

How to use the structurer

This How-To describes the usage of the structurer config domain specific language to create beautiful websites in no time.

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1. Intended Audience

Warning:

The "Dispatcher" (aka "Views") is new functionality which is still in development phase. That is why it is in the "whiteboard" section of the Forrest distribution. This HowTo is a good start but still needs more work.

This part of the the dispatcher is called the structurer and is dedicated to webdesigner and user with some knowledge of css.

2. Purpose

This how-to will show you how to write a **structurer** from the ground up. We will focus on html as the output format. As well it will show how to add your own css implementation to the structurer.

3. Prerequisites

- You have a ready-to-go new dispatcher based project like described in Install.
- Reading that how-to is as well a good idea to understand the used directory structure in this how-to.
- Installing a mozilla browser and the forrestbar helps a lot in developing.

4. Steps

Note:

When developing with the dispatcher we assume you are using 'forrest run' and the following workflow "change files -> refresh browser" Installing a mozilla browser and the forrestbar helps a lot in developing. Many instructions assumes that you have the forrestbar installed.

We developed **the structurer** to let the user decide where to place elements in e.g. html pages. We started this work with the `skinconf.xml` where you could configure certain elements and their positions. These elements were known under certain names. It was up to the skin designer to support this configuration and the elements.

The work started with grouping elements (the ones from `skinconf`). We used css-contracts that we added as `@attributes` e.g. `<div id="content-main"/>`. That made it possible to use the same elements in different skins. For the full list refer to the initial contract list

Around this contracts we developed a configuration Domain Specific Language - called **the structurer**. The **structurer** allows us to define the order in which **forrest:contracts** appear, and also to group them using **forrest:hooks**.

forrest:hooks are containers that are only used for layout reasons. They **do not** add any content nor functionality to the output. They add **only** layout information to the output. Actually e.g. a `<forrest:hook name="layoutId"/>` will be transformed to `<div id="layoutId"/>`

forrest:contracts are functionality or extra content that a theme can use to display the request. Sometimes a contract delivers **format-specific markup**, other times it delivers a **format-independent string**. We decide different kind of contracts, static one (like described in the contract howto), semi static (which offer configuration parameter in the structurer) and dynamic contracts (which offer

semi-static configuration and/or requesting the content).

Note:

The structurer is as well a configuration file for the dispatcher. The new think on the dispatcher is that one can include any content from any given business service by dispatching a request against it. In "old fashion" skins and in v1 contracts we assumed a given data model. In the dispatcher there is **no** given data model any more. All data has to be defined in the structurer that they can be dispatched.

4.1. Empty structurer file

```
<forrest:views
  xmlns:forrest="http://apache.org/forrest/templates/1.0"
  xmlns:jx="http://apache.org/cocoon/templates/jx/1.0">
  <forrest:view type="html">
  </forrest:view>
</forrest:views>
```

The **structurer** is designed to be open for any format that can use **forrest:view** as configuration file. The only format we implemented is html for now. This is as well true for the delivered contracts.

4.2. Creating your first structurer

Warning:

The structurer is based on jx templates to allow simple presentation logic (all code starting with "jx:"). Please refer to the cocoon documentation about jx. For now we are using jx to include the raw data into the presentation model and generating an alias-xsl stylesheet. That is heavy on performance and we will change this ASAP. Mind the warning at the start of the howto.

In this section we will create a new structurer. We will override the default structurer of the themer-plugin for the index page of the v2. For that we will create a file called `index.fv` and save it in our `xdocs` directory. This will make **only** the `index.html` page look different from the rest of the project.

Note:

You can set a view for an individual file, a directory, or the whole site. To address multiple files in a directory call your `.fv` file `common.fv`. If Forrest doesn't find a `.fv` file with the same name as the current file it will use the `common.fv` file in that directory, or the first one it finds going upwards through the directory structure. `common.fv` files affect all subdirectories unless they are overridden by another `common.fv` or a file-specific `foo.fv` file.

Remember: pointing your browser to `http://localhost:8888/ls.contracts.html` will show a page with all contracts and themes that you can use in your project provided by forrest.

Let us use the blank structurer from the earlier step and add the content-main contract. In `ls.contracts.html` we find the information for how to use the contract in our structurer. Our `index.fv` should look like:

```
<forrest:views
  xmlns:forrest="http://apache.org/forrest/templates/1.0"
  xmlns:jx="http://apache.org/cocoon/templates/jx/1.0">
  <forrest:view type="html">
    <forrest:contract name="content-main">
      <forrest:properties contract="content-main">
        <forrest:property name="content-main" nugget="get.body">
          <jx:import uri="cocoon://#{ $cocoon/parameters/getRequest }.body.xml" />
        </forrest:property>
        <!-- Heading types can be clean|underlined|boxed -->
        <forrest:property name="content-main-conf">
          <headings type="underlined" />
        </forrest:property>
      </forrest:properties>
    </forrest:contract>
  </forrest:view>
</forrest:views>
```

```

    </forrest:properties>
  </forrest:contract>
</forrest:view>
</forrest:views>

```

A contract has to request the data model it want to transform. This happens by defining forrest:properties which have the same name like the contract. In our case we want the HTML rendered from intermediate format (*.body.xml). This we are going to include via: `<jx:import uri="cocoon://#{ $cocoon/parameters/getRequest }.body.xml" />`

Contracts can offer some property configuration of the outcome of the transformation. In our case `<forrest:property name="content-main-conf"> <headings type="underlined"/> </forrest:property>`.

