

# Macrotone Issue Tracker Customisation Guide

***Macrotone***  
***Consulting Ltd.***

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Macrotone    Issue    Tracker    Customisation    Guide:

# *Macrotone* *Consulting Ltd.*

by Geoffrey S. Chapman

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## **Abstract**

This book covers the customisation of the Macrotone Issue Tracker component which allows one to control issues or problem reports on a Joomla!™-powered web sites.

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# Preface

**Joomla**

**Issue Tracker**

**Component**

Author: G S Chapman  
Date: 3<sup>rd</sup> March 2015  
Version: 1.0.0

## DOCUMENT HISTORY

Version	Date	Changed By:	Remarks
1.0.0	03/03/2015	G S Chapman	New customisation guide originally written for release 1.6.6 but generally usable.

## PURPOSE OF DOCUMENT

This documentation describes the customisation possible with the Joomla Issue Tracker component by Macro-tone Consulting Ltd.

Originally written with release 1.6.6 in mind it is generally usable for most versions since it is not specifically version orientated.

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# Part I. Macrotone Issue Tracker

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# Chapter 1. Overview

This document concentrates upon the customisation of the Joomla Issue Tracker component for Joomla! 2.5/3.x. The completed Issue Tracker component is available on the MacroTone Consulting Ltd Website:

<http://www.macrotoneconsulting.co.uk/index.php/MacroTone/joomla-extensions.html>

Wikipedia defines an Issue Tracking system (ITS, trouble ticket system, support ticket or incident ticket system) as a Computer Software package that manages and maintains lists of Issues (computers), as needed by an organisation. Issue tracking systems are commonly used in an organisation's Customer Support / Call Centre to create, update, and resolve reported customer issues, or even issues reported by that organisation's other employees. An issue tracking system often also contains a Knowledge Base containing information on each customer, resolutions so common problems, and other such data. An issue tracking system is similar to a "bug tracker", and often, a software company will sell both, and some bug trackers are capable of being used as an issue tracking system, and vice versa. Consistent use of an issue or Bug Tracking System is considered one of the "hallmarks of a good software team".

This implementation is suitable for a small or medium sized organisation to record and efficiently respond to reported problems / issues.

Where ever possible the development tries to lever the supplied features provided in the Joomla core. This enables the same 'look and feel' as supplied by the standard Joomla components, ensuring user familiarity and making for easier implementation.

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# Chapter 2. Design

The design criteria used for the component included the possibility of being able to configure the component such that it might be used in various way for different purposes.

For example whilst the component as installed provides a mechanism for recording and reporting problems typically associated with a software products or a software service this would not be suitable for say a solicitors who would want to record ongoing problems with a property transaction. Terms such as 'Issue' may or may not have any specific meaning in the context for which they are used.

One of the criteria in the design was to make use of as much of the supplied Joomla functionality and provide familiarity of use with the standard Joomla components. In this way we can also make use of Joomla functionality to permit 'localised' changes to the component and this permit its wider usage in a variety of situations.

## Planning and Analysis

We are obviously not fully conversant with all the possible intended usages or of the specific terms associated with each usage, so it is necessary for the site or installer to make a plan with all of the various steps involved in modifying/changing the component as it is intended to be used upon a site.

## Planning and Project Analysis

The first action is to define the requirements. These are then used to decide the various parts of the component that it is desired to modify.

The prime criteria is to define the 'project' or 'category' criteria. This is the top level 'container' or 'folder' to which all of the individual 'problem reports' or 'issues' are contained.

An example might be that a 'Solicitors' usage would be very different from that of a 'Hardware systems repairer'. Both would however require to track various 'concerns/problems' but the terms that would be used are very different.

At a minimum it is necessary to know the specific terms that one wishes to replace. So for example if one were to wish to use the term 'category' instead of 'Project' we would require to replace all strings containing the terms 'project' and 'projects' (the plural) with the terms 'category' and 'categories'.

Upon installation the site language files are placed in the language/en\_GB/com\_issuetracker.ini in the main site directory. The administration language files are contained in the administrator/lanagues/en\_GB/com\_issuetracker.ini and com\_issuetracker.sys.ini files which are located under the administrator/langage/en\_GB directory. It is these files that one would need to inspect to determine which strings are to be replaced. If we are only interested in changing the front end of the site it is the site language file that we would replace.

### Note

If a foreign language is being used on the site. i.e. The en\_GB is not the site default, then the strings would be in their own specific language file directory.

### Important

There are already a number of language translations available for the component and available upon the company web site. Some of these are incomplete and may require some further work by the site administrator.

---

# Chapter 3. Installation

The Issue Tracker component installs in the standard Joomla manner and after installation this is where the configuration starts. If installed in the standard manner and the mechanisms described in this document have been followed, any changes made upon a site would have been preserved over a component upgrade so they would not need to be performed again.

Using localised changes is very easy and is described in more detail in the following chapters.

Never ever perform an uninstall before a component upgrade as any changes that may have been made, can not be guaranteed to be retained.

It is assumed that the reader is reasonably familiar with Joomla administration.

---

# Chapter 4. Language Overrides

We are obviously not conversant with all of the possible needs, so the guide has to be slightly generic in its approach, but the following are some general guidelines. We are not concerned with the creation of 'new' language sets but merely with the creation of a few strings to replace some of those that already exist that do not meet our current need.

Some of the front end 'labels/titles' may require changing and this is also relatively easily achievable.

It is not possible to determine from the email address where the site is located. It is possible that the default language is not English and there may already be a fully converted language pack available. If not there are a few partial language packs which may or may not require completing. This is not something that we ourselves can complete since the chances of knowing the language is virtually zero. We would create language overrides for any 'strings' that one requires changing.

To change text in core Joomla or in an extension (other than installing a new language) it is advised to perform a language override in Joomla. To do this one needs to go into the admin backend then in the menu under "Extensions" click on "Language Manager".

Then on the sub menu on the page one comes to click on "Overrides" as shown in the image below.

## **Figure 4.1. Extension Language Manager Overrides.**

Click on "New" in the toolbar. Here one can change any string in Joomla. One can use the box on the right to search for a string that appears in the front end. Or if one knows the constant one wishes to override one can immediately enter that in the box on the left-hand-side.

Once one has string it is entered into the "Language Constant" box on the left of the screen. Then type in the text area beneath the text one wants to display. Once this is done, click "Save and Close" and then repeat the previous step for each of the strings there is a need to override.

## **Figure 4.2. Extensions Language Manager Overrides: Edit screen.**

This may seem like a hard way of doing it rather than simply editing the language string files - but the advantage is that when one performs an update an extension/Joomla these strings won't get overwritten and generally, it's easier to do it this way once than it is to do it every time Joomla/the extension gets updated and having to edit the .ini file again.

