

Extending Forrest with Plugins

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1. Overview

Forrest provides the core functionality for generating documentation in various output formats from a range of input formats. However, it does not end there. Forrest can be extended through the addition of plugins. This document serves as an introduction to the Forrest plugin mechanism.

1.1. What plugins are available?

You can run the command `forrest available-plugins` to get a list of the known plugins for Forrest.

If you would like to have your own plugin added to this list then contact the [developer mailing list](#).

2. How is a Plugin Installed?

2.1. List of Plugins Needed by the Project

If a site requires one or more plugins then the site designer will have to list them in the `project.required.plugins` property in the projects `forrest.properties` file. When Forrest builds the site it will automatically discover the plugins and install them. In otherwords, the user needs do nothing.

For example,

`project.required.plugins=org.apache.forrest.plugin.input.OpenOffice.org,org.apache.forrest.plugin.output.OpenOffice.org` will cause Forrest to load the plugins called "org.apache.forrest.plugin.input.OpenOffice.org" and "org.apache.forrest.plugin.output.OpenOffice.org".

Note:

By default a new forrest project has that property configured to include some plugins. Currently there is only one to generate PDF output from your source documents.

2.2. What Version of Plugins will be used ?

In the absence of a version number for the plugin (as is the case in the example above) the most recent version that is applicabe to your release of Forrest will be used. This may result in unexpected behaviour if a new version of the plugin has been released that is incompatible with your current site. To force Forrest into using a specific version of a plugin you should add "-VERSION_NUMBER" to the end of the plugin name. For example, to force forrest to use the 1.0 version of the OpenOffice.org plugin you would use `org.apache.forrest.plugin.input.OpenOffice.org-1.0`. If you define a version of the plugin that does not exist then it will fall back to using the most recent version available. This feature is useful when developing a new site as you can quickly force a plugin upgrade by deleting all installed plugins (use the command 'ant cleanPlugins'). However, this might result in the installation of an in-development plugin, therefore in a production environment you should always specify a known working version.

2.3. Where does Forrest look for Plugins sources ?

Forrest uses a fall back mechanism to find the plugins to install for a project.

For an unversioned plugin, Forrest tries to get it from :

1. different local sources directories (`project.required.plugins.src` property)
2. if not found : the remote site in the forrest version directory
3. if not found : the remote site (with no forrest version directory)

For a versioned plugin, Forrest tries to get :

1. the versioned plugin from different local sources directories (`project.required.plugins.src` property)
2. if not found : the versioned plugin from the remote site in the forrest version directory
3. if not found : the unversioned plugin in different local sources directory (`project.required.plugins.src` property again)
4. if not found : the unversioned plugin from the remote site in the forrest version directory
5. if not found : the remote site (with no forrest version directory)

By default, forrest looks into the two following directories to find plugins sources :

`${forrest.home}/plugins` and `${forrest.home}/whiteboard/plugins`. It is possible to add other sources locations by specifying the `project.required.plugins.src` property in the projects `forrest.properties` file.

For example,

```
project.required.plugins.src=${forrest.home}/plugins,${forrest.home}/whiteboard/plugins,${project.home}/plugins
```

will add the project specific directory `${project.home}/plugins` to the list of directories to search in.

If sources are not found, forrest will try to get them from the Web. Forrest *knows* the plugins description with plugins descriptors files in which plugins are described as follows :

```
<plugin name="org.apache.forrest.plugin.output.pdf"
  type="output"
  author="Apache Forrest Project"
  website="http://forrest.apache.org/pluginDocs/plugins_0_80/org.apache.forrest.plugin.output.pdf"
  url="http://forrest.apache.org/plugins/"
  version="0.2">
  <description>
    Enable Forrest documents to be output in PDF format.
  </description>
  <forrestVersion>0.8</forrestVersion>
</plugin>
```

The url to download the different plugins is indicated in this file.

By default, forrest gets the two following plugins descriptors files :

`http://forrest.apache.org/plugins/plugins.xml` and

`http://forrest.apache.org/plugins/whiteboard-plugins.xml`. It is possible to add other plugins descriptors files by specifying the `forrest.plugins.descriptors` property in the projects `forrest.properties` file.

For example,

```
forrest.plugins.descriptors=http://forrest.apache.org/plugins/plugins.xml,http://forrest.apache.org/plugins/whiteboard-plugins.xml
```

will add the project specific plugins descriptors file `file:///${project.home}/plugins/plugins.xml` to the list of descriptors.

3. Editing plugins sources to enhance functionality

Until issue [FOR-388](#) is fixed to enable the use of plugins in-place, any changes to sources need to be locally deployed. See [Further reading](#) for "How to build a Plugin".

4. Upgrading from a Version of Forrest Without Plugins

The plugin functionality was introduced in version 0.7 of Forrest. At this time some of the functionality previously in Forrest was extracted into a plugin. However, we have not broken backward compatibility with earlier versions. In the absence of a `project.required.plugins` property in the projects `forrest.properties` file all plugins that contain functionality previously part of Forrest itself will be loaded automatically. Unless you intend to use new functionality provided by a plugin you will not need to make any changes to your project.

If you do require additional plugin functionality, be sure to include all required plugins in the `project.required.plugins` property in the project's `forrest.properties`. You can view `main/webapp/default-forrest.properties` to see the names of plugins that provide previously core functionality.

It is also worth noting that there is a small performance improvement if you remove plugins that are not in use. Therefore, if you do not use one or more of the plugins named in the `project.required.plugins` property of `main/webapp/default-forrest.properties` it is recommended that you override this value in your project's `forrest.properties` file.

5. Avoiding Plugin Conflicts

Clashes between plugins can occur. For example, the `simplified-docbook` and `full docbook` plugins may try and process the same files. In this instance the one that is mounted first will take precedence. Plugins are mounted in the order they appear in the `project.required.plugins` property, therefore the mounting order and therefore processing precedence is under user control.

6. Further Reading

- [Plugin Infrastructure](#)
- [How to build a Plugin](#)