

The Jetspeed Portal

Bluesunrise.com and
The Apache Software Foundation
January 28, 2002

From http://www.bluesunrise.com/jetspeed-docs/Jetspeed-Slides_files/ 12 October 2002; title page added.

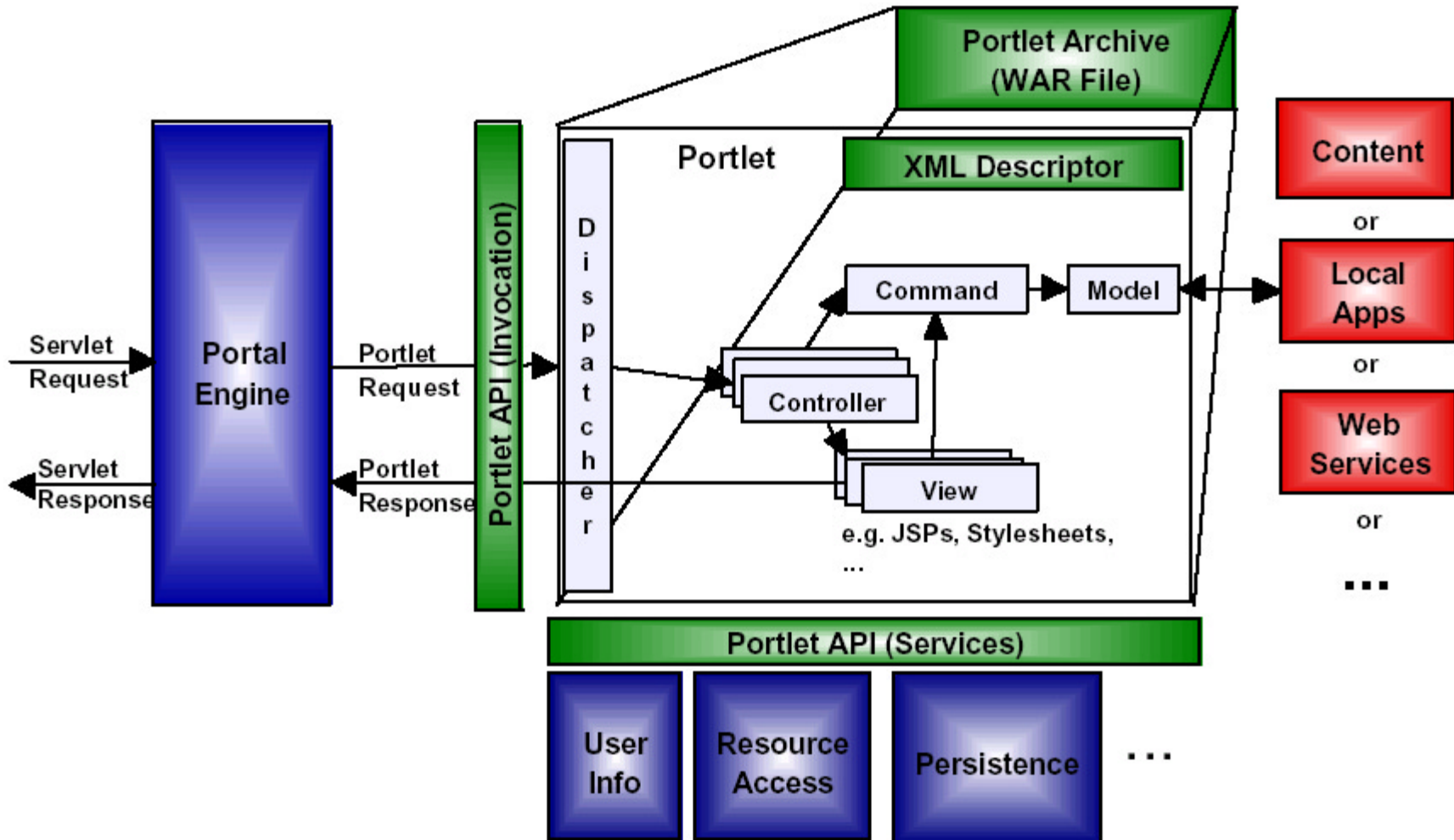
What is a Portlet?