How do language overrides work:

When first used Joomla will create an 'overrides' folder under the language folder upon the site. It then creates a file named zz-ZZ.override.ini within that folder, where zz-ZZ is the language criteria. i.e en-GB for an English translation. By using this mechanism when a component or Joomla is updated the contents of this file will remain unchanged.

Most of the time one will want to overwrite the default language strings. The quickest way is to click on the button New, which brings one to a screen where one enters the desired string to override and the desired value. A language string consists of two parts, a constant and a value. If we know the names and values we can insert them into the field on the left of the screen.

## **Figure 4.3. Language Manager Overrides: Edit screen.**

If we do not know the value we can search for the value and then change it.

### **Figure 4.4. Language Manager Overrides: Edit screen (2).**

We have specifically illustrated changing a 'ISSUE TRACKER' string above, and when we refresh our front end screen we can immediately see that the change has taken effect.

#### **Important**

If there is any form of site or browser cache in use then it may be necessary to flush these cache's before the change may be seen.

### **Figure 4.5. Language Manager Overrides: Display example.**

Aside

For those sites that already have performed custom language translations, then it would be possible to retain these changes by copying the changes directly into the overrides file itself prior to upgrading the component. In this way one preserves the changes already made. It is assumed that there are suitable backup copies available in case there is a problem.

#### **Important**

It is possible to directly edit the language override file but if this is done, then care has to be taken to ensure that the structure of the file is retained. No syntax errors are permitted, since if there are any errors it is possible that the whole file will be apparently ignored, and NONE of the changes may be visible.

The use of this feature seems to be the perfect way for a site to create 'language overrides' (and also create custom language strings). They provide the ideal way to change the existing translations or to create ones own and insert them with php anywhere in the site webpages. Now when updating Joomla or even component there is no worry about loosing the changes, because they are saved in a separate file. It is a great addition when using template, module or component overrides.

---

## Chapter 5. Project Names

The component uses the name 'project' to describe which some may prefer to be named 'categories'. It is not unexpected that in our solicitor example these might better be named contracts. These may be have a year as a sub project: i.e. Site A with sub projects 2014, 2015 2016 etc., or alternatively the year could be part of the 'project name'. i.e. 'Site A 2015' so each contract is an individual 'project'.

An alternative might be that each 'contract' type has a specific 'contract number' or 'client name'. In all up to ten sub levels are configurable which should be sufficient for most (any?) installation.

Issues may only be 'private' in that only the 'raiser' and the site administrators (and assignees) would be able to see them. There may/would probably be a few 'public' (generally viable) issues.

It is also possible that only registered' users/members to be able to open/update their own 'issues'.

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# Chapter 6. Issue Types

As installed there are a number of defined Issue types supplied. These may or may not be suitable for the particular installation.

One can choose to delete the supplied values, however it is probably easier to just 'unpublish' them and create any new values that are desired.

Issue types are associated with specific 'projects' so it is possible to have different types for each individual 'project; if it is so desired.

If published the issue types will be visible in the site front end for a selected 'project'.

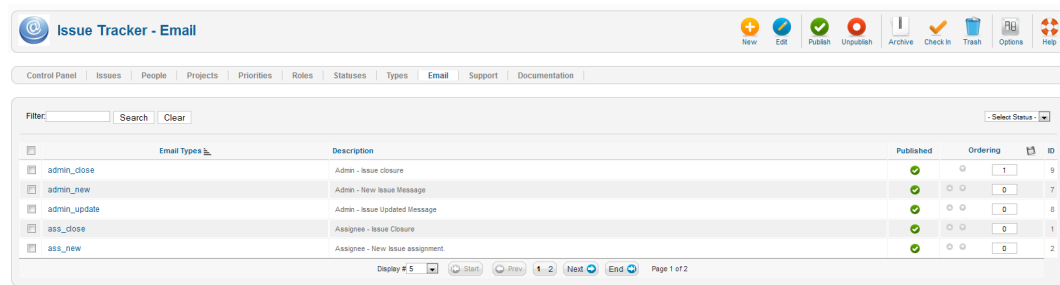
It seems likely that one would desire their own set of 'issue types', what these would be would depend upon the specific site requirements. [Current types such as 'defect' 'documentation' etc., may not be applicable.]

Remember to specify the component option for the required 'default issue type' that is assigned if the user chooses not to select one of those presented or if the issue type is not displayed to the user.

# Chapter 7. Message Templates

Templates are provided for the sending of messages (notifications) from the component. Generally they are mainly used for email notifications, but there are also some specific SMS templates. The templates are accessed from the back end of the site from the component Message (Email) tab.

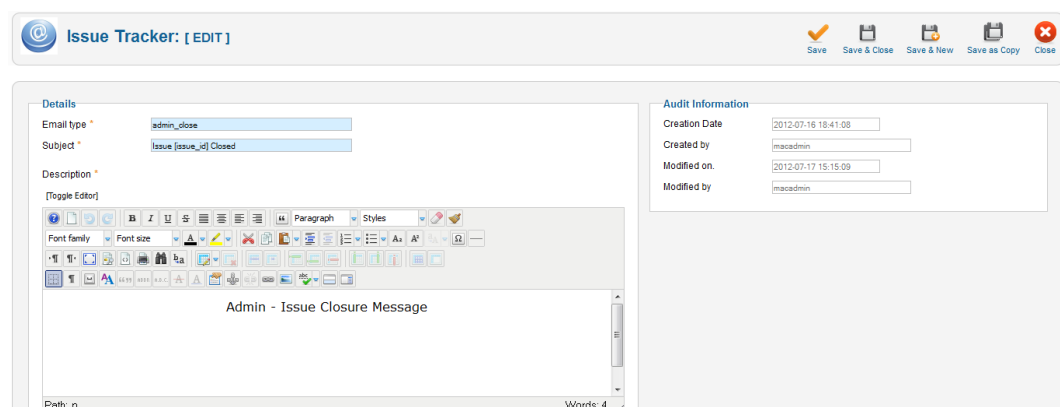
**Figure 7.1. Message Listing**



Email and SMS generation is controlled via the configuration options, and makes use of the message types as show in the figure above. The ‘email type’ (message\_type) name is hard coded into the component, but all other settings are configurable by the administrator. The description field as suggested by its name provides a descriptive explanation of the purpose of the email type.

The message type name is important since it has to be unique and is used within the code to initiate the sending of the specific email type. Additional message types are likely to be introduced in latest releases.

