

System - PHP Framework

von Ulf Gebhardt

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Was ist ein Framework



Middleware

„Middleware ist eine zusätzliche Schicht zwischen Betriebssystem und Anwendungen.“ Wikipedia

Aufgaben und Funktion einer Middleware

- ▶ Versteckt komplizierte Systeme
- ▶ Bietet einfache Schnittstellen
- ▶ Modularisierung von Software
- ▶ Konkreter und beschränkter Anwendungsbereich

Alternative PHP-Frameworks

Zend Framework

<http://framework.zend.com/>

Laravel

<https://laravel.com/>

Symphony

<http://symfony.com/>



System - PHP Framework



Anwendungsbereich

Anwendungsbereich von System

System kann in PHP-basierten Anwendungen eingesetzt werden.

- ▶ Websites
- ▶ Webtools
- ▶ Webapps

Features von System

System vereinfacht die Entwicklung von PHP basierten Anwendungen

- ▶ Kapselung
 - ▶ REST Schnittstelle
 - ▶ Moderne Webtechnologien
 - ▶ Utilities
 - ▶ Modulare GUI für administrative Aufgaben

Teilintegration möglich

-

Features

Klassische Struktur von PHP Projekten

Die klassische Struktur von PHP Projekten orientiert sich oft an der HTML Struktur.

```
<?php
$something = "classname";
$ip = "127.0.0.1";
$port = "8080";
?>
<!-- This works -->
<p>Your IP: <?php echo $ip.":".$port?></p>

<!-- This doesn't work -->
<p class="<?php echo $something?>">Hello</p>
<p class="<?=$something?>">Hello</p>
<span data-ip="<?php echo $ip.":".$port?>">Click here</span>
```

Klassische Struktur von PHP Projekten - Nachteile

- ▶ HTML Code ist unübersichtlich
- ▶ Programm ist eine Datei, zerteilt in Abschnitte
- ▶ Definitionen in anderen Abschnitten des Programms
- ▶ Spezialwissen notwendig für die Wartung

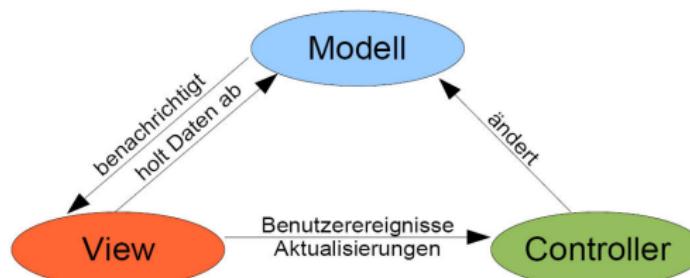
Kapselung in System

Eine Gute Kapselung vereinfacht die Übersicht über das Programm.

- ▶ nach Sprache
 - ▶ nach Art der Rückgabe (Website/Daten/Administratives)
 - ▶ Nach Sinneinheit (Seiten/Module)

Kapselung nach Sprache - MVC-Modell

Der Begriff *model view controller (MVC)* ist ein Muster zur Strukturierung von Software-Entwicklung in die drei Einheiten Datenmodell, Präsentation und Programmsteuerung. (wikipedia)



Kapselung nach Sprache

Die Kapselung nach Sprache implementiert ein MVC-Modell

MVC durch Kapselung nach Sprache

- ▶ PHP (Controller Server)
- ▶ SQL (Model)
- ▶ JS (Controller Client)
- ▶ CSS (View)
- ▶ HTML (View)

Kapselung nach Art der Rückgabe

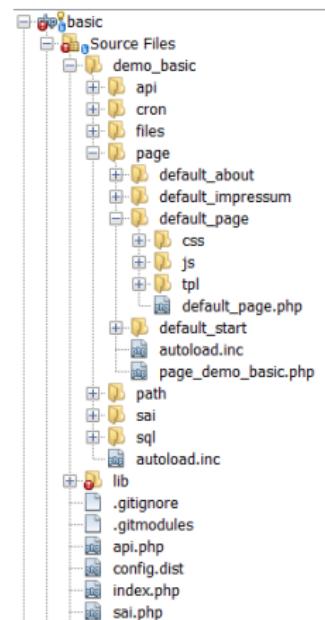
Endpoints Kapseln die Rückgabe

- ▶ index.php - Webpages/HTML Rückgabe
- ▶ api.php - JSON-Daten/Steueranweisungen
- ▶ sai.php - Administrative Aufgaben
- ▶ (setup.php - Install Scripts)

Kapselung nach Sinneinheit

- ▶ Ordnerstrukturen ordnen den Code
 - ▶ Modulare Schnittstellen - pages, sain module
 - ▶ Frei wählbar

Das PHP-Feature "autoload" ermöglicht es Klassen bei Bedarf nachzuladen.



