

CONTENT MANAGEMENT SYSTEMS

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Annotation

In this work we have considered different popular content management systems. There was analysed the positive and negative sides of some systems. Then an algorithm of addition of a new users group with necessary rights on needed components was offered on example of Joomla system.

Introduction

Content Management System (CMS) – is a program equipment, which manages content of something. The most distributed systems is web content management systems. The web content management systems is a program which has web interface in most situations and which can help us to build web sites.

At this moment there is no one who will build web site from zero. Why should we build bicycle and do the same errors like others do, if it was built many times before us, and all we need is to do right choice? Under the right choice we understood bicycle most suitable for us at this moment. For example, if we had an accident and our leg is broken but we need to take a ride. In this case we don't need bicycles with legged control because we can't use them. Then we need bicycles with additional control. Handed control matches to us as well. After the selection of primary characteristics we need to choose most detailed settings. For example if we have problems with balancing then we need tricycles. But if we have very narrow streets then we can't use wide bicycles... We can do our decisions about bicycles for a long time but let's return to our main theme – web content management systems.

Which are the main reasons that make us to choose content management systems and not to write site we need from zero? Like Russians say: "Laziness is an engine of progress". Then there is the first reason – laziness.

Another one of the most important reasons is financial. Sometimes development price of the new sites is very high because everything is included in it: programmer's work, difficulty of site, time of creation, programmer's computers, tuning of sites, period of finding and fixing vulnerabilities. And this is not the end. Creation of the interface of the site is the top of the iceberg. But the iceberg's body in our case is something that covered under the interface. When we are creating site we want to use it for a long time. It should be alive, dynamic and mobile. In that case we need to build administrative panel to control the site. It is something like lite version of CMS but just for this site. Moreover this panel must be as much as possible simple and easy in use, because in the upshot you will have to select one of your workers (for organization) or you will have to busy yourself with changing and adding information to the site. To provide programmer is double disadvantageously in this situation.

CMS allows us to make a big site, which has definite structure, quickly, beautifully and with high – quality. The site will be easy customizable. It is not necessary to be a programmer for a work with CMS. Security facilities are usually included in any respected CMS. In this article we will review CMS with open code (free). It is good because every person can overlook the initial code of system and create addition which is needed for him. Very often people take out such additions in Internet. Therefore you can use the components which were written by somebody. As a consequence, even your CMS will be dynamical and will never stand still.

CMS is divided on three types:

The creation of the pages is on demand. All data are stored in a database and in query of the customer it is retrieving, creating pages dynamically. CMS of this type loads hardware very hard. But in modern web servers this kind of problems can be solved by caching information.

The creation of the similar pages for each new document, news and etc. As it seems to us it is not entirely correct from the point of view of modern technologies. This is comparable to a man, who is trying to write the "War and peace" book in 3000 copies with a pen. But what if something goes wrong?

Mixed CMS. They use the first two methods. The page of certain type is created for each type of document, and data are being loaded there dynamically on calling.

Also the visual images and text editors were created in CMS to simplify the user's work that facilitate the creation HTML pages from the text, including all necessary tags: markup, font, color, etc.

Content management systems

Let us take a look on few most popular CMS:

Joomla

Drupal

WordPress

PHP-Nuke TYPO3

In our opinion (and if reader would like to search internet for TOP10 popular OpenSource CMS) the best popular CMS is Joomla. It was developed on September, 16th, 2005 in the form of branch of Mambo CMS. Programming language is PHP, and it uses MySQL database. Using this system we can easily create very big and beautiful site without having any programming skills just by clicking on buttons. Initially the system has limited opportunities. But additional components, modules and templates can be added as well. Because of the wide prevalence, many developers began to write additional modules to extend default features of the system. At this moment this system is positioned like huge and easily extendable product. Using this system we can easily create corporate and personal sites. Also we can create forums, blogs, shops and others. Using templates from internet we can change appearance of whole site with one click. In our opinion the best negative features of this system is the predefined user groups with predefined permissions which can't be edited later and monolingual content of the sites. Second feature can be easily resolved by the additional module. First one would be resolved during this article. Last problem can be found in each same typed CMS. This system has technical support, manuals, and books, which describes administration of the system and development processes of the new components what we can't say about other CMS systems.

Drupal – CMS that can be used to build blogs, forums, and sites that give us information or news. Like Joomla it has options of adding new modules. System is very extendable. It has the same problems like Joomla.

WordPress – is the CMS system which can be used to create blogs and news sites. In functionality this system is similar to Joomla CMS but it doesn't have the same count of additional components like second one.

PHP-Nuke – is very old system. That's why we can easily find many different components on the web. In functionality this system is similar to Joomla. One of the additional features of the system is that it can work with different databases not only MySQL (PostgreSQL, MSSQL, ORACLE, MS Access, DB2, SQLite).

TYP03 – is very similar to each CMS described above. The only thing that makes it different from other CMS systems is that this CMS has not some of the components that others have.