**Figure 7.2. Message Template Edit (1)**

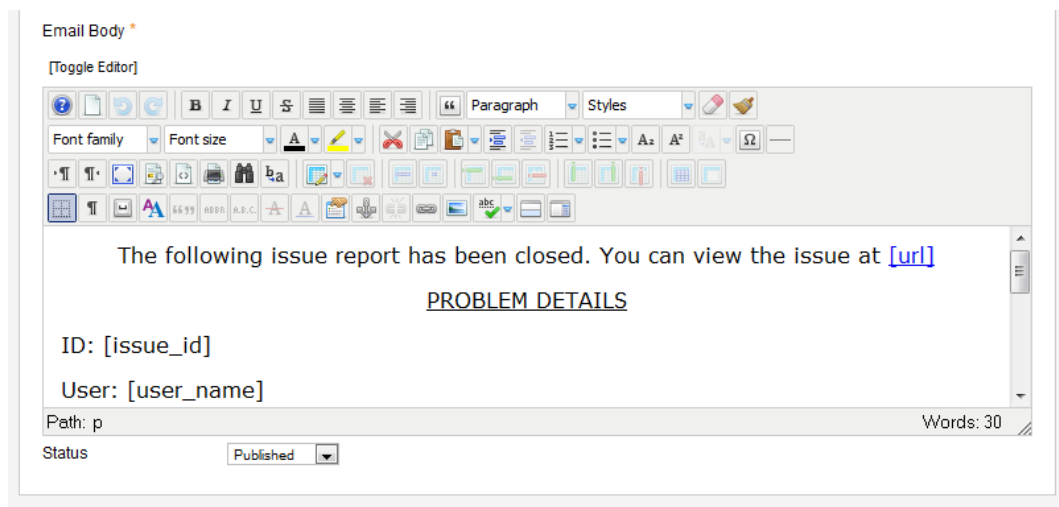


The figure above illustrates the top of the ‘message template edit’ screen. The subject field reflects message subject field that is presented in the generated messages. Of more importance is the actual body of the message which is shown in the figure below. The body makes use of HTML codes, as the generated message is in HTML format. Consequently it is possible to make the text as attractive and detailed as is required.

The details of the issue are inserted into the message body by the use of ‘tags’. These tags are substituted into the message body prior to sending.



**Figure 7.3. Message Template Edit (2)**



Tags are entered by using the words identified in the Email Template Tags table below surrounded by braces. The tags must be entered in lowercase letters otherwise they will not be recognised. Tags can be used in the subject field or in the body of the email. There is no limit to the number of tags that can be used and a tag may be used more than once, although this is often not required.

As supplied the message templates are very basic in that they do not contain any form of formatting. This does not mean however that they can not be formatted by adding any required CSS that may be required by a site. On our own site we have added some simple CSS rules which are illustrated below for a user notification upon a new issue being created:

```
<div style="background-color: #e0e0e0; padding: 10px 20px;">
<div style="background-color: #f9f9f9; border-radius: 10px;
padding: 5px 10px;">
<div style="height: 50px;">
<h3>Issue Tracker Issue
Notification</h3>
</div>
<p>Thank you for submitting your issue.</p>
<p>You can view or update [requires login] the issue at: [url]</p>
<p><span style="text-decoration: underline;"></span></p>
<p><span style="text-decoration: underline;">ISSUE DETAILS</span></
p>
<p>ID: [issue_id]</p>
<p>User: [user_name]</p>
<p>Date: [startdate]</p>
<p>Title: [title]</p>
<p></p>
<p><span style="text-decoration: underline;">DESCRIPTION</span></p>
<p>[description]</p>
</div>
</div>
<p style="font-size: x-small; color: #999;">You are receiving
this email message because you (or someone on your behalf) has
indicated you are the
identifier of issue [issue_id] against the [project] project on
<em>macrotoneconsulting.co.uk</em>.</p>
<p style="text-align: right; font-size: 7pt; color: #ccc;">Powered
by
```

```
<a href="index.php/MacroTone/issue-tracker-component.html"
 style="color: #ccf; text-decoration: none;">MacroTone Issue
 Tracker System</a></p>
```

The effect of applying the above CSS to the message template is shown below:

**Figure 7.4. Sample CSS applied to message template.**

The above is a sample only and the site administrator will wish to modify the template to best suit the needs of the specific site. It does however serve as an example of the very simple changes that can be made to 'improve' the look of the notifications.

## Messages and Notifications

A number of templates have been provided to be used for generation of the email and SMS messages which are sent when an issue is opened, closed or updated. An update is considered to be any change where the issue state is not 'open', or 'closed'. These states are defined in the component parameters. This information builds upon the details provided in the User Guide.

There are also a few miscellaneous templates used for specific tasks.

**Table 7.1. Email templates.**

Name	Notes
ass_close	Used when sending an email message indicating an issue assigned to the email recipient.
ass_new	Used when sending an email message to the issue assignee when an issue is assigned to the email recipient.
ass_update	Used when sending an email message indicating an issue update to the issue assignee.
user_close	Used when sending an email message to the issue assignee when an issue is assigned to the email recipient.
user_new	Used when sending an email message to the issue identifier when the issue is opened.
user_update	Used for sending an email message to the issue raiser when the issue is updated.
admin_close	Used when sending an email message indicating an issue closure to the issue system administrators.
admin_new	Used when sending an email message to the issue administrators when an issue is initially created.
admin_update	Used when sending an email message indicating an issue update to the issue administrators.
sms_close	Used when sending a SMS message when an issue is closed. The same template is used irrespective of recipient due mainly to the limitation of the size of the message that may be send.
sms_new	Used when sending a SMS new message when an issue is initially created. The same template is used irrespective of recipient due mainly to the limitation of the size of the message that may be send.
sms_update	Used when sending a SMS update message to a recipient. The same template is used irrespective of recipient due mainly to the limitation of the size of the message that may be send.

Name	Notes
auto_close	Used when sending an email message indicating an issue closed by the auto-close cron system to the issue originator/creator.

The templates make use of substituted values where the details associated with the specific issue referred to in the message. The supplied email templates are larger than those supplied for SMS messages, mainly because SMS messages tend to be shorter and more concise than email messages.

The tags are represented by the string name indicated in the table below surrounded by square braces '[]'.

The template once updated with the specific issue values is then amended by adding the header detail and trailing detail as specified in the component options.

**Table 7.2. Email template tags usable in generated notification messages.**

Name	Source
url	Hard coded in routine. The URL to use for appending to the site name to provide a link to the specific issue.
issue_id	The alias of the issue (issue number).
title	The issue summary (or title) for the issue.
description	The issue description field.
user_name	The name of the user who identified (or raised) the issue, if not specified. If a guest user raised the issue then their details will have been captured and will be used, other wise the user identified as opening the issue will be used.
user_email	The email address of the user who raised the issue. See user_name above.
user_fullname	The full name of the user who raised the issue. See user_name above.
progress	The details of the progress field of the issue.
project	The name of the project to which the issue is attributed.
priority	The priority associated with the issue.
startdate	The date when the issue was identified.
closedate	The date when the issue was closed.
assignee_fullname	The full name of the person who is assigned to work the issue.
assignee_email	The email address of the person assigned to work the issue.
assignee_urname	The username of the person assigned to work the issue.
resolution	The resolution text of the issue.
status	The status of the issue.

