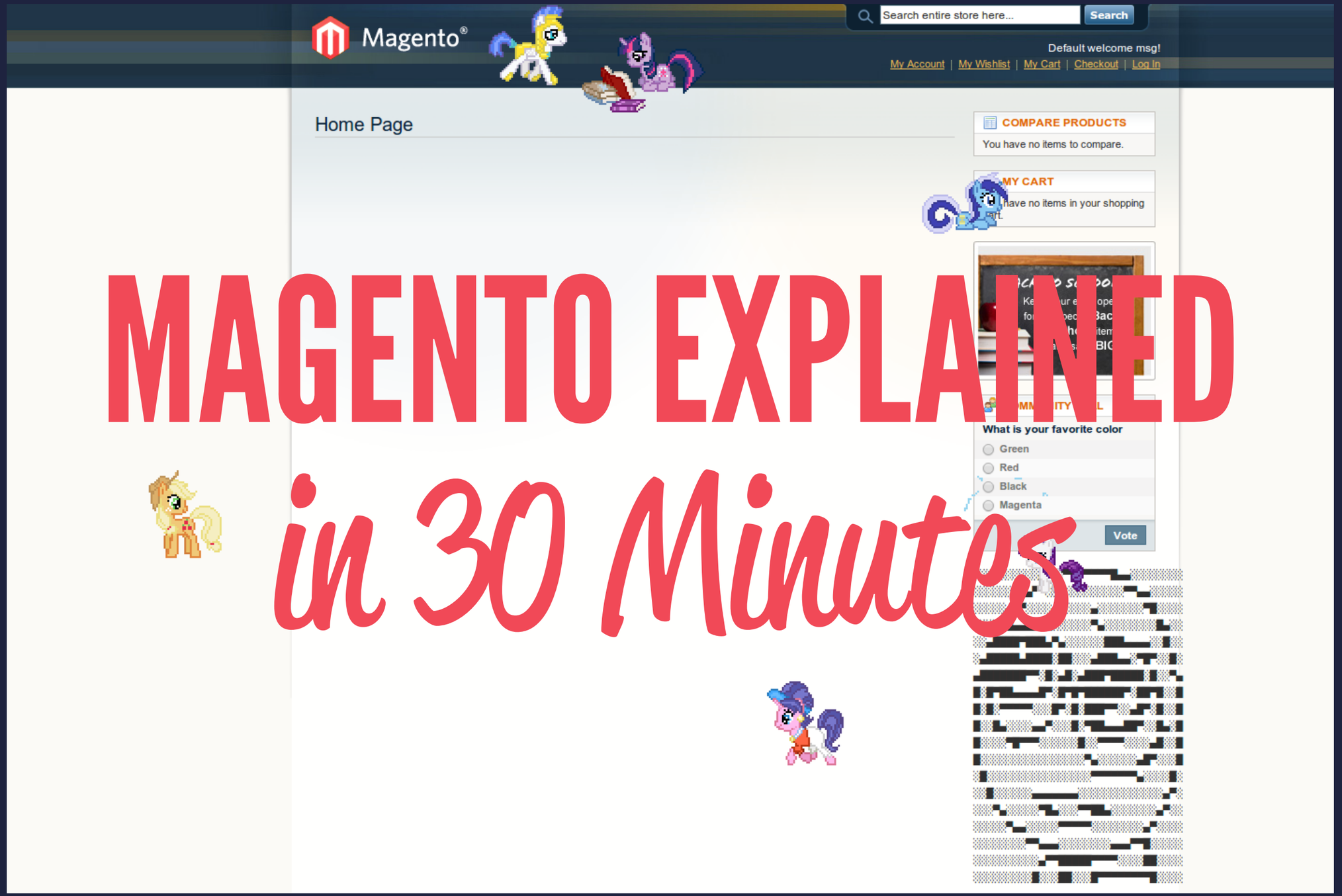

Magento®
Search entire store here...
Search
Default welcome msg!
My Account | My Wishlist | My Cart | Checkout | Log In
Home Page
COMPARE PRODUCTS
You have no items to compare.
MY CART
have no items in your shopping
What is your favorite color
Green
Red
Black
Magenta
Vote
MAGENTO EXPLAINED
in 30 Minutes

SOMETHING TO SAY?

ON TWITTER PLEASE TAG #MHRH

BY AND WITH RIBIAN BLECHTZEL

RICO NEITZEL *and* FABIAN BLECHSCHMIDT

TODAY PRESENTED BY FABIAN BLECHSCHMIDT

SLIDES ARE ONLINE

Slides are here:
http://theslidesareonline.de/

CONTENT:
A LOT WHAT A MAGENTO DEVELOPER SHOULD KNOW
INDEX.PHP

- Apache Configuration (never allowed)
- .htaccess changes (not often allowed)
  - index.php hacks (Standard)

„Avoid Changes
in index.php.“

– Ribian Blechtzel

DEVMODE

ACTIVATE ERROR REPORTING

it starts to show or shows more errors in frontend,
the show stopper for missing classes and methods

uncomment `ini_set('display_errors', 1);`

"LESS" TRANSLATIONS

Block Object and Translations have to be in the same module

It will only be translated what is in the translate CSV of the Module (`app/locale/de_DE/My_Module.csv`),

Translation may need the Standard-Data-Helper
`MyCompany_MyModule_Helper_Data`

AVOID BLOCK OVERWRITES

When two blocks have the same name...

```
# …/core/Mage/Core/Model/Layout.php:450
…
} elseif (isset($this->_blocks[$name]) && Mage::getIsDeveloperMode()) {
    //Mage::throwException(Mage::helper('core')->__('Block with name "%s" already exists', $name));
}
…
```

but the code is commented, so here happens nothing. Not even in DevMode!

DEVMODE ON/OFF

VHOST CONFIGURATION OR .HTACCESS

```
SetEnv MAGE_IS_DEVELOPER_MODE
```

no value needed, just set it

DEVMODE ON/OFF

Ugliest but most often used solution:

INDEX.PHP:

```
if (true || isset($_SERVER['MAGE_IS_DEVELOPER_MODE'])) {
```

START DIFFERENT
WEBSITES/STORES DIRECTLY

VHOST CONFIGURATION /.HTACCESS

```
SetEnv MAGE_RUN_CODE {storecode}
```

or

```
SetEnvIf Host www\.domain2\.com MAGE_RUN_CODE={storecode}
```

or

```
SetEnv MAGE_RUN_CODE {websitecode}
SetEnv MAGE_RUN_TYPE website
```

works well and non-destructiv, because:

```
# index.php:82
$mageRunCode = isset($_SERVER['MAGE_RUN_CODE']) ? _SERVER['MAGE_RUN_CODE'] : '';
$mageRunType = isset($_SERVER['MAGE_RUN_TYPE']) ? _SERVER['MAGE_RUN_TYPE'] : 'store';
```

INDEX.PHP

And here again

Ugliest but most often used solution

```
switch($_SERVER['SERVER_NAME']):
    case 'domain1.de':
    case 'www.domain1.de':
        $_SERVER['MAGE_RUN_CODE'] = '{storeviewcode}';
        break;
    case 'domain2.de':
    case 'www.domain2.de':
        $_SERVER['MAGE_RUN_CODE'] = '{websitecode}';
        $_SERVER['MAGE_RUN_TYPE'] = 'website';
        break;
endswitch;

...
```

CUSTOM MODULES IN MAGENTO

where else?