A portlet is a web component managed by a container, that generates dynamic content. Portlets are platform independent Java classes compiled to an architecture neutral bytecode that can be loaded dynamically into and run by a web server.

While servlets usually interact directly with web clients, portlets interact with web clients indirectly through portals, via a request response paradigm implemented by the portlet container (HTTP).

Portlets are specialized servlets that plug into and run in portals. Portlets are designed to be aggregatable in the larger context of a portal page. They rely on the portal infrastructure to function.

Portal Architecture



Aggregating Content

Portlets are invoked in the course of handling a single request, aggregating their respective produced content in one page by appending each individual portlet's output to the page.

Portlets generate markup fragments that can be aggregated in the scope of a portal, containing links, actions and content suitable for aggregation within a portal. URL rewriting methods are provided that allow portlets to transparently create links, without needing to know how URLs are structured in the particular portal.

Welcome to Jetspeed

Congratulations, You are logged!

This is an example of a portlet with the parameter "_showtitlebar" set to "false". Notice there is no title or buttons (Minimize, Maximize, Close, or Customize) for this portlet displayed. If the skin borders the content or the portlet, then you will see a frame around this portlet.

Stock Portfolio

Symbol	Price	Change	Volume
CMRC	2.30	+0.02	294500
ORCL	16.869	+0.249	20540200
CSCO	19.2067	-0.1333	22965200
BVEW	2.77	+0.11	783600
IBM	105.90	+0.35	3659900
CSCO	19.2067	-0.1333	22965200
PALM	3.73	-0.02	3354700
RHAT	8.0399	-0.0501	218100
MSFT	62.15	-0.70	12925100
YHOO	17.11	-0.08	3690100
AX.CML	0.00	N/A	N/A

Mozilla latest headlines

the mozilla.org website

- [Mozilla 0.6 Released](#)
- [Mozilla at XMLDevCon2000](#)
- [MathML International Conference 2000](#)
- [Milestone 18 Released](#)
- [Netscape 6 PR3 Released](#)
- [Warpstock Europe 2000](#)
- [New Check-in Rules](#)
- [Open Source Crypto Library Released](#)
- [SeaMonkey Training Videos](#)
- [Mozilla To Be Dually-Licensed](#)
- [mozilla.party.eu](#)
- [Milestone 17 Released](#)
- [Server Downtime Thursday](#)

HelloVelocity

Hello World in Velocity

If you want to change this text, please enter it below :

xmlhack

Developer news from the XML community

<?xmlhack?>

- [XML-DBMS 2.0 reaches alpha](#)
Ron Bourret announced the release of the first alpha of the Java version of XML-DBMS 2.0.
- [W3C describes existing patent policies](#)
The W3C has published a Current Patent Practices, describing "disclosure rules, process for setting goals for the licensing terms..., and a dispute resolution process".
- [TAG becomes active](#)
The W3C's Technical Architecture Group (TAG) has commenced formal meetings and mailing list discussion.
- [XForms Enters Last Call](#)
The W3C XForms Working Group has released a new Last Call Working Draft of XForms 1.0. Feedback is requested at www-forms-editor@w3.org.
- [New DOM Working Drafts](#)
The W3C DOM Working Group has released new Working Drafts of Document Object Model (DOM) Level 3 Core Specification and Document Object Model (DOM) Level 3 Abstract Schemas and Load and Save Specification.
- [SVG drafts push forward](#)
The W3C has released new Working Drafts of Mobile SVG Profiles: SVG Tiny and SVG Basic and Scalable Vector Graphics (SVG) Version 1.1.

Jetspeed

An Open Source Enterprise Information Portal.



- [Jetspeed Home](#)
Jetspeed is an open source portal system. It supports multi-device display capabilities, a configurable portal templating system, a portlet API for extending its capabilities and a simple syndication system for aggregating remote content.
- [Documentation](#)
Where you can find the complete documentation on Jetspeed and how to configure it
- [Download the latest release](#)
This is where you can find the latest release of the Jetspeed application

Apache News from Apache Week

The essential resource for anyone running an Apache server, or anyone responsible for running Apache-based services.