Each system described above has its specific options. When we need to select one of them it is advisable to check home site of each system and then find some information about them using internet to find best suitable for us system.

As it was already described earlier, in the Joomla system user groups with the specified rights are predetermined during installation. It is impossible to change existing groups or add new ones. For this reasons there is component JACLPlus, but this component is a "hack" of the system and it changes all source codes of the site. It should be plugged to the just installed system and it is not advisable to install it to the working site with the additional components already installed, because it can cause the site not to work properly or other problems. Sometimes we need to add new groups or edit existing ones to make our site more suitable for our needs. For this reasons there is step-by-step algorithm of the new user group creation.

For example, we need to create new user group which should have access to the administrative panel of the site. Not to the whole administrative panel but to the components and modules we need. (Before any changes have been done it is desirable to keep a copy of a site and a database in order to prevent loss of information. In case of errors it will be possible to restore all changes). For example, we need to create user group which can add new news and translate added news to the different languages using component "JoomFish Direct Translation" (mod_translate). Let's call that group "NewsAddTranslate". Information about user groups that already exists in the Joomla system can be found in the #_core_acl_aro_groups table (here we should replace # symbol with the prefix of the database tables which has been set during installation of Joomla system. By the default it is JOS_).

Algorithm

Step 1. To create new user group we need to run following SQL commands:

```
SET @parent_name = 'Public Backend';
SET @new_name = 'NewsAddTranslate';
SELECT @group_id := group_id, @group_left := lft, @group_right := rgt
FROM jos_core_acl_aro_groups
WHERE name = @parent_name;
SELECT @new_group_id := MAX(group_id) + 1 FROM jos_core_acl_aro_groups;
UPDATE jos_core_acl_aro_groups SET rgt=rgt+2 WHERE rgt>=@group_right;
UPDATE jos_core_acl_aro_groups SET lft=lft+2 WHERE lft>@group_left;
INSERT INTO jos_core_acl_aro_groups (group_id,parent_id,name,lft,rgt)
VALUES (@new_group_id,@group_id,@new_name,@group_left,@group_right+1);
```

Now we can see that new "NewsAddTranslate" group has been created in the list of groups on our site. This group doesn't belong to administrators or SuperAdministrators. By the security policy of Joomla system only users with groups with higher priority can grant access to groups with lower priorities.

Step 2. To resolve this situation we need to modify the following file:
"/administrator/components/com_user/admin.user.php".

We need to find following string in that file:

```
if (!in_array($row->gid,getGIDSCchildren($my->gid))) {
```

and replace it with the following:

```
if ($my->gid != 25 && !in_array($row->gid,getGIDSCchildren($my->gid))) {
```

Number 25 is the order number of SuperAdministrators in Joomla systems. This modification allows SuperAdministrators of the Joomla system to grant any groups to other users.

Step 3. After creation of new user group we need to grant appropriate permissions to allow the just created user group to access administrative panel. Permissions of each group are statically written in the following file: "/includes/gacl.class.php".

We need to find following string in it:

```
// access to modules
```

and add after it followings strings:

```
array ('administration','edit','users','newsaddtranslate','modules','all');
```

```
$this->_mos_add_acl( 'administration', 'edit', 'users', 'newsaddtranslate', 'components', 'com_joomfish' );
```

After this operations is done all users of the NewsAddTranslate usergroup can access component named JoomFish.

Step 4. Now we need to disable additional components of administrative panel that we don't want users of the NewsAddTranslate usergroup can see. Main menu is controlled by the mod_fullmenu module which is placed in the following folder: /administrator/modules.

In the file /administrator/modules/mod_fullmenu.php we need to find following string:

```
$canManageUsers = $acl->acl_check( 'administration', 'manage', 'users', $usertype, 'components', 'com_users' );
```

and add after it:

```
$canEditJoomfish = $acl->acl_check( 'administration', 'manage', 'users', $usertype, 'components', 'com_joomfish' );
```

```
$canEditContent = $acl->acl_check( 'administration', 'edit', 'users', $usertype, 'components', 'com_content' );
```

After this done in the same file we need to find string:

```
if ($installComponents) {
```

and replace it with following:

```
if ($installComponents || $canEditJoomfish) {
```

Now find there:

```
// Content Sub-Menu
```

and add after it:

```
if ($canEditContent) {
```

And then before strings:

```
// Components Sub-Menu
```

we need to add:

```
}
```

Conclusion

In that way some OpenSource content management systems were investigated in this work. Their positive and negative sides were shown and the advices on choosing definite systems were given. Then the algorithm of adding new user group and of accordance necessary rights to definite components was offered on example of Joomla system.

Literature:

- [1] Hasin Hayder, "Object Oriented Programming with PHP5", 2007
- [2] Andy Harris, "PHP and MySQL", 2007
- [3] William Steinmetz, Brian Ward, "Wicked Cool PHP: Real-World Scripts That Solve Difficult Problems", 2008