MODULES ARE GROUPED IN NAMESPACES

NAMESPACES

are only directories

no magic

exist to structure

everything from one module sticks together

to have less conflicts

same module name, different namespaces

FOR YOUR MODULE, YOU NEED THREE THINGS:

1. A good idea
2. a declaration file (/app/etc/modules/)
3. a configuration file (./etc/config.xml)

DECLARE YOUR OWN MODULE

Create a file in `app/etc/modules/`

{Namespace}_{Module}.xml

Advice: Both parts should start with a capital letter!

CONTENT OF {NAMESPACE}_{MODULE}.XML

```
<?xml version="1.0"?>
<config>
    <modules>
        <{Namespace}_{Module}>
            <active>{true|false}</active>
            <codePool>{local|community}</codePool>
            <depends>
                <Mage_Catalog />
                <Mage_Customer />
            </depends>
        </{Namespace}_{Module}>
    </modules>
</config>
```

TYPICAL ERROR

`<codePool>` is spelled with a capital P!

(see later: `<frontName>`)

WHERE TO PUT THE CODE?

The whole module code is placed in

`app/code/{codePool}/{Namespace}/{Module}/`

INACTIV

While checking whether a module is active or not,
Magento expects the string 'true'

so `<active>1</active>`

or `<active>TRUE</active>`
for Magento is "NO, therefore it's inactive

```
# …/core/Mage/Core/Model/Config.php:807
```

MODULE JUNKIES

If your module depends on other modules:

```
<depends>
    <Mage_Catalog />
</depends>
```

CONFIGURATION IS NEEDED

CONFIG.XML

We need the config.xml in the module directory to configure the whole module. Here all PHP classes are (pre-)configured and files are "linked"

explained example of a small but complete config.xml

```xml
<?xml version="1.0"?>
<config>
    <!-- Versioning: important for install scripts (setup and data) -->
    <modules>
        <Namespace_Module>
            <version>0.1.0</version>
        </Namespace_Module>
    </modules>

    <!-- Nodes for the global configuration -->
    <global>
        <models>
            <!-- this node is called class-group and is later used in Mage::getModel() -->
            <namespace_Module>
                <!-- the class-group 'namespace_module' is solved by magento to 'Namespace_Module_Model' -->
                <class>Namespace_Module_Model</class>
                <resourceModel>namespace_Module_resource</resourceModel>
            </namespace_Module>
            <!-- this node is called class-group too and is later used indirectly by Mage::getResourceModel()
            <namespace_Module_resource>
                <class>Namespace_Module_Model_Resource</class>
                <entities>
                    <!-- this node is called entity and is used to find table names -->
                    <developer>
                        <!-- the table name itself -->
                        <table>developer</table>
                    </developer>
                </entities>
            </namespace_Module_resource>
        </models>
        <blocks>
            <!-- this node is again a class-group and is used by Mage::getBlock() -->
            <namespace_Module>
                <!-- the class-group 'namespace_module' is solved by Magento to 'Namespace_Module_Block' -->
                <class>Namespace_Module_Block</class>
            </namespace_Module>
        </blocks>
        <helpers>
            <!-- hey, a class-group. This is used in Mage::helper() -->
            <namespace_Module>
                <!-- and the solution this time is: 'Namespace_Module_Helper' -->
                <class>Namespace_Module_Helper</class>
            </namespace_Module>
        </helpers>
        <resources>
            <!-- this node defines the name of the sub directory name in ./sql und ./data for the install scripts -->
            <namespace_Module_setup>
                <setup>
                    <module>Namespace_Modul</module>
                </setup>
            </namespace_Module_setup>
        </resources>
    </global>
</config>
```

SUBNODES IN CONFIG.XML

MODULES

```
<modules>
    <{Namespace_Modul}>
        <version>
```

GLOBAL /1

```
<models>
    <{namespace_modul}>
        <class>
        <resourceModel>
    <{namespace_modul}_resource>
        <deprecatedNode>
        <entities>
            <{entity}>
                <table>
        <rewrite>
            <{model}>
```

GLOBAL /2

```
<helpers>
    <{namespace_modul}>
        <class>
        <rewrite>
            <{helper}>

<blocks>
    <{namespace_modul}>
        <class>
        <rewrite>
            <{block}>
```

GLOBAL /3

```
<index>
    <indexer>
        <{indexer_code}>
            <model>
            <depends>
                <{indexer_code}/>

<cache>
    <types>
        <{cache_code}>
            <label>
            <description>
            <tags>
```

GLOBAL /4

```
<resources>
    <{namespace_modul}_setup>
        <connection>
            <use>
        <setup>
            <module>
            <class>

<template>
    <email>
        <{email_template_code}>
            <label>
            <file>
            <type>

<page>
    <layouts>
        <{page_template_code}>
            <label>
            <template>
            <layout_handle>
            <is_default>
```

GLOBAL /5

```
<events>
    <{event_name}>
        <observers>
            <{namespace_modul}>
                <type>
                    <model>
                    <class>
                    <method>
```

GLOBAL /6

```
<sales>
    <quote>
        <item>
            <product_attributes>
                <sku/>
                <type_id/>
                <name/>
                <status/>
                <visibility/>
                <price/>
                <weight/>
                <url_path/>
                <url_key/>
                …
```

INSTALL

```
<events>
    <{event_name}>
        <observers>
            <{namespace_modul}>
                <type>
                    <model>
                    <class>
                    <method>

<translate>
    <modules>
        <{Namespace_Modul}>
            <file>
                <default>
                <others>

<layout>
    <updates>
        <{namespace_modul}>
            <file>
```

ADMIN

```
<routers>
    <{routername}>
        <use>
        <args>
            <module>
            <frontName>
            <modules>
                <{Namespace_Modul}>
```

ADMINHTML /1

```
<events>
    <{event_name}>
        <observers>
            <{namespace_modul}>
                <type>
                <model>
                <class>
                <method>

<translate>
    <modules>
        <{Namespace_Modul}>
            <file>
                <default>
                <others>
```

ADMINHTML /2

```
<layout>
    <updates>
        <{namespace_modul}>
            <file>

<global_search>
    <{entity}>
        <class>
        <acl>
```

FRONTEND /1

```
<category>
    <collection>
        <attributes>
            <{category_attributecode_to_load}>

<product>
    <collection>
        <attributes>
            <{product_attributecode_to_load}>

<routers>
    <{routername}>
        <use>
        <args>
            <module>
            <frontName>
            <modules>
                <{Namespace_Modul}>
```