REST in System - quality APIs

Funktion

- ▶ Mapping von URL-Parametern auf Funktionsnamen
- ▶ Regeln definiert zulässige Aufrufe
- ▶ Parameter-Typ-Prüfung

Nutzen

- ▶ Sicherheit
- ▶ Zuverlässigkeit
- ▶ Persistenz

Moderne Webtechnologien, von System unterstützt

- ▶ Hashbang Crawling-Scheme - #!adresse
- ▶ JQuery & Bootstrap
- ▶ SCSS(SASS)
- ▶ Minify
- ▶ Git



Utilities von System

- ▶ Simples Template System - \${var}
- ▶ Verstecke Server Struktur - Dateien bereitstellen, Cache
- ▶ Erweiterbare Configuration
- ▶ Cron Job Verarbeitung
- ▶ Rudimentäres Documentations-System
- ▶ Library Schnittstelle - bindet php,js,css
- ▶ Log - Überall, Gekapselt, Zentral verwaltet
- ▶ Security, Nutzerverwaltung
- ▶ Erweiterbares Installations-Script

Features

Codebeispiel - Template System

System Admin Interface - SAI

Das System Admin Interface verwaltet System Tabellen und Funktionalität.

- ▶ Modular - erweiterbar
- ▶ Log - Alle fangbaren Fehler, die auf der Website auftreten
- ▶ Analysis - Besucher, Logins, Fehler
- ▶ Nutzerverwaltung
- ▶ Text, Cache, Cron, Config, Todo, Git, ...

- A scatter plot with the x-axis labeled 'Number of children' and the y-axis labeled 'Number of hours worked'. The x-axis has tick marks at 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10. The y-axis has tick marks at 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10. There are 10 data points represented by open circles, located at (0,1), (0,2), (1,1), (1,2), (1,3), (2,2), (2,3), (3,2), (3,3), and (4,3). A single data point is represented by a solid black circle at (9, 9).

-

Features

SAI - Start

Welcome to the **SYSTEM** Admin Interface - short SAI.

From here you can control and manage your Website.

Week of the year: 07, Monday Feb 2016

Project

Name: megaplotz
URL: <http://www.megaplotz.eu/webs/test/megaplotz/>
Progress: 99.78%

Username	Open	Closed	All	% Percentage
uf	0	1	1	100%

Analytics

PV 360	Today	Week	Month
Log	40	106	1549
IPs	1	2	22
Users	2	2	3

Logout

Username: uf
Locale: enUS
Admin Rights: yes

Logout before you leave!

GT

Current Project Version: 921c724b
Instant bot test max
Current SYSTEM Version: a7e03a8b
Need regular error tests

Todo

Status: 112/113
Progress: 99.78%

All	Mine	Free	Others	Generated	User	Report
112	113					

Prev. 1/1 Page: 0

%

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Features

SAI - Log

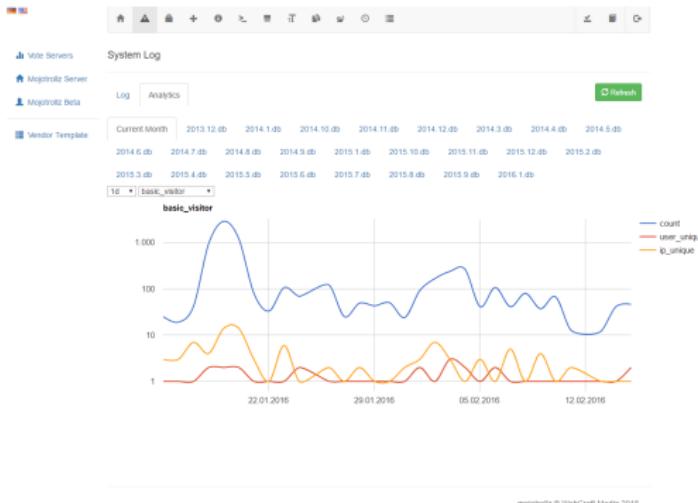
- A horizontal line with points marked by open circles. The points are arranged as follows: two open circles on the far left, a gap, then a sequence of open circles starting with one at the 1st position, followed by a solid black circle at the 13th position, and then more open circles extending to the right.

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○○○○

Features

SAI - Analysis



Features

SAI - Text

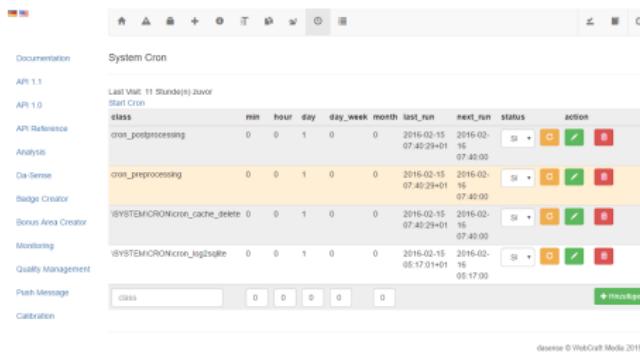
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Features