### Note

All fields should be specified in lower case. Mixed case is not supported currently.

The notifications have a number of inbuilt rules which prevent emails from being sent in certain circumstances. They are briefly:

- An assignee email is not generated if the assignee is the one creating the issue.
- Issue administrators are not sent emails if an issue administrator is creating an issue.
- If an issue administrator is closing an issue then no issue administrators are not sent an email.
- If an assignee is closing or updating an issue they are not sent an email.

- If an issue administrator is updating an issue, then issue administrators are not sent emails.

## Use of Custom Field tags

Release 1.6.7 introduced the ability to specify tags such that custom fields can be inserted into outgoing message notifications.

The mechanism is to place a tag in the email template such as [CFIELDx] where x is the id (number) of the custom field. When discovered the tag in the template is replaced with the 'field name' followed by a colon, a space and then the specified field value. For 'header' custom field types only the custom field name is inserted into the template.

### Note

The tag used for custom fields is in upper case, NOT lower case which is the situation for the general tags. This is deliberate and intended to make them 'stand out' in the template.

Only custom field ids that are part of a group that is associated with the project, for which the issue is associated are valid for insertion into a message template.

If an invalid custom field identifier is specified, as would be the situation were the wrong or an invalid custom field id is used, then the entire custom field tag is removed from the outgoing notification. An informative message is inserted into the component log notifying the system of this situation. By clearing out the invalid tag we ensure that the outgoing message is 'clean'. This also enables the use of the same email template with different projects, for which different custom fields may apply.

### Note

We have chosen to only implement the use of tags in the body section of the message. The limitation on the length of a message header, means that it is unlikely that one would wish to place custom fields into the message header.

See RFC 2822, section 2.1.1 states:

There are two limits that this standard places on the number of characters in a line. Each line of characters MUST be no more than 998 characters, and SHOULD be no more than 78 characters, excluding the CRLF.

Note also that some email systems enforce a lower limit upon the subject length.

**Table 7.3. Email template custom field tags - typical output.**

Tag	Output example	Notes
CFIELD1	Product Details	This is a sample of header field. [This is one of the default provided field.]
CFIELD5	Database Type: MySQL	This is a sample of radio field. [This is one of the default provided field.]
CFIELD6	Database Version: any	This is a sample of text field. [This is one of the default provided field.]
CFIELD24	DDDDD: 2015-02-19	This is a sample of date field. We chose a name of DDDD for simplicity.
CFIELD25	EEEE: Second, Third	This is a sample checkbox field - multiple selection. Note we separate values by a comma. We chose a name of EEEE and provided three possible values of which we selected two.

Tag	Output example	Notes
CFIELD10		Output when an invalid field id is provided. Note that this is blank! On our test system this id is not used so we ensured that it was not valid.
CFIELD27	Select: BBBB	This is a sample of select field. We chose a name of 'Select', with possible selected values of AAAA, BBBB and CCCC, of which we chose the centre BBBB value.

## SMS templates Overrides

As mentioned earlier despite the earlier Email name, there are also a few templates used for SMS notifications. The SMS templates are much shorter due to the restrictions usually due to the limitations imposed by the SMS providers. A message size of 160 characters is common for a lot of the SMS message providers. A component parameter permits a size limit to be specified (default 160), beyond which the message is truncated.

### Note

An SMS message is built up by prefixing the message subject in front of the message body, so there is nothing to be gained by specifying the same 'tag' in both. The reasoning is that unlike with an email message there is no specific 'subject' for a SMS message, so it becomes part of the message itself.

### Important

The short nature of SMS messages and the devices upon which they are displayed means that it is probably not worth while spending too much time modifying the SMS templates since they are very likely to be truncated anyway, most probably by the SMS sender.

## Common message template changes

One change that is commonly made by a site administrator is to add the Assignee details to the administrator message upon the opening of an issue. This has not been included as a default due to prior expressed preferences.

### Note

It is not expected that the progress tag will be used in the email subject header.

It is also extremely unlikely that a progress tag would be included in a SMS message body either, since this is one easy way to exceed the SMS message length limitation. When a SMS message exceeds the specified length it is truncated and a message inserted in the component log, if logging is enabled.

### Important

It is expected that some sites will wish to change the text of the messages into their own language. This is perfectly acceptable, only **DO NOT** change the message type since this would result in the email template not being found and hence no message of that type would be sent.

---

# Chapter 8. Template Overrides

The area where most work would be required would most likely be where one wishes to change the default front end layout. This is going to be very dependant upon what front end template that is being using. As distributed the front end layout work with the supplied Joomla templates (protostar or beez3) but these may not be sufficient for use with all templates on all sites. If not then there would be a need to create specific template overrides.

If there is ever a need to change something in a core Joomla file, such as the layout, heading tags, etc., their is a proper way to approach this. If one alters the core files you run the risk of breaking the site if done improperly and if one upgrades the version of Joomla, this file is overridden. The same logic applies if one wishes to change a non-core component/module/plugin file.

One needs to copy the original php file from the main directory location and place the copy into the proper place in your template directory. The correct directory structure for your override file is:

```
TEMPLATE_NAME/html/EXTENSION_NAME/VIEW_NAME/FILE_NAME.php
```

So for example if one wanted to override the core file that controls the way an article is laid out, one would copy the original into the new directory inside the directory of site template files and edit it from there. Say for example we are using the protostar template. Use the following structure:

Original File location:

```
JOOMLA_ROOT/components/com_content/views/article/tmpl/default.php
```

Override File Location:

```
JOOMLA_ROOT/protostar/html/com_content/article/default.php
```

In our example we are concerned with possibly changing the form output for the Issue Tracker component.

Original File location:

```
JOOMLA_ROOT/components/com_issuetracker/views/form/tmpl/edit.php
```

Override File Location:

```
JOOMLA_ROOT/protostar/html/com_issuetracker/form/edit.php
```

## Joomla 3 does all the work

Pull the Extensions menu down, click on Template Manager Extensions -> Template Manager

One will come to a chart of the templates that are installed on the site. The columns are Style, Default, Location, Template and ID

### Figure 8.1. Template Manager Overrides: Templates screen.

There will always be at least two templates where the Default star is filled in, one is your Administrator Template, whilst the other is the Site Template. There may well be more available as it is dependant upon the site administration.