FRONTEND /2

```
<events>
    <{event_name}>
        <observers>
            <{namespace_modul}>
                <type>
                    <model>
                    <class>
                    <method>

<translate>
    <modules>
        <{Namespace_Modul}>
            <file>
                <default>
                <others>

<layout>
    <updates>
        <{namespace_modul}>
            <file>
```

CRONTAB

```
<crontab>
    <jobs>
        <{cronjob_identifier}>
            <schedule>
                <cron_expr>
            <run>
                <model>
```

FACTORYNAMES

In Magento `new classname()` doesn't exist

Instead Factories with FactoryNames via XML-Configuration are used

and yes, that is one reason, why magento is so damn complex

ONE EXAMPLE BASED ON A BLOCKS

catalog/product_view

is solved to

Mage_Catalog_Block_Product_View

and lives in the file

/app/code/core/Mage/Catalog/Block/Product/View.php

The part **BEFORE** / is explained later.
The part **AFTER** / is solved with this method:

```
str_replace(" ", DS, ucfirst(str_replace("_", " ", $secondPart))).'.php'
```

IN CLEAR WORDS

1. replace all _ with spaces
2. change all words to first letter uppercase
3. replace all spaces with the constant DS
4. add .php at the end

DS means DirectorySeparator and, depending on the Operating System, contains / or * ... *\o/ YAY!

MIXEDLOWERANDUPPERCASE

my_module/miXedlowERanDUppERCaSe

is translated to

My_Module_Block_MiXedlowERanDUppERCaSe

and lives in the file

/app/code/local/My/Module/Block/MiXedlowERanDUppERCaSe.php

ROUTING WORKFLOW
FROM INDEX.PHP TO CONTROLLER

CUSTOM FRONTNAME (ROUTE)

IN CONFIG.XML

```
<config>
    <frontend>
        <routers>
            <{namespace_module}>
                <use>standard</use>
                <args>
                    <module>{Namespace_Module}</module>
                    <frontName>{frontname}</frontName>
                </args>
            </{namespace_module}>
        </routers>
    </frontend>
</config>
```

HINT

The node frontName is spelled with a capital N!
(see also `<codePool>`)

So in the frontend you can access:

`http://domain.tld/{frontname)/`

Example:

`http://domain.tld/ribian/`

`<frontName>ribian</frontName>`

CUSTOM CONTROLLER

In your own module create the file IndexController.php
in the controllers directory
(Attention: lower case and plural!)

The classname contains parts of the directory path:
Namespace_Module_IndexController

This class has to extend
`Mage_Core_Controller_Front_Action`.

So you can use
`http://domain.tld/{frontname)/index/`
in frontend

THE SECOND PART OF THE URL

`http://domain.tld/{frontname)/{controller}/`

(here {controller}) is the start of the filename
in the controllers directory: {Controller}Controller.php.

Attention: The first letter has to to be UPPERCASE, because magento loads the class automatically

example:

```
http://domain.tld/ribian/blechtzel/

# is looking for
./controllers/BlechtzelController.php
```

CUSTOM ACTION

```
http://domain.tld/{frontname)/{controller}/{action}/
```

Actions are **public methods** in the Controller class.

The name of this method is always made up of the URL part {action} and "Action"

```
http://domain.tld/ribian/blechtzel/mergeface
```

```
public function mergefaceAction()
```

Attention: Here the first letter has to be lowercase!

http://domain.tld/ribian/blechtzel/mergeface

ribian `<frontName>ribian</frontName>`

blechtzel `./controllers/BlechtzelController.php`

mergeface `public function mergefaceAction()`

FRONTNAME/CONTROLLER/ACTION SUMMARY

CUSTOM ACTION

Layout handle will be build with the NODE name!

```
<routers>
    <companyModule_frontend>
        <use>standard</use>
        <args>
            <module>Company_Module</module>
            <frontName>frontend</frontName>
        </args>
    </companyModule_frontend>
</routers>
```

Route: frontend/<controllerName>/<actionName>

Layout Handle: companyModulefrontendcontrollerName_actionName

ADDING YOUR OWN GET PARAMETER

GET parameters can be added via /key/value to the URL

```
http://domain.tld/ribian/blechtzel/mergeface/key/value
```

```
array("key" => "value");
```

ROUTING WORKFLOW

EN DETAIL

Index.php calls Mage::run()

Mage::run() calls Mage_Core_Model_App::run()

Mage_Core_Model_App::run() loads
Mage_Core_Controller_Varien_Front ('FrontController');

FrontController gathers all available Routes of all active modules

afterwards run() calls dispatch() on the FrontController

dispatch() match()'es the requested URL against all Routes

match() checks all available Controller classes

match() checks for available Action methods
in the found Controller classes

after that dispatch() is called
on the found Controller class

(which is implemented in Mage_Core_Controller_Varien_Action)

dispatch() finally calls the Action method on the Controller class.

LAYOUT-WORKFLOW FROM LAYOUT-XML TO HTML

LOCAL.XML

Just throw a local.xml in your own theme

```
<?xml version="1.0"?>
<layout>
    <default>
    </default>
</layout>
```

LOCAL.XML

So you can modify the layout with your own layout.xml
The local.xml is loaded automatically by magento AT THE END!

Advantage: The local.xml will not be overwritten during an update!

ADD AND REMOVE CSS FILES

```
<!-- load block with the name 'header' -->
<reference name="head">
    <!-- call the method 'addItem' on the block -->
    <action method="addItem">
        <!-- pass the following four parameters to the method  -->
        <!-- define the HTML tag type and the root directory for the file -->
        <type>skin_css</type>
        <!-- relative path to the file -->
        <filename>{relative/path/in/theme/file.css}</filename>
        <!-- define html attributes if needed, if not, pass an empty node: <params/> -->
        <!-- when there is no <if> needed, you can skip the parameters -->
        <params>{attribute="value"}</params>
        <!-- add a conditional comment -->
        <if>{lt IE 7}</if>
    </action>
</reference>
```

ADD AND REMOVE JAVASCRIPT FILES

```
<reference name="head">
    <action method="addItem">
        <type>skin_js</type>
        <filename>{relative/path/in/theme/file.js}</filename>
        <params>{attribute="value"}</params>
        <if>{lt IE 7}</if>
    </action>
</reference>
```

ALLOWED VALUES FOR `<type>`

- skin_css – CSS file relative to the theme directory (css for theme)
- skin_js – JavaScript files relative to the theme directory (js for theme)
- js_css – CSS files relative to the root /js directory (CSS for js libs)
- js – JS files relative to the root /js directory (JS libs)

UNUSUAL VALUES FOR <type>

- rss – RSS-URL
- link_rel – <link> URL

CUSTOM BLOCK

For your own block you need a config.xml

and a class file with one of the following classes extended:
Mage_Core_Block_Abstract
or Mage_Core_Block_Template

Think about setting the $template property

CONFIG.XML

```
<config>
    <global>
        <blocks>
            <!-- this node is called: class-group
            (and is later used in Mage::getBlock()) -->
            <{namespace_module}>
                <!-- the class-group 'namespace_module'
                is solved by Magento to 'Namespace_Module_Block' -->
                <class>{Namespace_Module}_Block</class>
            </{namespace_module}>
        </blocks>
    </global>
</config>
```

```
<!-- Layout XML -->
<block type="namespace_module/ribian" …>`

<!-- config.xml -->
<global>
    <blocks>
        <{namespace_module}>
            <!-- NO LINE BREAK in  <class>!! -->
            <class>Namespace_Module_Block</class>
```

then add the 2nd part of the factory name: _Ribian

```
Namespace_Module_Block_Ribian
```

CLASS FILE

The class file for Namespace_Module_Block_Ribian have, according to its name, to live in app/code/local/Namespace/Module/Block/ and is named Ribian.php.