- [Apache 1.3.23 Released](#)
Apache 1.3.23 was released on the 24th January 2002. This release addresses some minor bugs found in the 1.3.22 release, and adds some new features, including HTTP/1.1 support for mod_proxy
- [Under development](#)
New releases for 1.3, 2.0?
- [Featured articles](#)
DB2 and Apache; Wrapping up a Mail Client; Leaning towards Apache

Portlet Modes

- View Mode** – standard user interaction
- Customize (Edit) Mode** – editing the portlet data, customizing the portlet content.
- Maximize** – View the portlet in full screen with no other portlets in view.
- Minimize** – Only show the Title Bar.
- Closed** – Close the portlet – remove it from the page.

When in View Mode, you can see that the title bar contains buttons allowing you to switch modes:

View Mode

xmlhack



Developer news from the XML community

<?xmlhack?>

- [Call for Extreme Participation](#)
A call for participation has been issued for GCA's annual markup geek convention, Extreme Markup Languages, being held August 5-10 2001 in Montréal, Canada.
- [IdooXoap reaches first stable release](#)
IdooXoap, the Java SOAP implementation from Idoox (the folks behind Zvon, has reached its first stable release, including support for the latest XML Schema spec.
- [RDF concept reference](#)
Dave Beckett, author of the Redland RDF framework, has collected together a reference for RDF and RDF schema concepts.
- [DOM test suite tests Adobe SVG, MSXML 3](#)
The xmlconf project has released a modified version of NIST's DOM test suite for ECMAScript, adding support for testing of Adobe's SVG Viewer, Xerces-COM and MSXML 3.
- [Second Candidate Recommendation for Canonical XML](#)
Although formal review closed on 24 November, the XML Signature Working Group is still welcoming comment on the 'very stable' revised Candidate Recommendation of Canonical XML, Version 1.0.
- [XSLT 1.1 working draft surfaces](#)
The W3C has published the first working draft of XSL Transformations (XSLT), Version 1.1, adding features and fixing errata.

xmlhack



 Customize

 Close

 Minimize

 Maximize

Portlet Customize Mode

Customize portlet

Show title description ?

This parameter specify whether the title description and icon should be displayed in this portlet, or only the title.

Open links in Popup window

Links will be opened in a new browser window.

Number of items

This parameter controls how many items may be shown in this portlet. If the information channel has more items, only the first will be displayed.

Show Text Input?

This parameter specify whether the text input will be displayed. Text Input is an optional element in the RSS feed.

Show item description ?

This parameter specify whether the item descriptions and icons should be displayed in this portlet, or only the headlines.

Here is an example of an RSS Portlet's customization.


PSML

PSML is an acronym for Portal Structure Markup Language. It was created to allow content structure and abstraction within Jetspeed. PSML is XML, and is defined by an XML schema at <http://xml.apache.org/jetspeed/2000/psml>

The layout of a portal page is defined in PSML. With PSML, you can define:

- ❑ Which portlets will appear in your portal page, and at which position in the portal window.
- ❑ The look and feel (Skins) of the portal windows
- ❑ The layout (controller) strategies (2 column, 3 column, tabbed-panes, menu-panes, single column) for collection of portlets
- ❑ The control, a decoration to apply to collections of portlets (title bars, borders, buttons in the title bar, tabs, menus)

The Customizer

The layout (PSML) can be edited with the Jetspeed Customizer (easier than editing XML). To customize the current pane, press the pencil icon in the title bar: 

Or you can also customize for a specific media type :

Welcome **Tommy Turbine**
Customize: [HTML](#) [WML](#)
[Edit account: turbine](#)
[Logout](#)

Customizing allows you to:

- Add and Remove portlets
- Move a portlet to a different position
- Choose the Skin to apply to this pane
- Choose the Layout to apply to this pane
- Change the name of the pane
- Add/Remove/Move Panes (only for Menu and Tab panes, which contain other panes).