Click on the name of the default site template in the Template column.

This brings one to the Template Manager: Customise Template screen.

### Figure 8.2. Template Manager Overrides: Customise Templates screen.

Click on the Create Overrides tab.

### **Figure 8.3. Template Manager Overrides: Edit screen.**

We are assuming that one has done their research and know what file they wish to override and how to edit the file to accomplish their goals.

We will assume that we wish to change the Issue Tracker form layout. Click on com\_issuetracker and all of the views for that component will be displayed.

### **Figure 8.4. Template Manager Overrides: Issue Tracker views.**

Click on Form, and after a moment, one should get a green box on top that says that the Override was created and the path to that file. This file will be placed in the /templates/TEMPLATE\_NAME/html/ directory.

Click on the Editor tab.

### **Figure 8.5. Template Manager Overrides: Form Edit screen.**

Click on the html folder in the left hand column.

This will open up to the existing sub-folders.

For our example of wishing to edit the Form layout, click on com\_issuetracker -> form -> edit.php.

Keep in mind that this is a copy of the file. If one totally messes it up, one can simply delete the file from this directory, and Joomla will go back to using the original core file.

We ourselves have recently been ‘playing’ with a new ‘Bootstrap v3’ template for the front end of our site. This involved use creating a set of template overrides for our Issue Tracker component and some of the details are provided below.

Joomla has long had the ability to create Template Overrides, which are modifications to the Joomla components or modules. This permits changes to be made upon a ‘local site’ basis without the need to change or hack the supplied code.

We are primarily concerned with the Issue Tracker component and we have tried hard to produce front end displays of Individual Issues and of the Issue Entry form that would be usable in the majority of installations. However the differences between the various template used on sites are many and vast, and it is almost inevitable that they will not be suitable for everyone. This was indeed the situation we discovered ourselves when using a Bootstrap template for the site.

The mechanism for creating a template override is as described above. Changing of the files themselves does however require a little PHP knowledge. The first thing is to identify the files that we wish to change. In our case we were aware that it was the template fields for the front end ‘issues’ and ‘form’ views. These files are located in the directories:

```
components/com_issuetracker/views/itissues/tmpl
```

```
components/com_issuetracker/views/form/tmpl
```

We created copies of all of the files located in these two directories into our template html folder and use the same structure that it has in our component. In this case, it will be: html/com\_issuetracker/

form/\*.php and html/com\_issuetracker/itissues/\*.php. (Note that we didn't need the view or the tmpl folder here).

Having copied our files, and there are several in each folder we are ready to start changing them.

As mentioned above, making changes here requires basic PHP knowledge, but one will notice that simple changes are also achievable by applying simple logic and identifying the tags used in the HTML generated from Joomla.

The changes one wants to make will obviously depend upon what one is trying to achieve, but here are a few changes that we have made.

a) The use of

```
<div class="clr">
```

in the files doesn't work in Bootstrap v3, so we change it to read

```
<div class="clearfix">
```

instead. This change ensure that breaks occur at the correct places in the output display, particularly after 'editor textarea' fields.

b) Changes to the div class that surrounds the elements in the form to make use of the Bootstrap class equivalents'. We also added layouts for the column widths at the same time.

i.e. Instead of:

```
<div class="form-group">
  <div class="col-sm-2 control-label">
    <?php echo $this->form->getLabel('alias'); ?>
  </div>
  <div class="col-sm-10" >
    <?php echo $this->form->getInput('alias'); ?>
  </div>
</div>
```

We changed it to be:

```
<div class="form-group">
  <div class="col-sm-2 control-label">
    <?php echo $this->form->getLabel('alias'); ?>
  </div>
  <div class="col-sm-10">
    <?php echo $this->form->getInput('alias'); ?>
  </div>
</div>
```

These changes go some way to creating a more pleasing output. One can go much further and the limit is really ones own limitation. Once the changes are made all that has to be done is to clear any Joomla cache and browser cache that may be in use and to redisplay the output page. If the result is not ideal then one can choose to re-edit the file(s) again confident in the knowledge that we are not changing the 'base' code in any way.

The advantage to this approach is that when (or if) the component is updated any changes one has made are preserved. Of course if the 'updated' component has changed the 'base' files in any way, such as to introduce a new field, it will be necessary to update our overridden template files, but this is not usually a very frequent change between versions. Unfortunately there is no real solution to this, other than keeping a record of all the changes one has made and checking which files are required in each update. It's also highly recommended that one backs up the website each time one updates the components and Joomla version.



## Aside:

There is one situation which is often forgotten and that is, sometimes if an AJAX mechanism is being used to create 'parts' of a web page, the template overrides will not apply to the part for the page using Ajax. The reason is that the 'page html' is generated 'on the fly' by the server and then presented to the browser. In this case it is the 'code generator' that will require changing. The Issue Tracker component used Ajax to present the 'Custom Fields' feature in the front end forms. The reason is that when an Issue is being entered the project against which the issue is being raised is not known until the information is entered by the customer. Only once they have entered the project details is it possible to know which 'custom fields' need to be presented, to collect any additional information.

We discovered a few peculiarities in the 'standard' output from Bootstrap v3 which caused a few 'opportunities for improvement'. The specific problems involve the display of an 'additional label' on textarea fields ( despite the label having a marked style of `display:none;` ), and a mis-formatting on form 'tooltips'. This was investigated and was not seen when using a Bootstrap v2 based template. The reason for the differences (and we mean here the 'peculiarities not the layout etc), that we saw between the Bootstrap v3 and Bootstrap v2 displays is that the Bootstrap v2 template (protostar) is a version modified by Joomla, where as are/were using a 'pure' as released Bootstrap v3 version.

---

# Chapter 9. Custom Fields

Custom Fields were added to Issue Tracker to permit the adding of unique fields for an installation and in this way to extend the information captured and displayed to users.

It is highly likely that site customisation will involve the adding of some custom fields to the component. The definition of custom fields is currently covered in the user guide, so will not be repeated in this document. The interested reader is requested to consult that document for the details,

## Custom Fields

Custom fields are slightly different from the normal fields in that their display name is composed of a string containing a unique identifier. The text displayed is defined in the definition of the custom field itself, and thus there are no 'strings' in the language file to be found or modified..

All of the custom fields are stored within a single field in the database issues table in JSON format.

The definition of each custom field includes such criteria as:

- field name, field type (i.e. Drop down, Radio, text etc.). The default value the field is to take if not specified. (Null would be acceptable).
- The required optional values if it were a check box or a option list. i.e.. "apple, pear, banana"
- The tool tip text to aid the person entering the details.
- The name of the group to which the custom field applies. (See below).
- Validation rules that might apply to the field?
- Published state of the field (whether to show it or not!)
- Access rules that might apply to the field. (Who to show it to.)