SAI - Cron



The screenshot shows a web-based interface for managing cron jobs. The top navigation bar includes links for Documentation, API 1.1, API 1.0, API Reference, Analysis, Da-Sense, Badge Creator, Bonus Area Creator, Monitoring, Quality Management, Push Message, and Calibration. The main content area is titled "System Cron" and displays a table of scheduled tasks. The table columns are: class, min, hour, day, day_week, month, last_run, next_run, status, and action. The tasks listed are:

class	min	hour	day	day_week	month	last_run	next_run	status	action
cron_postprocessing	0	0	1	0	0	2016-02-15 07:49:29+01	2016-02-15 07:49:29+01	st	○ green red
cron_preprocessing	0	0	1	0	0	2016-02-15 07:49:29+01	2016-02-15 07:49:29+01	st	○ green red
!SYSTEMCRONcron_cache_delete	0	0	1	0	0	2016-02-15 07:49:29+01	2016-02-15 07:49:29+01	st	○ green red
!SYSTEMCRONcron_log2sqlite	0	0	1	0	0	2016-02-15 05:17:01+01	2016-02-15 05:17:01+01	st	○ green red

At the bottom of the table, there is a search bar with the placeholder "class" and a "Push Message" button. The footer of the page includes the text "da-sense © WebCraft Media 2015".



Vorteile und Nachteile

Vorteile bei Einsatz von System

- ▶ Kompakt und Einfach
- ▶ Noch jung, keine starren Strukturen
- ▶ Git kompatibel
- ▶ frei (<https://github.com/webcraftmedia/system>)

Nachteile bei Einsatz von System

- ▶ Geringe Verbreitung
- ▶ Geringer Anteil an Dokumentation
- ▶ Unzureichende Nutzerverwaltung

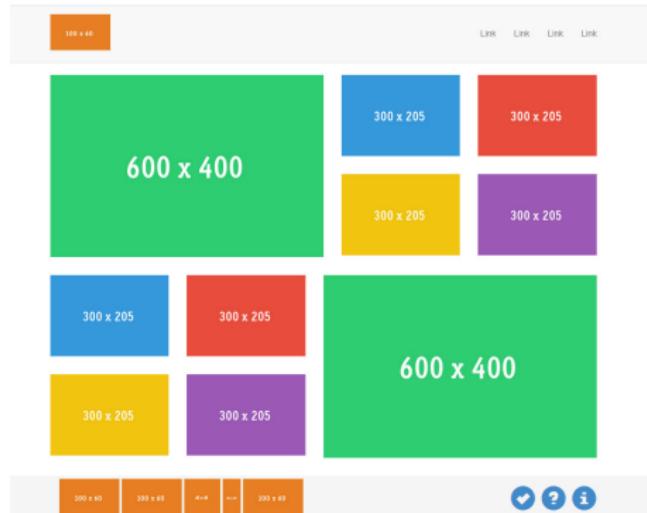
Ausblick

Ausblick - Bootstrap

- ▶ Bootstrap Grid
- ▶ Col füllen/nachladen
- ▶ Bootstrap Menü

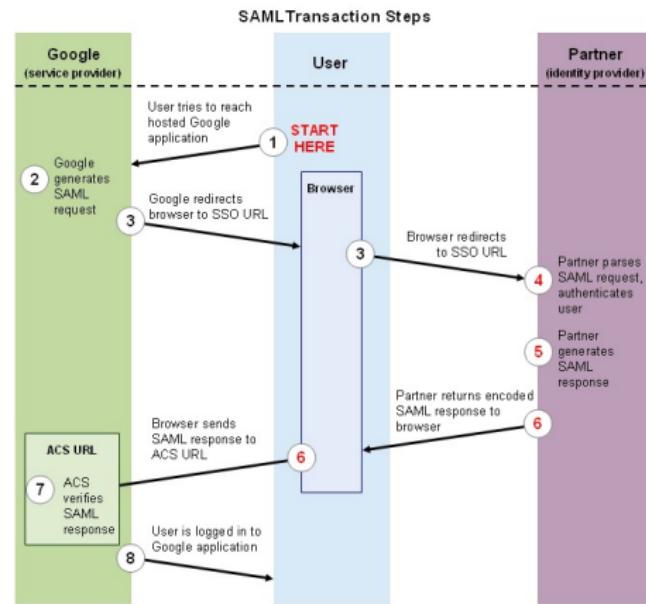
Nutzen

- ▶ “Click Click” Websites
- ▶ Noch einfacher
- ▶ Wiederverwertung von Templates/Code



