

# Layouts

## Overview

While technically not necessary for a module to function, it is considered best practices to have a more MVC structure to your module and put all HTML and display code into view files. This allows for separation of the logic from presentation. There is a second advantage to this, however, which is that it will allow the presentation to be overridden easily by any template for optimal integration into any site.

Overriding module and component presentation in templates is further explained in the [Templates: Overrides](#) section.

## Directory Structure & Files

The directory structure used for MVC oriented modules includes a `tmpl` directory for storing view files. While more views may be possible, modules should include at least one view names `default.php`.

```
/hubzero
  /modules
    /mod_{ModuleName}
      /tmpl
        default.php
```

## Implementation

A simple view (`default.php`) for a module named `mod_listnames`:

```
<?php defined('_JEXEC') or die('Restricted access'); // no direct access ?>
<?php echo JText::_('MOD_LISTNAMES_RANDOM_USERS'); ?>
<ul>
  <?php foreach ($this->items as $item) { ?>
  <li>
    <?php echo JText::sprintf('MOD_LISTNAMES_USER_LABEL', $item->name);
  ?>
  </li>
  <?php } ?>
</ul>
```

## LAYOUTS

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Here we simply create an unordered HTML list and then iterate through the items returned by our helper (in `mod_listnames.php`), printing out a message with each user's name.

An important point to note is that the template file has the same scope as the `display()` method. What this means is that the variable `$items` can be defined in the `helper.php` file, assigned to `$this` and then used in the `default.php` file without any extra declarations or function calls.

Now that we have a view to display our data, we need to tell the module to load it. This is done in the module's controller file and typically occurs last.

```
<?php
// No direct access
defined('_JEXEC') or die('Restricted access');

class modHelloWorld extends HubzeroModuleModule
{
    /**
     * Retrieves the hello message
     *
     * @param array $params An object containing the module parameters
     * @access public
     */
    public function display()
    {
        $this->greeting = 'Hello, World!';

        parent::display();
    }
}
```

Here we can see that `display()` method calls its parent class' `display()` method which, in turn loads the module's view. This will load `default.php` and stores the output in an output buffer which is then rendered onto the page output.