The issue display effectively has a number of 'visible blocks'. i.e. Summary (Title) and Description, a Progress block, and a Resolution block. The custom group effectively becomes an addition display block.

The former 'product details' request on the front end form has been migrated to make use of the custom fields feature, thus enabling the actual usage to be more easily tested and controlled going forward, as well as removing some unnecessary duplication of coding.

There are changes to add additional field(s) added to the issue and project tables to accommodate these Custom Field tables. The issues table accepts one additional field named 'custom\_fields' and the projects table has an additional field named 'customFieldsGroup'.

The display of the custom field types makes a call to the a javascript routine which controls the fields shown upon the screen. Some of the field types have their own unique display of fields, others are adaptable with the ability to add additional criteria. Examples of the latter are the 'select', 'multi-select and 'radio button' field types where a list of possible options can be created. These are added by javascript which runs in the client browser.

Also implemented is the use of AJAX calls within the Issue display in the back end and the 'Raise an Issue form' in the front end which is invoked when the associated Project is selected by the raiser/editor and/or changed from that which is currently defined or is the default.

Changes to the display of specific custom fields is possible but is not for the faint hearted as it involves changes to the Ajax called routine in the controller. It is currently beyond the scope of this document to deal with these types of changes.

---

# Chapter 10. CSS Styling

This section which was/is also part of the Design guide is reproduced here since modification of the CSS is something that is often desire/required for a site front end. As supplied the component displays correctly upon sites using the Joomla supplied Protostar and Beez templates so will display in an acceptable form without modifications on sites using these or templates derived from these templates. Most sites however choose to use a template from a third party and it is this that often necessitates the need to modify or tweak the CSS rules supplied.

It is possible by tweaking the CSS to change the 'look and feel' of the front end of the site. It is not the purpose of this document to describe all of the possible CSS configuration options that can be used, but instead to describe a few of the more commonly used options.

## Note

It is beyond the scope of this document to go into the details of CSS styling as there are a number of resources available on the web providing details.

It is possible to change the CSS styling used on your site by using a media override. When installed the CSS stylesheets for the Issue Tracker Component are installed in the 'media/com\_issuetracker' directory. Release 1.3.0 allows the site administrator to create a site override by creating a directory named media/com\_issuetracker under the site template directory. One then copies the folders and files that it is desired to override in this location. Then almost like magic, Issue Tracker will now load which ever files are under the template instead of that contained in the media directory under the site's root directory.

The following specific class names are supplied in the Issue Tracker list displays (Issues, People and Projects):

- `itstyle` : A copy of the standard adminlist table styles. This replicates very closely the default theme used in versions 1.2.2 and earlier of Issue Tracker.
- `itbluestyle` : A blue themed table style.
- `italtstyle` : A greenish table theme.

There are also other class names available on the row and data definitions - `fieldDiv fieldLabel`, and `fieldDiv fieldValue` which are also present upon the list views and are present to permit additional styling if it should be desired.

An example of using these fields is given below. This simple example changes the 'legend' and the colour and weight of the displayed text. The classes are provided to enable a designer to modify the form to match site styling requirements.

```
/* *****  
/* Sample style for front end FieldDev */  
/* *****  
.fieldDiv body {  
    font-family:arial, verdana, sans-serif;  
    font-size:0.8em;  
    background:#8be;  
    color:#fff;  
}  
.fieldDiv legend {  
    font-size:14px;  
    background:#FAFAFA;  
    border:1px solid #C3C3C3;  
    border-radius:0 0 3px 3px;
```

```

        position:relative;
        width:auto;
        padding:2px 10px;
    }
    .fieldDiv dl {
        font-weight: bold;
    }
    .fieldDiv dt {
        font-weight: bold;
        letter-spacing: 2px;
        color: #bf2c22;
    }
    .fieldDiv dd {
        color: #5454d4;
    }
}

```

The figures below shows the results of the CSS fieldDiv styling on a simple item display with and without styling.

**Figure 10.1. Item without fieldDiv styling.**

Project Details	
Project	44
Project Name	IP Mapping - Rel 1.0.0
Project description	Release 1.0.0
Start date	2012-10-01
Completion date	2012-11-28

**Figure 10.2. Item with fieldDiv styling.**

Project Details	
<b>Project</b>	44
<b>Project Name</b>	IP Mapping - Rel 1.0.0
<b>Project description</b>	Release 1.0.0
<b>Start date</b>	2012-10-01
<b>Completion date</b>	2012-11-28

Change the fieldDiv styling in the template override file to suit the site standards. This ensures that your changes are not lost when the component is updated.

The name of the CSS style sheet file used in the front end of your site is named 'issuetracker.CSS'. The supplied file contents are shown below and presents a blue theme to the listing display.

To retain the style of existing sites the default 'adminlist' remains as it was in release 1.2.2 and earlier. This style will have been defined in the site default system template.

The three themes are provided as examples of what can be achieved and all that is necessary is to specify the desired theme in the menu configuration option from the 'Advanced' tab.

If one is creating their own theme then one can either edit one of the existing themes and introduce your own settings, or create a completely new theme with its own unique name, and specify that in the menu option Advanced settings.

## Caution

The supplied CSS styling examples below may change between releases and is provided as a guide only. For the version installed with your version of the component please inspect the CSS files supplied within the installation zip file.

## Blue theme CSS styling

The details settings employed in the 'blue theme' are displayed below. Recent changes may not be reflected in the documentation and one is advised to view the settings directly in the CSS file for the latest version.

```
/* ***** */
/* Table look and feel */
/* Blue theme */
/* ***** */
/*
table.itbluestyle table,
table.itbluestyle td,
table.itbluestyle th {
    border-collapse:collapse;
    margin:0;
    padding:0;
}

table.itbluestyle {
    border: none;
    font-family: Garamond, Georgia, "Times New Roman", Times, serif;
}

table.itbluestyle table caption {
    background-color: transparent;
    background-repeat: repeat-x;
    background-position: bottom left;
    text-align:left;
    font-size:150%;
    text-transform:uppercase;
    line-height: 30px;
    letter-spacing:0px;
}

table.itbluestyle td,
table.itbluestyle th{
    vertical-align:top;
    font-weight:normal;
}

table.itbluestyle thead {
    border-left:1px solid #2293FF;
}

table.itbluestyle thead th {
    background: #bddfff;
    color: #FFFFFF;
    font-size: 125%;
    font-weight: bold;
    border-top:1px solid #2293FF;
```

```

border-right:1px solid #2293FF;
padding: 4px 0.4em 4px 0.4em;
}

table.itbluestyle tfoot td,
table.itbluestyle tfoot th {
border-top:1px solid #2293FF;
border-right: none;
font-weight: bolder;
font-size: 110%;
padding: 0.4em 0.5em 0.4em 0.5em;
}

table.itbluestyle tbody tr.row0 td,
table.itbluestyle tbody th {
background-color: #D9ECFF;
border-right:1px solid #2293FF;
border-left:1px solid #2293FF;
padding: 0.4em 0.5em 0.4em 0.5em;
word-wrap: break-word;
}

table.itbluestyle tbody tr th,
table.itbluestyle tbody tr.row1 td{
background-color: #BDDFFF;
border-right:1px solid #2293FF;
border-left:1px solid #2293FF;
padding: 0.4em 0.5em 0.4em 0.5em;
word-wrap: break-word;
}

table.itbluestyle tbody th{
font-weight: bold;
border-left:1px solid #2293FF
}

table.itbluestyle a:link,
table.itbluestyle a:visited,
table.itbluestyle a:active {
color:#444F66;
background-color: transparent;
text-decoration: underline;
}

table.itbluestyle a:hover {
text-decoration:none;
background-color: #1E90FF;
color: #FFFFFF;
}