Lets try our new structurizer by pointing to `http://localhost:8888/index.html`. We will see only the main content. Now let us add the section navigation to our structurizer. The contract usage in the structurizer can be looked up in `ls.contracts.html`. Our structurizer now looks like:

```

<forrest:views
  xmlns:forrest="http://apache.org/forrest/templates/1.0"
  xmlns:jx="http://apache.org/cocoon/templates/jx/1.0">
  <forrest:view type="html">
    <forrest:contract name="nav-main">
      <forrest:properties contract="nav-main">
        <forrest:property name="nav-main" nugget="get.navigation">
          <jx:import
            uri="cocoon://#{ $cocoon/parameters/getRequest }.navigation.xml" />
          </forrest:property>
        </forrest:properties>
      </forrest:contract>
      <forrest:contract name="content-main">
        <forrest:properties contract="content-main">
          <forrest:property name="content-main" nugget="get.body">
            <jx:import uri="cocoon://#{ $cocoon/parameters/getRequest }.body.xml" />
          </forrest:property>
          <!-- Heading types can be clean|underlined|boxed -->
          <forrest:property name="content-main-conf">
            <headings type="underlined"/>
          </forrest:property>
        </forrest:properties>
      </forrest:contract>
    </forrest:view>
  </forrest:views>

```

We now find the main content and the section navigation after each other and in the order we placed them in the structurizer, but we want it next to each other (left: nav-section; right: content-main).

4.3. Hooks in the structurizer

We will use now the first time a `<forrest:hook name="layoutId" />`. Hooks are the styling side of the structurizer. We can imitate arbitrary html skeleton with their help. Before we explain how to use your own css in the structurizer, we will use the default css. You can see in our example that we have css included. That is a default fallback coming from the implementation. In this `common.css` we can find

```

/* menu */
#leftbar {
  width: 25%;
  float: left;
  background: #eae8e3;
  border: thin dashed #565248;
}

```

With this information we know to use `<forrest:hook name="leftbar"/>` and add contracts into that container.

If we want to put the nav-section contract into the left-hand side position of the site we need to place the contract into that hook. Like:

```
<forrest:hook name="leftbar">
  <!-- Include contract here -->
</forrest:hook>
```

Our structurizer will then look like:

```
<forrest:views
  xmlns:forrest="http://apache.org/forrest/templates/1.0"
  xmlns:jx="http://apache.org/cocoon/templates/jx/1.0">
  <forrest:view type="html">
    <forrest:hook name="leftbar">
      <forrest:contract name="nav-section">
        <forrest:properties contract="nav-section">
          <forrest:property name="nav-section" nugget="get.navigation">
            <jx:import
              uri="cocoon://#{ $cocoon/parameters/getRequest }.navigation.xml" />
          </forrest:property>
        </forrest:properties>
      </forrest:contract>
    </forrest:hook>
    <forrest:contract name="content-main">
      <forrest:properties contract="content-main">
        <forrest:property name="content-main" nugget="get.body">
          <jx:import uri="cocoon://#{ $cocoon/parameters/getRequest }.body.xml" />
        </forrest:property>
        <!-- Heading types can be clean|underlined|boxed -->
        <forrest:property name="content-main-conf">
          <headings type="underlined" />
        </forrest:property>
      </forrest:properties>
    </forrest:contract>
  </forrest:view>
</forrest:views>
```

4.4. CSS in the structurizer

We now know how to place contracts and hooks in our structurizer. Until this stage we only used the common.css. CSS-support of the structurizer is as easy as placing contracts/hooks. To override the common.css stylesheet we use another tag within our structurizer `<forrest:css />`.

You can add inline and linked css with the structurizer. As soon as you use `forrest:css` you will disable the fallback css support from forrest. With this tag we tell the dispatcher that we want to override the common.css. After adding the following to our index.fv the design will be different.

```
<forrest:css >
/* Extra css */
/* menu */
#leftbar {
  width: 25%;
  float: left;
  background: #CCCCFF;
  border: thin solid #000000;
}
</forrest:css>
```

We just changed the border-style to 'solid', the background to '#CCCCFF' and the color to '#000000'. So you see a white page where the menu is surrounded by a solid border with the defined background.