Ausblick - Usermanagement

- ▶ unzureichend
 - ▶ umständlich
 - ▶ Tabelle pro Projekt



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Versionskontrolle

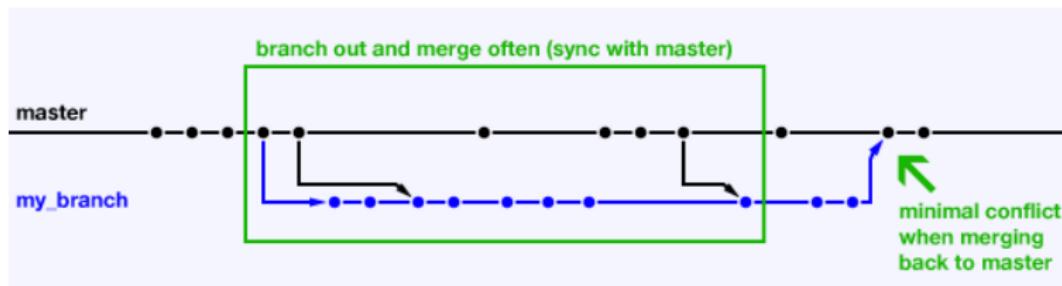
Was ist Versionskontrolle?

Was Ist Versionskontrolle?



Was ist Versionskontrolle?

Git Branch



Git Workflow



Was ist Versionskontrolle?

Welche Versionskontrollsystem gibt es?

- ▶ Git
- ▶ Mercurial
- ▶ SVN
- ▶ Andere (2005)

Welches Versionskontrollsystem ist das richtige?

- ▶ Mercurial (code.google.com)
 - ▶ SVN (Probleme, zu alt)
 - ▶ Git (github.com - Die Bibliothek von Alexandria des 21. Jahrhunderts)

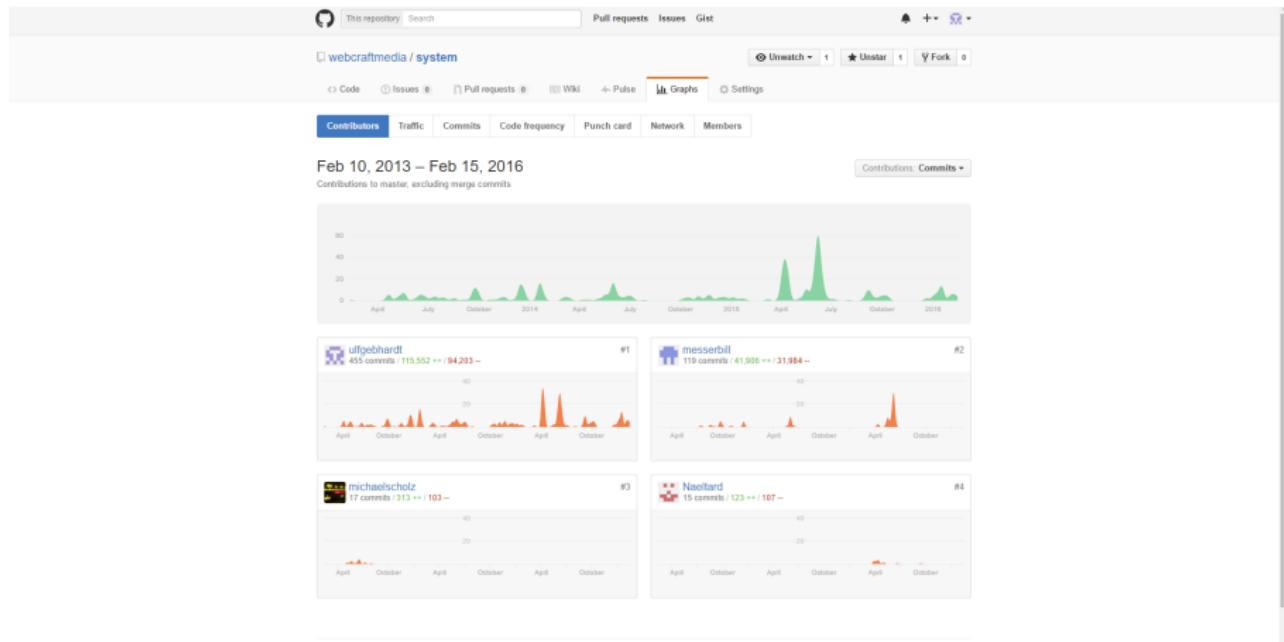
Features von GIT

Git ist zentraler Bestandteil jeder modernen IT-Firma.

- ▶ Kontrolle der Entwicklung/Abrechnung
- ▶ Motivation
- ▶ Deploy
- ▶ Mehrere Entwickler können an dem selben Projekt arbeiten
- ▶ Backup inklusive Historie

