bugfixes to the project team; we don't expect to much workload for this.

Further research and conceptual work is needed. The implementation speed of needed Features could be increased by sponsoring the worktime for implementation.

7. Funds and resource estimation

Since the concept and consequently the production plan of new features has not yet completed we cannot

offer any estimates on the funds needed at this time. It can however be assumed that the completion of features will be organized in modular steps.

The system is currently integrated into four existing projects. These projects are already covering a portion of the development costs. Some developers are also volunteering some of their time into these projects. We are currently looking for further sponsorships coming from both developers and customers with the according requirements to allow a focused development.

8. Production Team

8.1 Main team

Ingo Schmitt – coordination, concept, customer requirements management and control

Volker Graubaum – coordination, concept, customer requirements management and control

Thomas Hempel – implementation

Franz Holzinger – implementation

Thomas Lorenzen - coordination, concept, customer requirements management and control

Claus Harup – implementation

Mads Brunn – implementation

8.2 Working on Subprojects

Marco Klawonn <info(at)webprog.de> – payment

Kees van der Hall <KvdHall(at)xs4all.nl> - Different prices for different amounts

Andreas Dolleschal <andreas(at)developer.at> - Statistics and link handling

Thomas Poth <poth(at)gmfoto.de> - System module

Rahul Dewan <rahul(at)srijan.in> and JC Heyer <jc(at)bruce.de> - related articles

9. Sponsors

Marketing Factory Consulting GmbH (Meerbusch / Germany)

e-netconsulting (Hamburg / Germany)

n@work Internet Informationssysteme GmbH (Hamburg, Germany)

TypoConsult A/S (Roskilde, Denmark)

Webprog (Stinstedt / Germany)

10. Roadmap

No	Feature	Date-> Apr 06 V 1.0	Jul 06 V 1.1	Sep 06 V 1.2	Jan 07 V 1.3
1.	General Features				
1.1	Full TYPO3 Integration with all features	X			
1.2	CGL compatible	X			
1.3	Structured database design	X			
1.4	Use of typo3 hooks and functions	X			
1.5	Multilanguage support	X			
1.6	Multi-Shop support	O	X		
1.7	Affiliates support	O	X		
1.8	Database independent with DBAL	X			
1.9	Flexible API for add new and special functions	X			
1.10	Seperated Backendmodul for easy use	X			
2.	Products and Categories				
2.1	Unlimited categories and subcategories	X			
2.2	Multiple categories per product	X			
2.3	Unlimited Attributs per product/article (as Matrix)	X			
2.4	Special offers and promotions	O	X		
2.5	Manufacturer information	O	X		
2.6	Related pages for more complex products	X			
2.7	Bundles of different products with bundle price	O	X		
2.8	Products configurator for complex products	O		0	0 X
2.9	Stockmanagement (simple)	0	X		
3	OrderManagement				
3.1	Order Inbox	X			
3.2	Order workingbox	X			
3.3	Order View with Edit interface for Orders	X			
3.4	Export incomming Orders as XML	O	X		
3.5	Generating of order papers as pdf	X			
3.6	Generating of order papers as HTML	X			
3.7	SOAP Interface to Orders	O	O	O	X
3.8	Order Classification	X			
3.9	Customer Edit	O	X		
3.10	Internal editing for telephone orders	O	O	X	
4.	Import/Export				
4.1	XML Import for Products	X			
4.3	CSV Import for Products	O	X		
4.4	Ebay Export for Products	O	O	X	
4.5	Ebay Import from Auctions	O			
4.6	Froogle Export	O	X		
4.7	Idealo Export	O	X		
4.8	Guenstiger.de Export	O	X		
4.9	Evendi.de Export	O	X		
4.10	Katalog Export as PDF	O	O	X	
4.11	Database Backup and restore	X			
5.	Frontend / User				
5.1	Customers can review a product	O	X		
5.2	Show order status and history	O	X		
5.3	Different adresses for payment and delivery / Addressbook	X			
5.4	Show what other customers order who buyed this product	O	X		
5.5	Show related products	O	X		
5.6	Shopping basket for guests	X			
5.7	Wish list for registered customers	O	X		
5.8	Per customer/product/category discount	O	O	X	
5.9	Save old shopping baskets for next visit	O	X		
5.10	Enable per department biling for inhouse shops	O	O	X	
5.11	PDF-Export of Product-Pages	X			
5.12	Best-Seller List	O	X		
6	Payment / Shipment				
6.1	Paypal Interface	O	O	X	
6.2	Split shipping (selectable for customer)	O	O	X	
6.3	Provide several shiping methods	X			
6.4	Provide shiping/payment methods on customer group basis	X			
6.5	Dynamic shipment fee based on weight/dimensions	X			
6.6	Dynamic shipment fee based quantity/total amount	X			
7.	Tax				
7.1	Set different tax per product / category	X			
7.2	Calculate tax according to customer / destination	X			
7.3	Provide tax per product on api for accounting	X			
8	Marketing				
8.1	Discounts	X			
8.2	Block Pricing	O			
8.3	Vouchers	O	X		
8.4	Tell-a-Friend	X			
8.5	Statistics for Products and Customers	X			
8.6	External Banners and Ads	X			