Note:

`<forrest:css />` needs to be the direct child of `<forrest:view type="html">`

```
<forrest:views
  xmlns:forrest="http://apache.org/forrest/templates/1.0"
  xmlns:jx="http://apache.org/cocoon/templates/jx/1.0">
  <forrest:view type="html">
    <forrest:css >
/* Extra css */
/* menu */
#leftbar {
  width: 25%;
  float: left;
  background: #CCCCFF;
  border: thin solid #000000;
}
    </forrest:css>
    <forrest:hook name="leftbar">
      <forrest:contract name="nav-section">
        <forrest:properties contract="nav-section">
          <forrest:property name="nav-section" nugget="get.navigation">
            <jx:import
              uri="cocoon://#{ $cocoon/parameters/getRequest }.navigation.xml" />
          </forrest:property>
        </forrest:properties>
      </forrest:contract>
    </forrest:hook>
    <forrest:contract name="content-main">
      <forrest:properties contract="content-main">
        <forrest:property name="content-main" nugget="get.body">
          <jx:import uri="cocoon://#{ $cocoon/parameters/getRequest }.body.xml" />
        </forrest:property>
        <!-- Heading types can be clean|underlined|boxed -->
        <forrest:property name="content-main-conf">
          <headings type="underlined" />
        </forrest:property>
      </forrest:properties>
    </forrest:contract>
  </forrest:view>
</forrest:views>
```

As a second example, let us change as well the content-main by adding another hook

`<forrest:hook name="content" />` We need to add the new layout container to our inline css:

```
/* The actual content */
#content {
  margin-left: 25%;
  padding: 0 20px 0 20px;
  background: #B9D3EE;
}
```

Then we have to add the 'content-main' contract to the 'content' hook. The resulting structurizer looks like:

```
<forrest:views
  xmlns:forrest="http://apache.org/forrest/templates/1.0"
  xmlns:jx="http://apache.org/cocoon/templates/jx/1.0">
  <forrest:view type="html">
    <forrest:css >
/* Extra css */
/* menu */
#leftbar {
  width: 25%;
  float: left;
```

```

background: #CCCCFF;
border: thin solid #000000;
}
/* The actual content */
#content {
margin-left: 25%;
padding: 0 20px 0 20px;
background: #B9D3EE;
}
</forrest:css>
<forrest:hook name="leftbar">
  <forrest:contract name="nav-section">
    <forrest:properties contract="nav-section">
      <forrest:property name="nav-section" nugget="get.navigation">
        <jx:import
          uri="cocoon://#{ $cocoon/parameters/getRequest }.navigation.xml" />
        </forrest:property>
      </forrest:properties>
    </forrest:contract>
  </forrest:hook>
<forrest:hook name="content">
  <forrest:contract name="content-main">
    <forrest:properties contract="content-main">
      <forrest:property name="content-main" nugget="get.body">
        <jx:import uri="cocoon://#{ $cocoon/parameters/getRequest }.body.xml" />
      </forrest:property>
      <!-- Heading types can be clean|underlined|boxed -->
      <forrest:property name="content-main-conf">
        <headings type="underlined" />
      </forrest:property>
    </forrest:properties>
  </forrest:contract>
</forrest:hook>
</forrest:view>
</forrest:views>

```

We are now able to place contracts into the layout container and add custom css to the structurer.

4.5. Linking to an external css file

Note:

This will change for the next version of views (v3) where we use a generic contract instead of the standalone element (forrest:css).

Make sure your project has the following directory structure. If it doesn't you'll have to create it. "common" is the fallback for all themes, if you want to override the css for a specific theme replace "common" with "themeName". This is where Forrest will look for external css stylesheets.

```
$projectHome\src\documentation\resources\themes\common\css
```

Where \$projectHome is the directory where your project exists.

Put your css stylesheets in this directory. For argument's sake let's say it's called mystyles.css

Edit your common.fv structurer (or whatever structurer (theme) you are using). This will probably be some where in:

```
$projectHome\src\documentation\content\xdocs
```

or if you want to override it for the whole project in:

```
$projectHome\src\documentation\resources\themes\
```

Add the following element to the *.fv file:

```
<forrest:css url="styles.css" media="screen" theme="pelt"/>
```

Important! This must appear straight after the "view type" element (as first child):

```
<forrest:view type="html">
<forrest:css url="mystyles.css" media="screen" theme="pelt"/>
```

The attributes are:

1. the url where the css exist (NOTE: it will be rewritten to "../themes/mystyles.css").
2. the media type, you can set different styles for screen and print. This is really useful if you want to hide elements such as navigation in the print output (`#nav-section{display:none}` for example).
3. the theme, "pelt" is the default theme (another is the "common" theme). Change this if you are using your own theme.

You can have as many css links as you like, and they'll appear in the head of your document in same order as they are in the .fv file.

FIXME (thorsten):

Add more information of recent threads around css in the structurer and information how you add an @import? Use e.g. <http://marc.theaimsgroup.com/?t=113471292700001&r=1&w=2>

5. Further Reading

Congratulations you are now able to work with the structurer. From here we recommend to read the following How-Tos:

- Create your own contract implementation

6. Feedback

Please provide feedback about this document via the mailing lists.