INHERITANCE

Most of the block classes, if they use a phtml file, extend the class Mage_Core_Block_Template.

It is NOT enough to extend Mage_Core_Block_Abstract.

PRESET TEMPLATE

Block with Template? Then predefine the phtml file, in case the frontend dev forgets it.

Can be done in _construct()'or

```
protected function _construct()
{
    $this->setTemplate('{Module}/path/to/the/file.phtml');
    parent::_construct();
}
```

BLOCK CACHING

You need:

- Lifetime in seconds
- Key, to distinguish the variants
- CacheTag, to group them and bulk delete them

BLOCK CACHING

```
// app/code/core/Mage/Core/Block/Abstract.php:904 - shortened

final public function toHtml()
{
    $html = $this->_loadCache();
    if ($html === false) {
        $this->_beforeToHtml();
        $html = $this->_toHtml();
        $this->_saveCache($html);
    }
    $html = $this->_afterToHtml($html);
```

SURPRISING FINDING

is only called when not cached:

```
$this->_beforeToHtml();
```

is called every time even when cached:

```
$html = $this->_afterToHtml($html);
```

BLOCK CACHING

```
# …/core/Mage/Core/Block/Abstract.php:1362

public function getCacheLifetime()
{
    if (!$this->hasData('cache_lifetime')) {
        return null;
    }
    return $this->getData('cache_lifetime');
}
```

overwrite `getCacheLifetime()` or
`$this->setCacheLifetime(120)`

BLOCK CACHING

```
# …/core/Mage/Core/Block/Abstract.php:1289

public function getCacheKey()
{
    if ($this->hasData('cache_key')) {
        return $this->getData('cache_key');
    }
    $key = $this->getCacheKeyInfo();
    $key = array_values($key);  // ignore array keys
    $key = implode('|', $key);
    $key = sha1($key);
    return $key;
}
```

BLOCK CACHING

```
protected function getCacheKeyInfo() {}
```

overwrite or

```
$this->setCacheKey(
    $storeId.
    $customerId.
    $productId
);
```

BLOCK CACHING

```
# …/core/Mage/Core/Block/Abstract.php:1311

public function getCacheTags()
{
    if (!$this->hasData('cache_tags')) {
        $tags = array();
    } else {
        $tags = $this->getData('cache_tags');
    }
    $tags[] = self::CACHE_GROUP;
    return $tags;
}
```

BLOCK-CACHING

```
$this->setCacheTags(array(
    Mage_Catalog_Model_Product::CACHE_TAG,
    'STORE_'.$storeId.'-PRODUCTS',
));
```

One cache entry can have **multiple** cache tags.

CUSTOM LAYOUT.XML

CUSTOM LAYOUT.XML

CONFIG.XML

```
<frontend>
    <layout>
        <updates>
            <namespace_module>
                <file>namespace/modul.xml</file>
```

lives in /app/design/frontend/base/default/layout/

PHTANDARD LAYOUT-HANDLE


PHTEVEN?
IS THAT YOU?...


PHTEVEN?
PHTANDARD LAYOUT-HANDLE
IS THAT YOU?...

The most important Layout-Handles which don't belong to a page:

- <default> (all pages)
- <customer_logged_(in|out)> (customer status)
- <catalog_category_default> (category w/o LN)
- <catalog_category_layered> (category with LN)
- <catalog_category_view> (all categories)
- <catalog_product_view> (product detail page)

SPECIAL LAYOUT-HANDLE

<PRODUCT_TYPE_(simple|configurable|grouped|virtual|downloadable|bundle{|giftcard})

CUSTOM LAYOUT HANDLE

Easiest: add one with an observer

```
public function addMyOwnLayoutHandle(){
    Mage::app()->getLayout()->addHandle('my_own_handle');
}
```

than you can use in layout XML

```
<layout>
    <my_own_handle>
```

CUSTOM PAGE TEMPLATE

LET'S CALL IT 4COLUMNS.PHTML

config.xml for page template and fourcolumns.xml

```
<frontend>
    <layout>
        <updates>
            <file>fourcolumns.xml</file>
<global>
    <page>
        <layouts>
            <four_columns module="page" translate="label">
                <label>4 columns</label>
                <template>page/4columns.phtml</template>
                <layout_handle>page_four_columns</layout_handle>
            </four_columns>
```

create fourcolumns.xml

```
<layout>
    <page_four_columns>
        <reference name="root">
            <block type="core/text_list" name="four" />
            <action method="setTemplate">
                <file>page/4columns.phtml</file>
```

create 4columns.phtml

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="<?php echo $this->getLang() ?>" lang="<?php echo $this->getLang() ?>">
<head>
<?php echo $this->getChildHtml('head') ?>
</head>
<body<?php echo $this->getBodyClass()?' class="'.$this->getBodyClass().'"':'' ?>>
<?php echo $this->getChildHtml('after_body_start') ?>
<div class="wrapper">
    <?php echo $this->getChildHtml('global_notices') ?>
    <div class="page">
        <?php echo $this->getChildHtml('header') ?>
        <div class="main-container col3-layout">
            <div class="main">
                <?php echo $this->getChildHtml('breadcrumbs') ?>
                <div class="col-wrapper">
                    <div class="col-main">
                        <?php echo $this->getChildHtml('global_messages') ?>
                        <?php echo $this->getChildHtml('content') ?>
                    </div>
                    <div class="col-left sidebar"><?php echo $this->getChildHtml('left') ?></div>
                </div>
                <div class="col-right sidebar"><?php echo $this->getChildHtml('right') ?></div>
            </div>
            <div class="col-right sidebar"><?php echo $this->getChildHtml('four') ?></div>
        </div>
        <?php echo $this->getChildHtml('footer') ?>
        <?php echo $this->getChildHtml('global_cookie_notice') ?>
        <?php echo $this->getChildHtml('before_body_end') ?>
    </div>
</div>
<?php echo $this->getAbsoluteFooter() ?>
</body>
</html>
```

CUSTOM BLOCK TEMPLATE

Templates are PHP+HTML files (.phtml)

CUSTOM BLOCK TEMPLATE

Define the template inside of block class