Features

Projektverlauf visualisiert über Git



Software Empfehlungen - Entwicklung

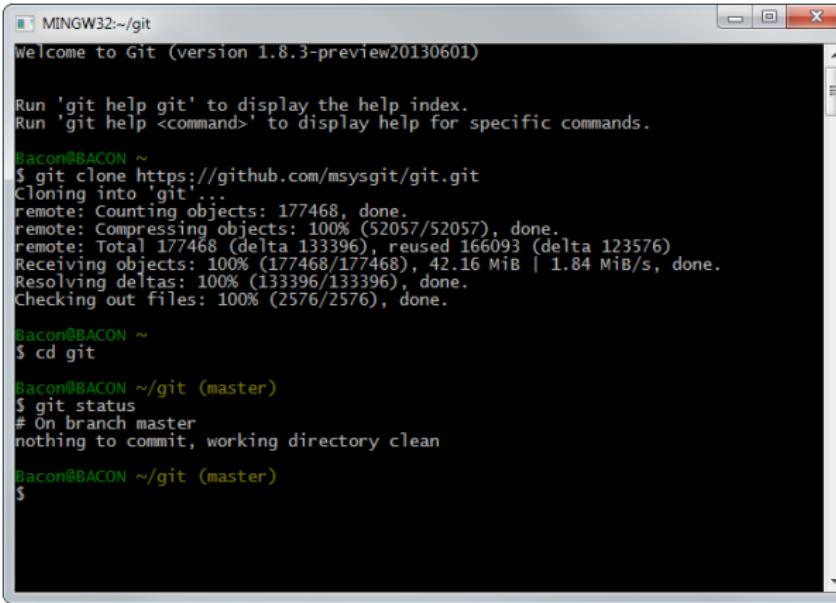
Versionskontrolle

Versionskontrollsoftware für GIT

- ▶ Git Console
- ▶ Tortoise Git
- ▶ Smart Git (commercial)

Versionskontrolle

Git Console



```
MINGW32-~/git
Welcome to Git (version 1.8.3-preview20130601)

Run 'git help git' to display the help index.
Run 'git help <command>' to display help for specific commands.

Bacon@BACON ~
$ git clone https://github.com/msysgit/git.git
Cloning into 'git'...
remote: Counting objects: 177468, done.
remote: Compressing objects: 100% (52057/52057), done.
remote: Total 177468 (delta 133396), reused 166093 (delta 123576)
Receiving objects: 100% (177468/177468), 42.16 MiB | 1.84 MiB/s, done.
Resolving deltas: 100% (133396/133396), done.
Checking out files: 100% (2576/2576), done.

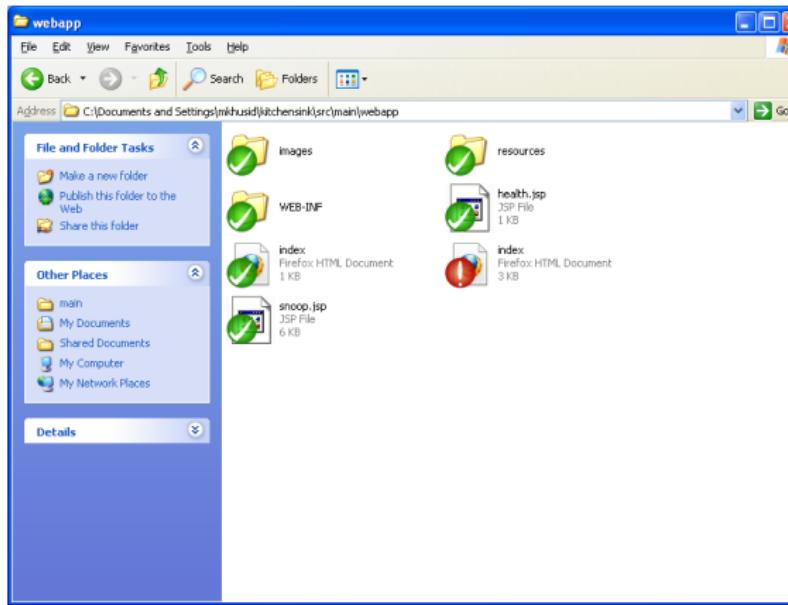
Bacon@BACON ~
$ cd git

Bacon@BACON ~/git (master)
$ git status
# On branch master
nothing to commit, working directory clean

Bacon@BACON ~/git (master)
$
```