```

The figure below shows the results of the blue theme styling.

**Figure 10.3. Blue theme CSS styling**

Issue Tracker Issues

Issue Summary	Issue Description	Identified Date	Project Name	Status	Type	Priority	Resolution Summary
search "Issue No"	Hi I'm using Issue Tracker v1.2.2! I need a simple box for search "Issue No" front end on the site. How can I create it? Please Help me. Thanks	2012-09-19	Issue Tracker - Rel 1.2.2	Closed	Other	High	Create a standard Joomla search module and place it somewhere on your page. No special code changes required. Issue Tracker incorporates the ability to search for the specified issue number or text supplied in the issue summary and description. Unfortunately one cannot just restrict the search to issues only, but by entering the issue number as the search term, returns the issue required, which one can click upon to view.
Change notification mailing to use JMail rather than parent class PHPMailer	Change for consistency reasons only	2012-09-18	Issue Tracker - Rel 1.2.2	Closed	Other	Low	In the send_email routine use JMail::setSender rather than PHPMailer::setFrom method from which it is inherited.
Translation missing for menu setup	A language string is missing that is used in the menu setup.	2012-09-18	Issue Tracker - Rel 1.2.2	Closed	Defect	Low	Added the string COM_ISSUETRACKER to the admin message sys file.

## Alternative 'greenish' theme CSS styling

We realise that a blue theme is not to everyone's taste so we have also supplied an alternative which is commented out in the CSS file. The details settings employed in the 'greenish theme' are displayed below. Recent changes may not be reflected in the documentation and you are advised to view the settings directly in the CSS file for the latest version.

```

/*****
/* Table look and feel */
/* Alternative theme */
*****/
table.italtstyle {
    border-collapse: collapse;
    border: 1px solid #839E99;
    background: #f1f8ee;
    font: .9em/1.2em Georgia, "Times New Roman", Times, serif;
    color: #033;
}

table.italtstyle caption {
    font-size: 1.3em;
    font-weight: bold;
    text-align: left;
    padding: 1em 4px;
}

table.italtstyle td,
table.italtstyle th {
    padding: 3px 3px .75em 3px;
    line-height: 1.3em;
}

table.italtstyle th {
    background: #839E99;
    color: #fff;
    font-weight: bold;
    text-align: left;
    padding-right: .5em;
    vertical-align: top;
}

```

```
}

table.italtstyle thead th {
    background: #2C5755;
    text-align: center;
}

table.italtstyle tr.row0 td {
    background: #f1f8ee;
    word-wrap: break-word;
}

table.italtstyle tr.row0 th {
    background: #2C5755;
}

table.italtstyle tr.row1 td {
    background: #DBE6DD;
    word-wrap: break-word;
}

table.italtstyle tr.row1 th {
    background: #6E8D88;
}

table.italtstyle td a,
table.italtstyle td a:link {
    color: #325C91;
}

table.italtstyle td a:visited {
    color: #466C8E;
}

table.italtstyle td a:hover,
table.italtstyle td a:focus {
    color: #1E4C94;
}

table.italtstyle th a,
table.italtstyle td a:active {
    color: #fff;
}

table.italtstyle tfoot th,
table.italtstyle tfoot td {
    background: #2C5755;
    color: #fff;
}

table.italtstyle th + td {
    padding-left: .5em;
}
```

The results of the styling is shown in the figure below.



**Figure 10.4. Alternative theme styling**

Issue Tracker Issues

Issue Summary	Issue Description	Identified Date	Project Name	Status	Type	Priority	Resolution Summary
search "Issue No"	Hi I'm using Issue Tracker v1.2.2! I need a simple box for search "Issue No" front end on the site. How can I create it? Please Help me. Thanks	2012-09-19	Issue Tracker - Rel 1.2.2	Closed	Other	High	Create a standard Joomla search module and place it somewhere on your page. No special code changes required. Issue Tracker incorporates the ability to search for the specified Issue number or text supplied in the issue summary and description. Unfortunately one cannot just restrict the search to issues only, but by entering the issue number as the search term, returns the issue required, which one can click upon to view.
Change notification mailing to use JMail rather than parent class PHPMailer	Change for consistency reasons only	2012-09-18	Issue Tracker - Rel 1.2.2	Closed	Other	Low	In the send_email routine use JMail::setSender rather than PHPMailer::setFrom method from which it is inherited.
Translation missing for menu setup	A language string is missing that is used in the menu setup.	2012-09-18	Issue Tracker - Rel 1.2.2	Closed	Defect	Low	Added the string COM_ISSUETRACKER to the admin message sys file. Trivial change for next release.
Ive just installed Issue Tracker							

The styles are applicable to the list displays available on the front end of the site. i.e. Issues List, Projects List and People List. The menu options available under the 'Advanced' tab permits the specification of the required table style to be used. All that is necessary is that the named table class is present in the 'site template' override file.

## Spearmint flavoured style.

After Issue Tracker release 1.3.0 was released we resolved a small problem with a 'spearmint' coloured CSS style. Whilst working on presenting a sample table style for the Issue Tracker component one particular colour combination was creating a few problems. The main problem was the colour of the links in the table header. These would be used to sort the list and due to the choice of colour scheme the link colours were taking the settings from an earlier (in the tree) DIV style.

This resulted in us temporarily shelving the table style until such time as we had to investigate further. Since the release of 1.3.0 we have revisited the style sheet. The investigation was interesting and in the interests of sharing we made it a Blog post.

The resolution was to make use of the '!important' declaration which been around since CSS1 but should still be used with caution.

