

CMS Extensions

Overview

HUBzero CMS is already a rich featured content management system but if you're building a hub and you need extra features which aren't available by default, you can easily extend it with extensions. There are five types of extensions: Components, Modules, Plugins, Templates, and Languages. Each of these extensions handle specific functionality.

Components

The largest and most complex of the extension types, a component is in fact a separate application. You can think of a component as something that has its own functionality, its own database tables and its own presentation. So if you install a component, you add an application to your website. Examples of components are a forum, a blog, a community system, a photo gallery, etc. You could think of all of these as being a separate application. Everyone of these would make perfectly sense as a stand-alone system. A component will be shown in the main part of your website and only one component will be shown. A menu is then in fact nothing more then a switch between different components.

Modules

Modules are extensions which present certain pieces of information on your site. It's a way of presenting information that is already present. This can add a new function to an application which was already part of your website. Think about latest article modules, login module, a menu, etc. Typically you'll have a number of modules on each web page. The difference between a module and a component is not always very clear for everybody. A module doesn't make sense as a standalone application, it will just present information or add a function to an existing application. Take a newsletter for instance. A newsletter is a module. You can have a website which is used as a newsletter only. That makes perfectly sense. Although a newsletter module probably will have a subscription page integrated, you might want to add a subscription module on a sidebar on every page of your website. You can put this subscribe module anywhere on your site.

Another commonly used module would be a search box you wish to be present throughout your site. This is a small piece of re-usable HTML that can be placed anywhere you like and in different locations on a template-by-template basis. This allows one site to have the module in the top left of their template, for instance, and another site to have it in the right side-bar.

Plugins

Plugins serve a variety of purposes. As modules enhance the presentation of the final output of the Web site, plugins enhance the data and can also provide additional, installable functionality. Plugins enable you to execute code in response to certain events, either core events or custom events that are triggered from your own code. This is a powerful way of extending the basic functionality.

Templates

A template is a series of files within the Joomla! CMS that control the presentation of the content. The template is not a website; it's also not considered a complete website design. The template is the basic foundation design for viewing your website. To produce the effect of a "complete" website, the template works hand-in-hand with the content stored in the database.

Each hub comes with default templates for both the administrator area and the front-end site.

Languages

Probably the most basic extensions are languages. Languages can be packaged in two ways, either as a core package or as an extension package. In essence, these files consist key/value pairs, these pairs provide the translation of static text strings which are assigned within the source code. These language packs will affect both the front and administrator side. Note: these language packs also include an XML meta file which describes the language and font information to use for PDF content generation.

Conclusion

If the difference between the three types of extensions is still not completely clear, then it is advisable to go to the admin pages of your installation and check the components menu, the module manager and the plugin manager. A hub comes with a number of core components, modules and plugins. By checking what they're doing, the difference between the three types of building blocks should become clear.

Deploying Extensions

Installing with the Extension Manager

See <https://help.hubzero.org/documentation/22/managers/extensions/extmanger>

Installing By Hand

Installing an extension by hand requires a few more steps than the Extensions Installer but is still a fairly easy and quick process.

1. If the extension is packaged as a .zip file, extract the files to a location on your local machine.
2. Upload the entire contents of the extension, except language files, via SSH/sFTP to the /yourhub/app/{ExtensionType}/ directory.

Extension Type	Install Location
Component	/yourhub/app/components/{ExtensionName}
Module	/yourhub/app/modules/{ExtensionName}
Plugin	/yourhub/app/plugins/{PluginType}/{PluginName}
Template	/yourhub/app/templates/{ExtensionName}

3. Log in to the administrative back-end of the HUB.

4. Components

1. Components do not technically need a database entry to function in their simplest form. However, an entry is needed if one wishes to use parameters or have the component appear under the "Components" list in the administrative back-end. The preferred method is to create a [migration](#) for your extension and to then run migrations via the command-line utility [muse](#). The alternative is to have it done by hand via MySQL command-line, some form of MySQL database GUI, or executing a PHP script. A sample SQL is provided below:

```
INSERT INTO #__extensions(
```

```
`extension_id`,
`name`,
`type`,
`element`,
`folder`,
`client_id`,
`enabled`,
`access`,
`protected`,
`manifest_cache`,
`params`,
`custom_data`,
`system_data`,
`checked_out`,
`checked_out_time`,
`ordering`,
`state`
)
VALUES(
'',
'com_mycomponent',
'component',
'com_mycomponent',
'',
0,
1,
1,
0,
'',
'',
'',
'',
0,
'0000-00-00 00:00:00',
0,
0
);
```

Modules

1. Once logged-in navigate to the Modules Manager. This can be found from the main menu by following the "Modules Manager" option found in the drop-down under "Extensions".
2. Click the "New" button in the toolbar. This will present you with a list of all available modules, including those with existing directories but no database

- entries (such as the one you just copied to /yourhub/app/modules/).
3. Find the name of your newly added module and click its radio button. Once selected, click the "Next" button in the toolbar. This will take you to an "edit module" screen where you may enter a title, adjust parameters, select a position, etc.
 4. Enter a title, adjust parameters, select a position, and enter any other necessary information. Click "Save" in the toolbar.

Plugins

1. A sample SQL is provided below:

```
INSERT INTO #__extensions(  
  `extension_id`,  
  `name`,  
  `type`,  
  `element`,  
  `folder`,  
  `client_id`,  
  `enabled`,  
  `access`,  
  `protected`,  
  `manifest_cache`,  
  `params`,  
  `custom_data`,  
  `system_data`,  
  `checked_out`,  
  `checked_out_time`,  
  `ordering`,  
  `state`  
)  
VALUES(  
  '',  
  'System - Hello World',  
  'plugin',  
  'helloworld',  
  'system',  
  0,  
  1,  
  1,  
  0,  
  '',  
  '',  
  '',  
  '',  
  0,  
  '0000-00-00 00:00:00',
```

```
0,  
0  
);
```

Templates

1. Once logged-in navigate to the Templates Manager. This can be found from the main menu by following the "Template Manager" option found in the drop-down under "Extensions".
2. Here you will be presented with a list of available templates. Your newly added template should be available. To make it the default template of the site, select it by clicking the radio button next to its name.
3. Click the "Default" button to make the template the default.