```
$this->setTemplate('folder/filename.phtml');
```

or in layout XML

```
<block type="core/template" name="…" template="folder/filename.phtml" />
<!-- or -->
<reference name="blockname">
    <action method="setTemplate">
        <val>folder/filename.phtml</val>
    </action>
</reference>
```

THEME FALLBACK

1. *your* theme for file type in *your* package
2. *your* default theme in *your* package
3. default theme in *your* package
4. default theme in base package

THEME FALLBACK

You want to have a custom fallback?

.../core/Mage/Core/Model/Design/Package.php:392

have fun ...

IMPLEMENT OBSERVERS

FIND THE RIGHT EVENT

MODELS

Before and after every ->load()

```
# …/core/Mage/Core/Model/Abstract.php:255
Mage::dispatchEvent($this->_eventPrefix.'_load_before', $params);

# …/core/Mage/Core/Model/Abstract.php:267
Mage::dispatchEvent($this->_eventPrefix.'_load_after', $this->_getEventData());
```

Before and after every ->save()

```
# …/core/Mage/Core/Model/Abstract.php:391
Mage::dispatchEvent($this->_eventPrefix.'_save_before', $this->_getEventData());

# …/core/Mage/Core/Model/Abstract.php:466
Mage::dispatchEvent($this->_eventPrefix.'_save_after', $this->_getEventData());
```

Before, during and after every ->delete()

```
# …/core/Mage/Core/Model/Abstract.php:501
Mage::dispatchEvent($this->_eventPrefix.'_delete_before', $this->_getEventData());

// WHILST the database transaction!
# …/core/Mage/Core/Model/Abstract.php:529
Mage::dispatchEvent($this->_eventPrefix.'_delete_after', $this->_getEventData());

// after the transaction
# …/core/Mage/Core/Model/Abstract.php:541
Mage::dispatchEvent($this->_eventPrefix.'_delete_commit_after', $this->_getEventData());
```

BLOCKS

before and after _prepareLayout()

```
# …/core/Mage/Core/Block/Abstract.php:237
Mage::dispatchEvent('core_block_abstract_prepare_layout_before',
array('block' => $this));

$this->_prepareLayout();

Mage::dispatchEvent('core_block_abstract_prepare_layout_after',
        array('block' => $this));
```

At the beginning of `_toHtml()`

```
# …/core/Mage/Core/Block/Abstract.php:850
Mage::dispatchEvent('core_block_abstract_to_html_before',
array('block' => $this));
```

At the end of `_toHtml()`

```
# …/core/Mage/Core/Block/Abstract.php:886
Mage::dispatchEvent('core_block_abstract_to_html_after',
array('block' => $this, 'transport' => self::$_transportObject));
```

Both are fired although active block caching is **enabled**!

EXAMPLES

```
# …/core/Mage/Checkout/Model/Cart.php:296
Mage::dispatchEvent('checkout_cart_product_add_after',
array('quote_item' => $result, 'product' => $product));

# …/core/Mage/Checkout/Model/Cart.php:396
Mage::dispatchEvent('checkout_cart_update_items_before',
array('cart'=>$this, 'info'=>$data));

// Change the price of a quote item -> change product
Mage::dispatchEvent('sales_quote_item_set_product', array(
    'product' => $product,
    'quote_item'=>$this
));
```

SEARCH, SEARCH, SEARCH

There is an event for everything, almost everything
(except sending mails)

CONFIG.XML

```
<events>
    <sales_order_save_before>
        <observers>
            <namespace_module>
                <type>singleton</type>
                <class>Namespace_Module_Model_Observer</class>
                <method>salesOrderSaveBefore</method>
```

<type>

- singleton
- model or object
- disabled

```
Mage::getModel(…)
Mage::getSingleton(…)
```

`<class>`

Parameters for `getModel/getSingleton`
Best practice: `My_Class` **instead of** `namespace/model`

CHANGE EVENT

- disable old observer: `disabled`
- implement your custom new one

<method>

it's the method name - *no kidding!?*

OBSERVER.PHP

```
public function salesOrderSaveBefore(Varien_Event_Observer $observer)
{
    $order = $observer->getOrder();
    $order->setOldState($order->getState());
}
```

SYSTEM CONFIGURATION

Provides fields and select boxes, etc.
inside of System / Configuration

SYSTEM.XML

```
<?xml version="1.0"?>
<config>
  <tabs />
  <sections>
    <groups>
      <fields />
    </groups>
  </sections>
</config>
```

TABS

Tabs are on the left side

```
  <tabs>
    <tabname translate="label" module="classgroup">
      <label>Label for tab</label>
      <sort_order>100</sort_order>
```

^module defines the used helper for translation!

Sections

```xml
  <sections>
    <sectionname translate="label" module="classgroup">
      <tab>tabname</tab>
      <label>Label for section</label>
      <sort_order>10</sort_order>
      <show_in_default>1</show_in_default>
      <show_in_website>1</show_in_website>
      <show_in_store>1</show_in_store>
      <groups />
```

sections are part of the tabs and are displayed on the left, too

GROUPS

```
<sections>
  <sectionname translate="label" module="classgroup">
    <groups>
      <groupname translate="label" module="classgroup">
        <label>Label for group</label>
        <sort_order>10</sort_order>
        <show_in_default>1</show_in_default>
        <show_in_website>1</show_in_website>
        <show_in_store>1</show_in_store>
        <fields />
```

groups are the expandable parts on the right

FIELDS

```
<sections>
  <sectioname translate="label" module="classgroup">
    <groups>
      <groupname translate="label" module="classgroup">
        <fields>
          <fieldname translate="label comment" module="classgroup">
            <label>Label for field</label>
            <comment><![CDATA[text for the comment]]></comment>
            <frontend_type>text</frontend_type>
            <!-- source_model>adminhtml/system_config_source_yesno</source_model -->
            <sort_order>10</sort_order>
            <show_in_default>1</show_in_default>
            <show_in_website>1</show_in_website>
            <show_in_store>1</show_in_store>
```

are the fields and selects on the right

OFTEN USED FRONTEND TYPES

TEXT, TEXTAREA, PASSWORD, SELECT, MULTISELECT

Attention: If you use select or multiselect you need a Source Model, which delivers the dataset for the dropdown

Want more? Have fun: /lib/Varien/Data/Form/Element/... and app/code/core/Mage/Adminhtml/Model/System/Config/Source/...

The node names of section/group/field are merged to the XML path in system configuration!

ADMIN ACL - ADMINHTML.XML

ACCESS CONTROL LIST

without logout/login there is a 404,
because the acl is saved in your session
and is not up to date then

- or just use this cool snippet (acl refresh):

```
$session = $adminuser = Mage::getSingleton('admin/session');
/* @var $adminuser Mage_Admin_Model_User */
$adminuser = $session->getUser();
$adminuser->setReloadAclFlag(true);
$session->refreshAcl();
```

ADMINHTML.XML