## Declaration

The !important declaration can be added at the end of any CSS property/value.

```
table.spearmint thead a:link { color: white !important; }
```

## Application order

CSS assigns a weight to each rule which is based upon the specificity of its selector and the position in the source. The result determines which style is applied to an HTML element.

If 2 rules conflict on a single element then the following principles will be applied:

Origin of rules - If a rule between an author and a user style sheet conflicts, the user's rules will win over the author's rules.

Specificity - When 2 or more declarations that apply to the same element set the same property and have the same importance and origin, the declaration with the most specific selector will be applied.

Source order - When 2 rules have the same weight, the last rule declared in the style sheet will be applied.

There might be times when it would be useful to change the order of sequence so it is possible to break the cascading chain by using the !important CSS declaration. When the !important declaration is used on a property/value, that value becomes the most important for that property and overrides any others.

The final style result is presented below:

```
/* Spearmint tints */
table.spearmint {
  margin: 0 0 1em;
  background: #FFF;
  border-collapse: collapse;
  border-top: 1px solid #363;
  border-bottom: 2px solid #363;
}

/* caption = table title/heading */
table.spearmint caption {
  text-align: left;
  font: bold small-caps 120%/1.3 "trebuchet
ms",Helvetica,Arial,Sans-Serif;
  color: #363;
  margin: .3em 0; }

table.spearmint thead a:link {
  color: white !important; }

/* reduced font size to save space */
table.spearmint tr { font-size: 90%; }
/* prevent nested tables reducing font size further */
table.spearmint tr tr { font-size: 100%; }

/* tinted rows */
/* in CSS3 selectors: tbody tr:even or tbody tr:nth-child(2n) */
table.spearmint tr.row1 { background: #DFD; }

/* table cells */
table.spearmint th, td {
  font-weight: normal;
  padding: .3em .7em;
  text-align: left;
  vertical-align: top; }

/* borders to separate body sections */
table.spearmint tbody tr:first-child th,
table.spearmint tbody tr:first-child td,
table.spearmint tfoot tr:first-child th,
table.spearmint tfoot tr:first-child td { border-top: 1px solid
#363; }

/* tints for column headings */
```

```

table.spearmint thead { background: #9C9; white-space: nowrap; }

/* tints for totals */
table.spearmint tfoot { background: #ADA; }

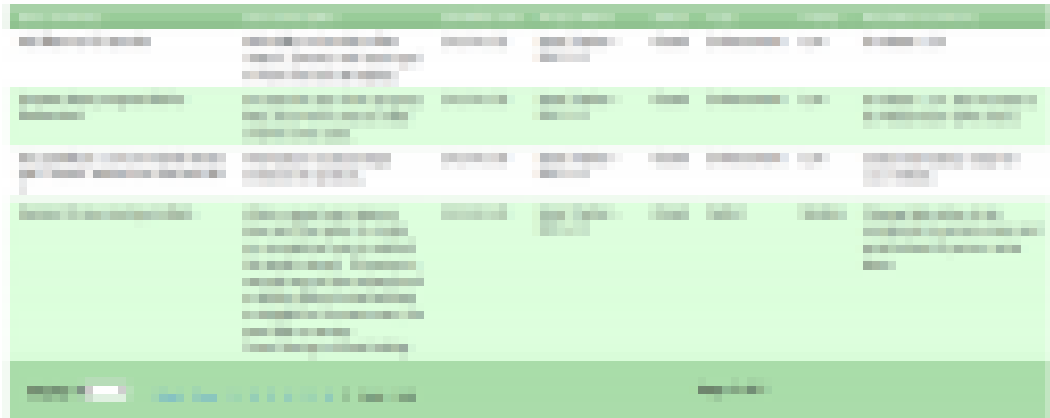
/* bold text for totals */
table.spearmint tfoot th, table.spearmint tfoot td {
    font-weight: bold; }

```

## Usage in Issue Tracker

To use with the Issue Tracker component add the above style to the file templates/your\_template/media/com\_issuetracker/css/issuetracker.css. Then on the menu item for the list display use the 'Advanced' tab and enter the name 'spearmint' to the table CSS style parameter. The end result will/should look similar to the following:

**Figure 10.5. Spearmint theme styling**



## List Row colouring

This is supplied as it was a question raised in the forum and others may wish to produce a similar effect on their sites.

The request was to be able to provide a row colour style in 1.2.2 to the Issue List display based upon the issue status code. The easiest way to achieve this is to edit the site/components/com\_issuetracker/views/itissueslist/tmpl/default.php file.

We illustrate the providing colours to the open and the closed issue status. All other statuses can be similarly changed and it is left to the site to provide these since the status codes is use are site dependant.

In the file add the following lines in a suitable position. (i.e. In release 1.2.2 after line 31)

```

<style>
table.adminlist tr.status-4 td { background: red; color: white; }
table.adminlist tr.status-1 td { background: lime; color: black; }
</style>

```

It is now necessary to edit the line containing the 'tr' code within the 'tbody' section of the file. (i.e. In release 1.2.2 the new line 193)

Change

```
<tr>
```

To

```
<tr class="<?php echo 'status-' . $dataItem->status;?>">
```

Edit the styles as you require. The number in the style relates to the specific id of the status code itself. i.e. 1 = Closed, 4 = Open. The colours may be a bit bright but you may specify them as an RGB code such as #20B2AA if you want something intermediate.

Note that this is possibly not the most efficient way to add a style, which should be in a stylesheet, but it will be the easiest if you are not all that familiar with CSS etc.

## Front End form

The front end 'raise issue' form makes use of some standard classes:

- formelm
- formelm-area
- formelm-buttons

These classes are probably defined in your site template. The decision to use these styles was deliberate so that the form matches the style of any other forms that may be used upon your website such as those used by the com\_content forms. Issue Tracker does not itself use any special CSS of its own definition for the form.

## Back End styling

The styling sheet for the back end is named 'administrator.css'. It contains all of the colour coding, and table style specific to the administrator forms. Where a class is not specified within this file, the details of the style are obtained from the site template.

## Bootstrap CSS

With the implementation of Bootstrap into Joomla with Joomla 3.0 we implemented changes in the back end of the site to handle the Isis template. At the same time retaining the former CSS for the alternative Hathor template. There was however only rudimentary changes made to the front end which mainly revolved around the button displays which used the Bootstrap styling.

The rationale was that it was virtually impossible to know what template any given site was using, there being a number of different template frameworks available, any (and probably most) of which were being used somewhere. For that reason it was often necessary for a site to create a template override and for them to modify the overridden files as required to create their required display.

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## **Part II. Appendices**

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# Appendix A. GNU General Public License version 3

Version 3, 29 June 2007

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