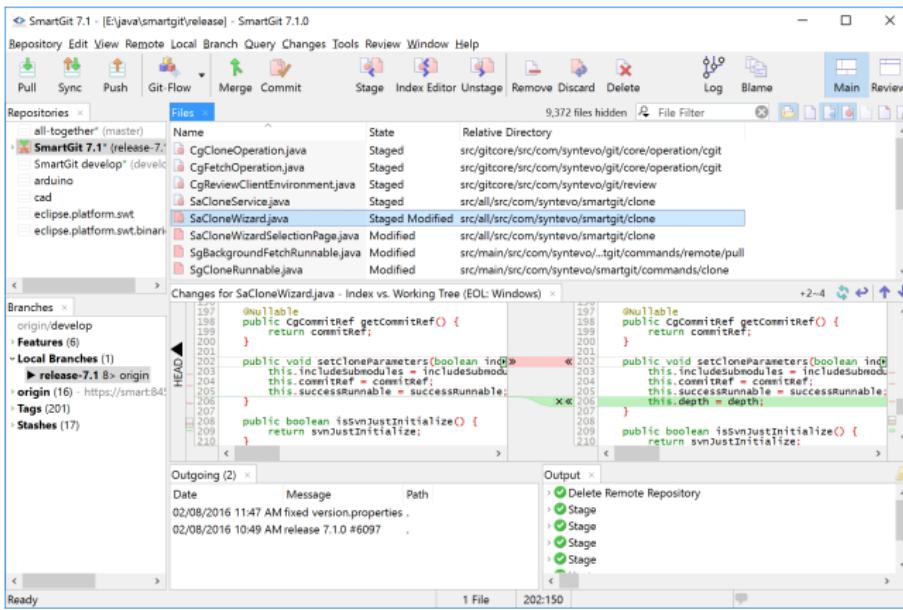
Version skontrolle

Tortoise Git



Versionskontrolle

Smart Git



Entwicklungsumgebung

Entwicklungsumgebung

- ▶ Code-Autovervollständigung
- ▶ Strg-Click - Navigation
- ▶ Integration in den Entwicklungsprozess

Entwicklungsumgebung

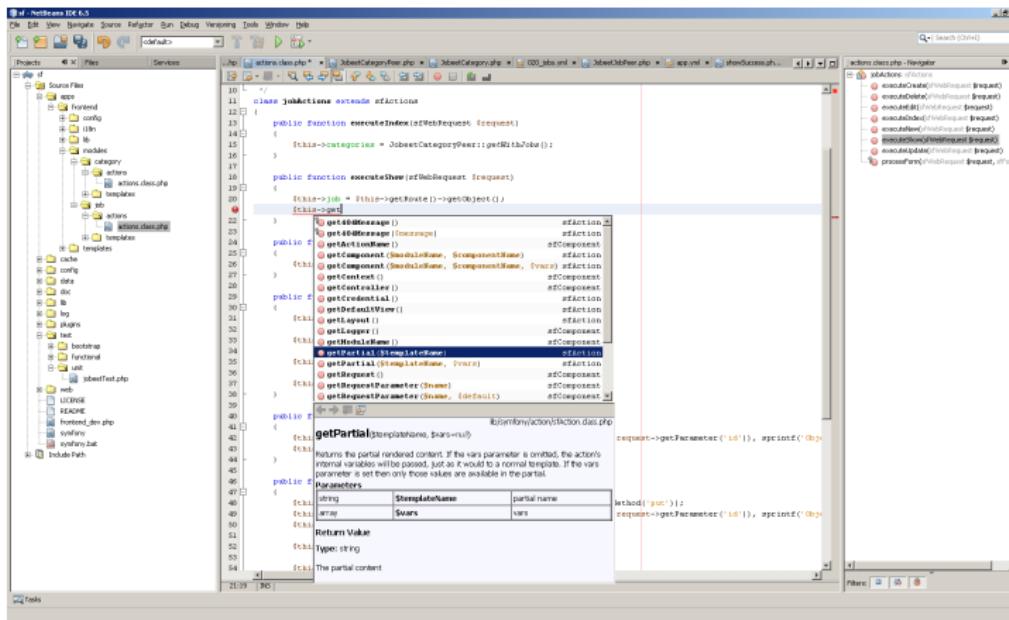
Entwicklungsumgebung für PHP

- ▶ Netbeans
- ▶ Eclipse
- ▶ PhpStorm (commercial)

- oooo
o

Entwicklungsumgebung

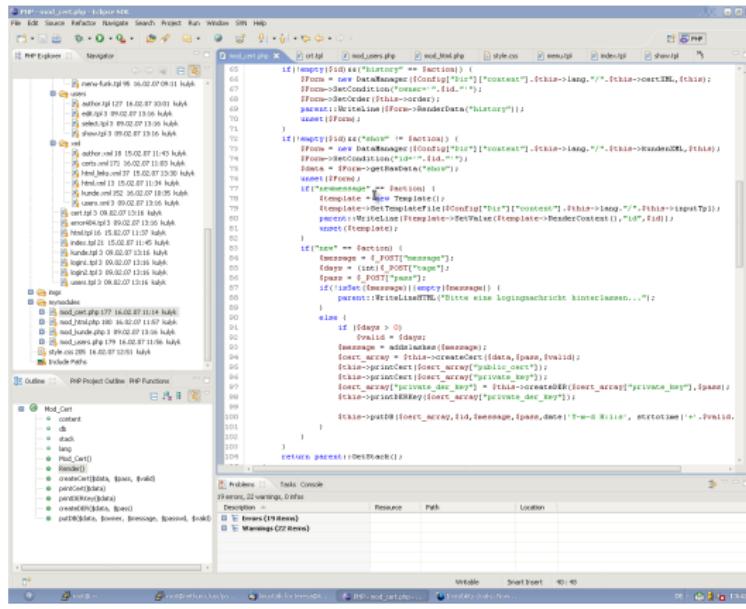
Netbeans



- The diagram consists of two horizontal rows of circles. The left row has 5 circles, with the 2nd and 3rd circles shaded. The right row has 6 circles, with the 5th and 6th circles shaded.