```
<acl>
  <resources>
   <admin>
    <children>
     <system>
      <children>
       <config>
        <children>
         <sectionname translate="title" module="classgroup">
          <title>Title of ACL</title>
```

So you can control the access for the sections of system configuration

SYSTEM CONFIGURATION

NOT IN THE DATABASE

In config.xml is enough room for everything,
also for the system configuration.

It's amazing to have system configuration
in your XML instead of Database

Versioning, Reproducable, Reliable

DEFAULT

```
<default>
    <general>
        <locale>
            <firstday>1</firstday>
        </locale>
    </general>
</default>
```

Attention: When there is a value in `core_config_data`, magento uses the one from the database!

DEFAULTS FOR

WEBSITES

What works with `<default>`
can be set for different websites

Just put the configuration in this path:

```
<websites>
    <{website_code}>
```

DEFAULTS FOR

STORES

And again, you can store configuration
for different stores

Just put it in

```
<stores>
    <{store_code}>
```

CUSTOM SETUP UND DATA SCRIPTS

stored in the directory ./sql or ./data

CONFIG.XML

```
<resources>
    <namespace_module_setup>
        <setup>
            <class>Mage_Catalog_Model_Resource_Setup</class>
            <module>Namespace_Module</module>
        </setup>
    </namespace_module_setup>
</resource>
```

Attention: When you create this XML, the setup scripts run. If there is no script nothing happens, but the version is updated in `core_resource`. The next time WITH a setup script using the last version number Magento thinks it already ran and skips it.

VERSION NUMBER

Magento decides, based on version number of the module and the database, whether install scripts have to run

Naming convention for the files:

- install-<version>.php
- upgrade-<version_from>-<version_to>.php

DATA SCRIPTS

The same applies to data scripts.

Naming convention:

- data-install-<version>.php
- data-upgrade-<version_from>-<version_to>.php

HELPER

The default helper's name is always: Data

This name is part of the filename.

CONFIG.XML

```
<global>
    <helpers>
        <namespace_module>
            <class>Namespace_Module_Helper</class>
```

INHERIT FROM MAGE_CORE_HELPER_ABSTRACT

```
class Namespace_Module_Helper_Data
    extends Mage_Core_Helper_Abstract
{

    public function pleaseHelpMe(){
        return true;
    }

}
```

WHAT ARE HELPERS FOR?

only for methods like:

- createCamelCase()
- escapeHtml()

REWRITES

REWRITES

simple and relatively "pain-free"
change functionality or
add new features.

REWRITES

CLASSES YOU CAN'T REWRITE

- `Mage`
- `Mage_Core_Model_App`
- `Mage_Core_Model_Config`
- loaded via `new Mage_*`

```
// \Mage::run
self::$_app    = new Mage_Core_Model_App();
self::$_config = new Mage_Core_Model_Config($options);
```

MODEL

Proxy for ORM layer and business logic container

means

it forwards saving, deleting, changing and
may change or edit the dataset before.

CONFIG.XML

```
<global>
    <models>
        <namespace_module>
            <class>Namespace_Module_Model</class>
```

EXTENDS MAGE_CORE_MODEL_ABSTRACT

```
class Namespace_Module_Model_Hotel
    extends Mage_Core_Model_Abstract
{

    protected function _construct(){
        $this->_init('namespace_model/hotel');
    }

}
```

RESOURCE MODEL

ORM layer for entities from the database

means

Offers features like saving, creating and deleting
for entities from the database.

Easier

You can save something to the database and delete.

CONFIG.XML

```
<global>
    <models>
        <namespace_module>
            <class>Namespace_Module_Model</class>
            <resourceModel>namespace_module_resource</resourceModel>
        <namespace_module>
        <namespace_module_resource>
            <class>Namespace_Module_Model_Resource</class>
```

EXTENDS
MAGE_CORE_MODEL_RESOURCE_DB_ABSTRACT

```
class Namespace_Module_Model_Resource_Hotel
    extends Mage_Core_Model_Resource_Db_Abstract
{

    protected function _construct(){
        $this->_init('namespace_model/hotel', 'id');
    }

}
```

These 2nd parameter is the table's primary key!

RESOURCE COLLECTION AKA COLLECTION

Is a container,
which loads multiple models at once
from the database

CONFIG.XML

is not needed, is built automagically.

EXTENDS MAGE_CORE_MODEL_RESOURCE_DB_COLLECTION_ABSTRACT

```
class Namespace_Module_Model_Resource_Hotel_Collection
    extends Mage_Core_Model_Resource_Db_Collection_Abstract
{

    protected function _construct(){
        $this->_init('namespace_model/hotel');
    }

}
```

EAV VS. NORMAL COLLECTIONS

EAV collections do not load all attributes automatically.

E A V

ENTITITY ATTRIBUTE VALUE

EAV saves attribute values in different tables.

So it is highly flexible for saving data

But super slow while saving and loading data

```
- entity
  +- entity-datetime
  +- entity-decimal
  +- entity-int
  +- entity-text
  +- entity-varchar
```

Models without EAV save all data in one row in one table.

So you can say all those attributes are static.

EAV based models have static attributes too.

These are columns in the entity-table.

SQL ABSTRACTION

SQL ABSTRACTION

FILTER METHODS

```
$collection->addFieldToFilter($field, array($operator => $maybe_filter_value);
$collection->addAttributerToFilter($field, array($operator => $maybe_filter_value);
```

WHERE OPERANDS

Magento-Option	SQL
eq	=
neq	!=
like	LIKE
nlike	NOT LIKE
in	IN
nin	NOT IN
is	IS
notnull	IS NOT NULL
null	IS NULL
moreq	>=
gt	>
lt	<
gteq	>=
lteq	<=

WHERE DOES THE PRICE COME FROM?

WHERE DOES THE PRICE COME FROM?

- on category pages
- on product detail pages

CATEGORY PAGE

```
CREATE TABLE `catalog_product_index_price` (
  `entity_id` int(10) unsigned NOT NULL COMMENT 'Entity ID',
  `customer_group_id` smallint(5) unsigned NOT NULL COMMENT 'Customer Group ID',
  `website_id` smallint(5) unsigned NOT NULL COMMENT 'Website ID',
  `tax_class_id` smallint(5) unsigned DEFAULT '0' COMMENT 'Tax Class ID',
  `price` decimal(12,4) DEFAULT NULL COMMENT 'Price',
  `final_price` decimal(12,4) DEFAULT NULL COMMENT 'Final Price',
  `min_price` decimal(12,4) DEFAULT NULL COMMENT 'Min Price',
  `max_price` decimal(12,4) DEFAULT NULL COMMENT 'Max Price',
  `tier_price` decimal(12,4) DEFAULT NULL COMMENT 'Tier Price',
  ...
```

PRODUCT DETAIL PAGE

```
// Mage_Catalog_Model_Product_Type_Price::getFinalPrice

1. $product->getPrice()
    // Price attribute
2. $this->_applyTierPrice($product, $qty, $finalPrice);
    // Tier prices
3. $this->_applySpecialPrice($product, $finalPrice);
    // Special price (from/to date)
4. Mage::dispatchEvent('catalog_product_get_final_price',
        array('product'=>$product, 'qty' => $qty));
     // change the price via event if needed
     4a. Mage_CatalogRule_Model_Observer::processFrontFinalPrice
         // catalog price rules
5. $this->_applyOptionsPrice($product, $qty, $finalPrice);
   // price of options are added
6. return max(0, $finalPrice);
   // price is at least 0
```

REDIRECTIONS

- via Exception
- via Request

VIA EXCEPTION

```
// heavily shortened
public function dispatch($action) {
    try {
        $this->preDispatch();
        if ($this->getRequest()->isDispatched()) {
            if (!$this->getFlag('', self::FLAG_NO_DISPATCH)) {
                $this->$actionMethodName();
                $this->postDispatch();
            }
        }
    }
    catch (Mage_Core_Controller_Varien_Exception $e) {
        // ...
    }
}

# class Mage_Core_Controller_Varien_Exception extends Exception
```

BEST PRACTICE

`try ... catch` tests
for `Mage_Core_Exception`, not `Exception`!

otherwise
`Mage_Core_Controller_Varien_Exception`
would be catched by mistake.

VIA EXCEPTION - 2

```
catch (Mage_Core_Controller_Varien_Exception $e) {
    list($method, $parameters) = $e->getResultCallback();
    switch ($method) {
        case Mage_Core_Controller_Varien_Exception::RESULT_REDIRECT:
            list($path, $arguments) = $parameters;
            $this->_redirect($path, $arguments);
            break;
        case Mage_Core_Controller_Varien_Exception::RESULT_FORWARD:
            list($action, $controller, $module, $params) = $parameters;
            $this->_forward($action, $controller, $module, $params);
            break;
        default:
            $actionMethodName = $this->getActionMethodName($method);
            $this->getRequest()->setActionName($method);
            $this->$actionMethodName($method);
            break;
    }
}
```

FORWARD IN PRACTICE

```
$exception = new Mage_Core_Controller_Varien_Exception();
// $exception->prepareForward(
//     $actionName, $controllerName, $moduleName, $params
// );
$exception->prepareForward(
    'view', 'category', 'catalog', array('id' => $id)
);
throw $exception;
```

REDIRECT IN PRACTICE

Bug in Mage_Core_Controller_Varien_Exception::prepareRedirect()

-> extend Exception
-> override Method

```
public function prepareRedirect($path, $arguments = array())
{
    $this->_resultCallback = self::RESULT_REDIRECT;
    $this->_resultCallbackParams($path, $arguments); // ORIGINAL
    $this->_resultCallbackParams = array($path, $arguments);// CORRECT
    return $this;
}
```

REDIRECT IN PRACTICE - 2

```php
$exception = new My_Extended_Exception_Because_Of_The_Bug();
// $exception->prepareRedirect($path, $arguments);
$exception->prepareRedirect(
    'catalog/category/view', array('id' => $id)
);
throw $exception;
```

NAME RESOLUTION
FOR BLOCKS, MODELS, HELPER

EXAMPLE OF A MODEL

```
$product = Mage::getModel('catalog/product');
```

getModel() 👀

MODEL

Mage::getModel()

```
public static function getModel($modelClass = '', $arguments = array())
{
    return self::getConfig()->getModelInstance($modelClass, $arguments);
}
```

getModelInstance() 👀

MODEL

Mage_Core_Model_Config::getModelInstance()

```php
public function getModelInstance($modelClass='', $constructArguments=array())
{
    $className = $this->getModelClassName($modelClass);
    if (class_exists($className)) {
        $obj = new $className($constructArguments);
        return $obj;
    } else {
        return false;
    }
}
```

getModelClassName() 👀

Mage_Core_Model_Config::getModelClassName()

```
public function getModelClassName($modelClass)
{
    $modelClass = trim($modelClass);
    if (strpos($modelClass, '/')===false) {
        return $modelClass;
    }
    return $this->getGroupedClassName('model', $modelClass);
}
```

getGroupedClassName() 👀

Mage_Core_Model_Config::getGroupedClassName()-1

```php
public function getGroupedClassName($groupType, $classId, $groupRootNode=null)
{
    if (empty($groupRootNode)) {
        $groupRootNode = 'global/'.$groupType.'s';
    }

    $classArr = explode('/', trim($classId));
    $group = $classArr[0];
    $class = !empty($classArr[1]) ? $classArr[1] : null;

    if (isset($this->_classNameCache[$groupRootNode][$group][$class])) {
        return $this->_classNameCache[$groupRootNode][$group][$class];
    }

    $config = $this->_xml->global->{$groupType.'s'}->{$group};
}
```

getGroupedClassName() 👀

Mage_Core_Model_Config::getGroupedClassName()-2

```
// First - check maybe the entity class was rewritten
$className = null;
if (isset($config->rewrite->$class)) {
    $className = (string)$config->rewrite->$class;
} else {
    if ($config->deprecatedNode) {
        $deprecatedNode = $config->deprecatedNode;
        $configOld = $this->_xml->global->{$groupType.'s'}->$deprecatedNode;
        if (isset($configOld->rewrite->$class)) {
            $className = (string) $configOld->rewrite->$class;
        }
    }
}
```

getGroupedClassName() 👀

Mage_Core_Model_Config::getGroupedClassName() - 3

```
// Second - if entity is not rewritten then use class prefix to form class name
if (empty($className)) {
    if (!empty($config)) {
        $className = $config->getClassName();
    }
    if (empty($className)) {
        $className = 'mage_'.$group.'_'.$groupType;
    }
    if (!empty($class)) {
        $className .= '_'.$class;
    }
    $className = uc_words($className);
}

$this->_classNameCache[$groupRootNode][$group][$class] = $className;
return $className;
```

BONUSTRACK

URBAN LEGEND

The CronJob triggers no ModulUpdates

```
// cron.php
Mage::app(); //doesn't call applyAllUpdates()
```

unlike here:

```
// index.php
Mage::run(); //calls applyAllUpdates()
```

HIDDENTRACK


WAT!?

Blocks in LayoutXML have a
NAME (name="...")
and an ALIAS (as="...")

fine

Unset a Block (cut out from the Layout)

<action method="_unsetChild_"> using Alias

fine too

Insert a Block (make it available in the Layout again)

<action method="_insert_"> using Name

WAT!?

NEWSLETTER MODULE

```
# …/core/Mage/Adminhtml/controllers/Newsletter/QueueController.php
# Line 173

// Todo: put it somewhere in config!
$countOfQueue  = 3;
$countOfSubscritions = 20;
```

WAT!?

We declare an Array

```
# …/core/Mage/Core/Controller/Varien/Exception.php
# Line 37

protected $_resultCallbackParams = array();
```

fine

Later the Array will be casted ... to a Method

```
$this->_resultCallbackParams($path, $arguments);
```

WAT!?

PRODUCT IMPORT – IMAGES

- $productData['_media_lable']
  - lable instead of label


WAT!?

PRODUCT IMPORT – LOGGING