Entwicklungsumgebung

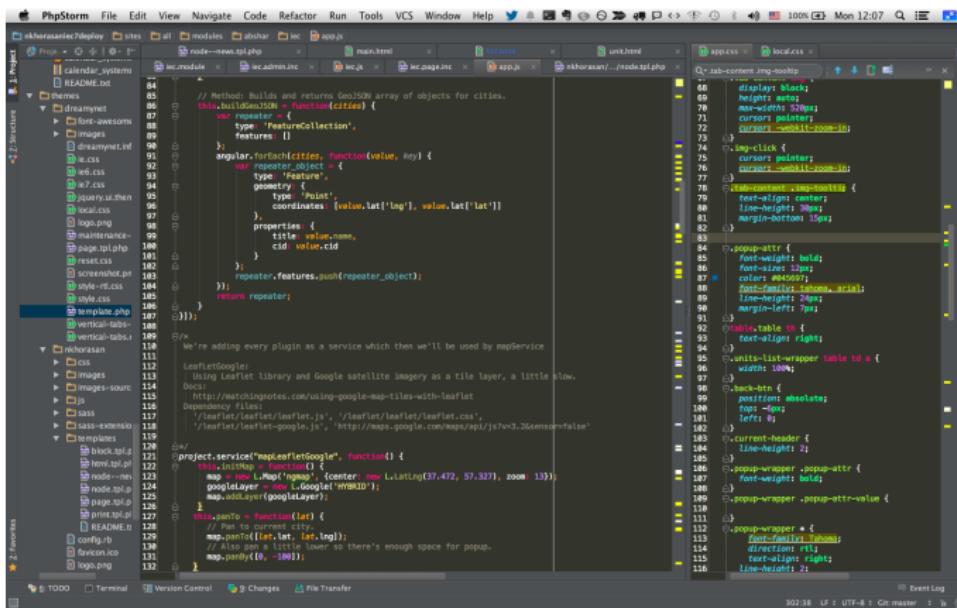
Eclipse



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Entwicklungsumgebung

PhpStorm



SQL Client

- ▶ Heidi SQL
- ▶ phpMyAdmin
- ▶ Navicat (commercial)

phpMyAdmin

Server: **localhost** ▶ Database: **base2** ▶ Table: **persons**

Structure **Browse** **SQL** **Search** **Insert** **Export** **Operations** **Empty** **Drop**

table personnes aaa; InnoDB free: 343040 kB; (town_code) REFER `base2_towns` (town_code); (country_code) REFER `base2` (country_code);

Field	Type	Attributes	Null	Default	Extra	Action
<input type="checkbox"/> id	tinyint(4)		No	auto_increment		
<input type="checkbox"/> person_name	varchar(200)		No			
<input type="checkbox"/> town_code	varchar(5)		Yes	0		
<input type="checkbox"/> country_code	char(1)		Yes	NULL		
<input type="checkbox"/> car_code	char(3)		No			

Check All / **Uncheck All** **With selected:**

Add **field(s)** At End of Table At Beginning of Table After **id** **Go**

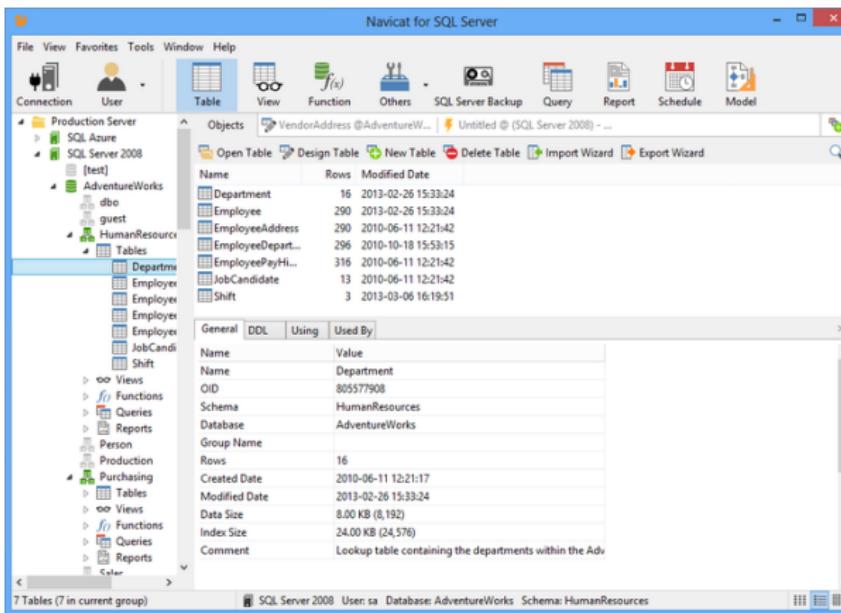
Indexes:					Space usage:	Row Statistic:		
Keyname	Type	Cardinality	Action	Field	Type	Usage	Statements	Value
PRIMARY	PRIMARY	2		id	Data	16,364 Bytes	Format	dynamic
town_code	INDEX	2		town_code	Index	49,152 Bytes	Next Autoindex	
country_code	INDEX	2		country_code				
payt-ville	INDEX	2		country_code				
				town_code				