```
# …/core/Mage/ImportExport/Model/Abstract.php
# Line 89

$dirPath = Mage::getBaseDir('var') . DS . Mage_ImportExport_Model_Scheduled_Operation::LOG_DIRECTORY
```

The File `Scheduled/Operation.php` is missing; looks like it never existed!


I CAN'T EVEN ...

ADD ATTRIBUTES TO GROUPS

function addAttributeToGroup()

```
# …/core/Mage/Eav/Model/Entity/Setup.php
# Line 1081

…

$data = array(
    'entity_type_id'        => $entityType,
    'attribute_set_id'      => $setId,
    'attribute_group_id'    => $groupId,
    'attribute_id'          => $attributeId,
#   $data['sort_order']     =  $sortOrder; // declared in Line 1128
);

…

$this->getConnection()->insert(…, $data);
```

ADD ATTRIBUTES TO GROUPS

function addAttributeToSet()

```
# …/core/Mage/Eav/Model/Entity/Setup.php
# Line 1032

…

$data = array(
    'entity_type_id'        => $entityTypeId,
    'attribute_set_id'      => $setId,
    'attribute_group_id'    => $groupId,
    'attribute_id'          => $attributeId,
    'sort_order'            => $this->getAttributeSortOrder(…),
);

…

$this->_conn->insert(…, $data);
```

OH YEAH ...
I MISSED THAT!

my bad!

FACTORY METHODS

MODELS

Mage::getModel(); Mage::getResourceModel();

SINGLETONS

Mage::getSingleton(); Mage::getResourceSingleton()

FACTORY METHODS

HELPER

Mage::helper();

Mage::getResourceHelper();

WAT!?


I MEAN
DOUBLEWAT!?

DIFFERENT TAGS FOR IDENTICAL FUNCTIONS

observer uses <class> and <method>

```
<catalog_wysiwyg>
    <class>catalog/observer</class>
    <method>catalogCheckIsUsingStaticUrlsAllowed</method>
</catalog_wysiwyg>
```

DIFFERENT TAGS FOR IDENTICAL FUNCTION

cron run uses <model> with group/model::method

looks like static, but is not

```
<run>
    <model>catalog/observer::reindexProductPrices</model>
</run>
```

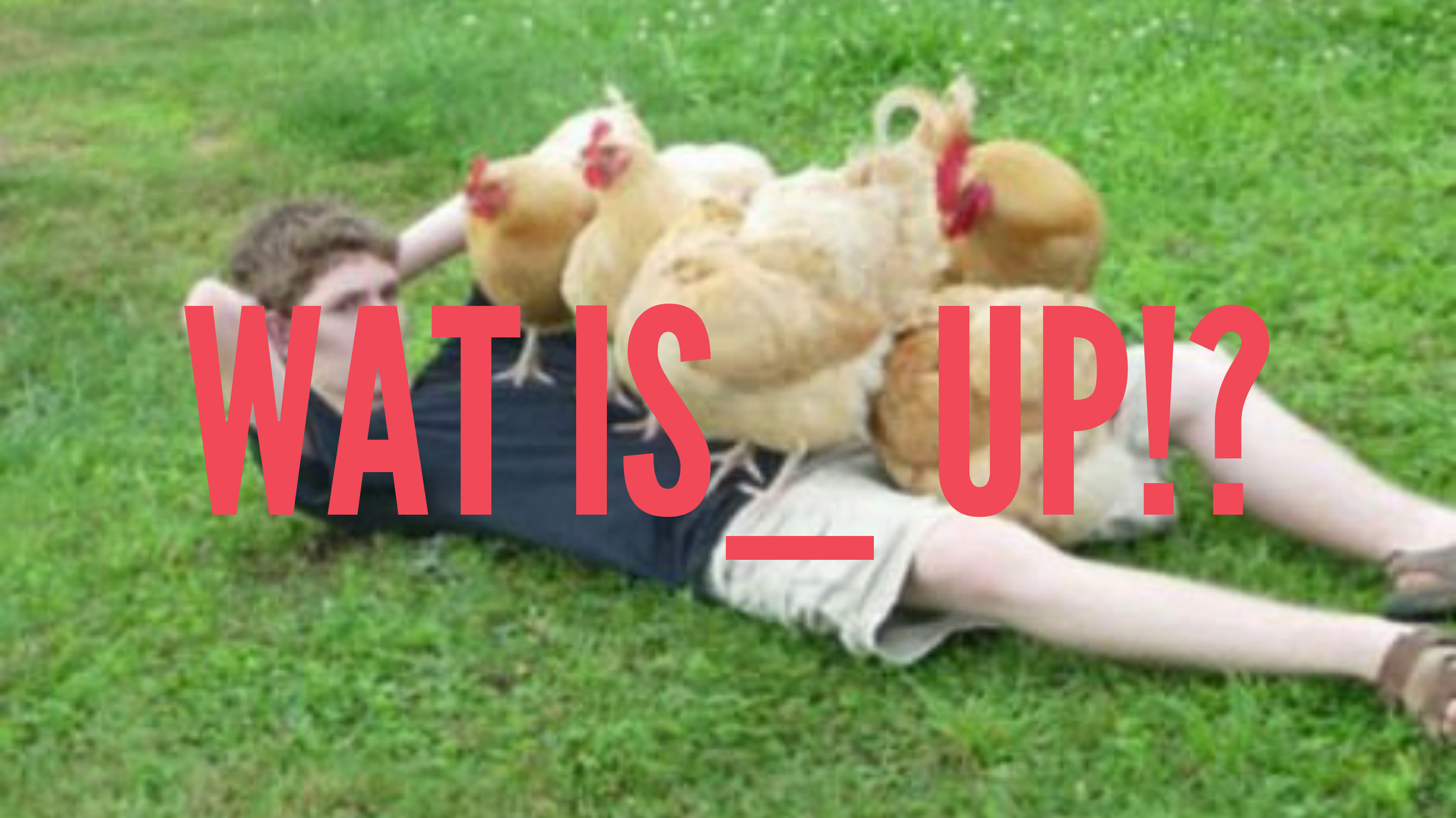
THAT'S ACTUALLY ...

WHAR THE HECK ARE THEY LOOKING AT???

ATTRIBUTES

CREATE AND MODIFY

addAtribute uses visible = ...
updateAttribute uses is_visible = ...


WAT IS _ UP!?

A STORE IS A STORE

IS A STORE IS A STORE

in AdminPanel StoreView is called Store in PHP
in AdminPanel Store is called StoreGroup in PHP

STORE !== STORE !?!??!

WWWWT!?


wat wat wat

SOURCES

- forward vs redirect
- http://www.giantgeek.com/blog/?p=109
- http://www.javapractices.com/topic/TopicAction.do?Id=181
- Collection filtering (in German)
- http://www.webguys.de/magento/turchen-11-eine-collection-filtern/

K THX BAI