More than one INDEX key was created for column 'country_code'

Create an index on columns **Go**



Navicat



Outro

Fragen

Fragen

Danke für Ihre Aufmerksamkeit

System - Gems

- ▶ API - REST in System
- ▶ Quick Query - Sichere SQL Querys

System - Gems

API - REST in System

URL

`http://www.example.com/?page=start`

Regeln

system_api (7x1)							
ID	group	type	parentID	parentValue	name	verify	
1	1	0	-1	(NULL)	page	(NULL)	

Funktion

`public static function page_start()`

API - REST in System

API Class Beispiel

```

<?php
class api_dasense extends \SYSTEM\API\api_system{
    //Sensor & Geopoint
    public static function call_page_page_sensor($sensorid){
        return page_sensor::json($sensorid);
    }
    public static function call_page_page_geopoint($lat,$long,$radius,$datatype){
        return page_geopoint::json($lat,$long,$radius,$datatype);
    }
    public static function call_page_page_geopoint_flag_explore($lat,$long,$radius,$datatype){
        return page_geopoint_explore::json($lat,$long,$radius,$datatype);
    }

    //Account calls
    public static function call_account_action_login_flag_compatibility($username, $password_sha, $password_md5, $locale, $deviceinfo){
        return DaseenseAccount::login($username, $password_sha, $password_md5, $locale, $deviceinfo);
    }
    public static function call_account_action_login_flag_repairSHA($username, $password_sha_wrong, $password_md5, $password_sha_new, $locale, $deviceinfo){
        return DaseenseAccount::login($username, $password_sha_wrong, $password_md5, $locale, $deviceinfo, $password_sha_new);
    }
    public static function call_account_action_create_flag_compatibility($username,$password_sha,$email,$locale,$deviceinfo){
        return DaseenseAccount::create($username, $password_sha, $email, $locale, $deviceinfo);
    }
    public static function call_account_action_update_change_password($username, $password_sha_old, $password_sha_new){
        return DaseenseAccount::changePassword($username, $password_sha_old, $password_sha_new);
    }
    public static function call_account_action_resetpassword($username, $email){
        return DaseenseAccount::resetPassword($username, $email);
    }
    public static function call_account_action_login_flag_data($username, $password_sha, $password_md5, $locale, $deviceinfo, $data){
        return DaseenseAccount::login_data($username, $password_sha, $password_md5, $locale, $deviceinfo, $data);
    }

    // [06.04.2013] Push Message register a device for push notification service
    public static function call_account_action_msg_method_register($userid,$deviceid,$token,$os){
        return MessageController::handleRegistrationToken($userid,$deviceid,$token,$os);
    }

    // [06.04.2013] Push Message allows users to invite friends via email
    public static function call_account_action_msg_method_invite($userid,$recipient_email,$msg){
        return MessageController::inviteUser($userid,$recipient_email,$msg);
    }

    // [09.04.2013] Profile get user's public profile
    public static function call_account_action_profile_get_public($userid){
        return ProfileController::getPublicProfile($userid);
    }

    //Logging system
    /* public static function call_log($json){
        ...
    }
    */
}

```

Quick Query - Sichere SQL Querys

Quick Query - Sichere SQL Querys

QQ

```
1 ?php
2     namespace SYSTEM\SQL;
3     class SYS_CACHE_DELETE_ALL extends \SYSTEM\DB\QQ {
4         public static function get_class(){return \get_class();}
5         public static function pgsql(){return
6             'DELETE FROM system.cache;';
7         }
8         public static function mysql(){return
9             'DELETE FROM system_cache;';
10        }
11    }
```

QP

```
1 ?php
2     namespace SYSTEM\SQL;
3     class SYS_CACHE_DELETE extends \SYSTEM\DB\QP {
4         public static function get_class(){return \get_class();}
5         public static function pgsql(){return
6             'DELETE FROM system.cache'.
7             ' WHERE "CacheID" = $1 AND'.
8             '"Ident" = $2;';
9     }
```

Quick Query - Sichere SQL Querys

Q1 - Eine Zeile

```
$res = SYS_SAIMOD_API_SELECT::Q1(array($ID,$group));
```

QA - Alle Zeilen

```
$res = SYS_SAIMOD_API_SELECT::QA(array($ID,$group));
```

QQ - Selber Interrieren

```
$res = SYS_SAIMOD_API_SELECT::QQ(array($ID,$group));
```

QI - Einfügen/Löschen

```
$res = SYS_SAIMOD_API_SELECT::QI(array($ID,$group));
```