Customize pane

Media Type : **html**

Edit Layout

Add Portlet

Add Pane

Pane : Home

Layout : Two columns (50/50)

Skin : orange-red

Welcome to Logged in user

Jetspeed

Stock Portfolio

Turbine

xmlhack

Apache News from Apache Week

Mozilla latest headlines

Save and Apply

Adding a Portlet

Add Title	Description
<input checked="" type="checkbox"/> AdminInfo	Description not available
<input type="checkbox"/> Apache News from Apache Week	The essential resource for anyone running an Apache server or anyone responsible for running Apache based services
<input type="checkbox"/> Apacheweek	Description not available
<input type="checkbox"/> Group	Security Group Maintenance for Jetspeed Security Management
<input type="checkbox"/> Group Browser	Group Browser for Jetspeed Security Management
<input type="checkbox"/> HelloJSP	Simple JSP Portlet Example
<input type="checkbox"/> HelloVelocity	Simple Velocity Portlet Example
<input type="checkbox"/> JSP1_2andJetspeedTagLib	JSP Portlet Example that displays data from the Jetspeed Tag Libaray and Java Servlet request class
<input type="checkbox"/> JavaSoft	JavaSoft
<input type="checkbox"/> Jetspeed	Description not available
<input type="checkbox"/> Jetspeed	Jetspeed is a multi-device portal system with simple syndication capabilities
<input type="checkbox"/> JetspeedContent	Description not available
<input type="checkbox"/> Mozilla	Description not available
<input type="checkbox"/> Mozilla latest headlines	Here you will find notices of important changes to the web site or new information important to the Mozilla developer community For pointers to the hottest article and threads in our newsgroups check out NewsBot
<input type="checkbox"/> My Bookmarks	Insert your personal links!

[Next >>](#)

Moving and Removing Portlets



- Remove the portlet
- Move the portlet UP
- Move the portlet DOWN
- Move the portlet RIGHT
- Move the portlet LEFT

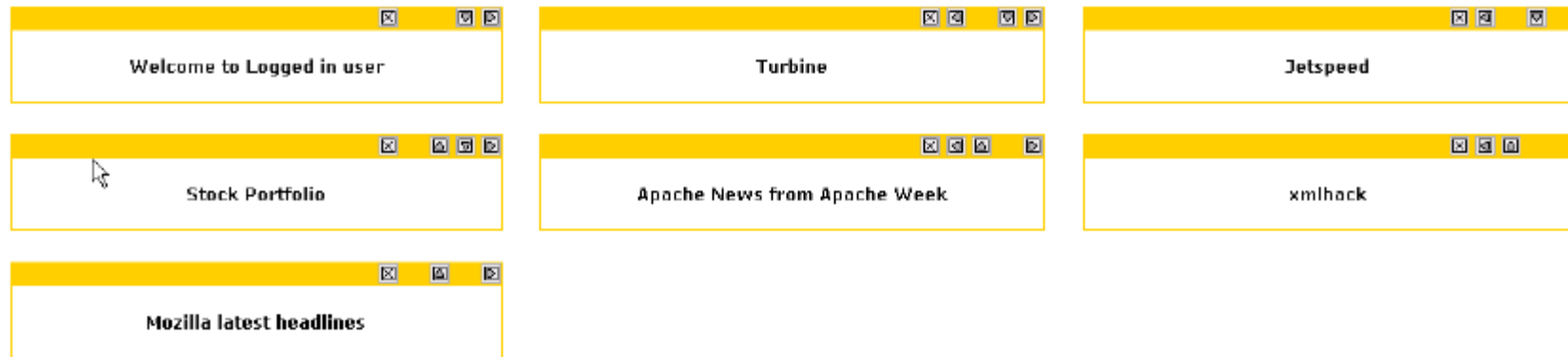
Changing the Skin



Layouts

- Menu-Pane
- Single Column
- Single Row
- Tabbed-Pane
- 3 Column (25/50/25)
- 3 Column (33/33/33)
- 2 Column (25/75)
- 2 Column (50/50)
- 2 Column (75/25)

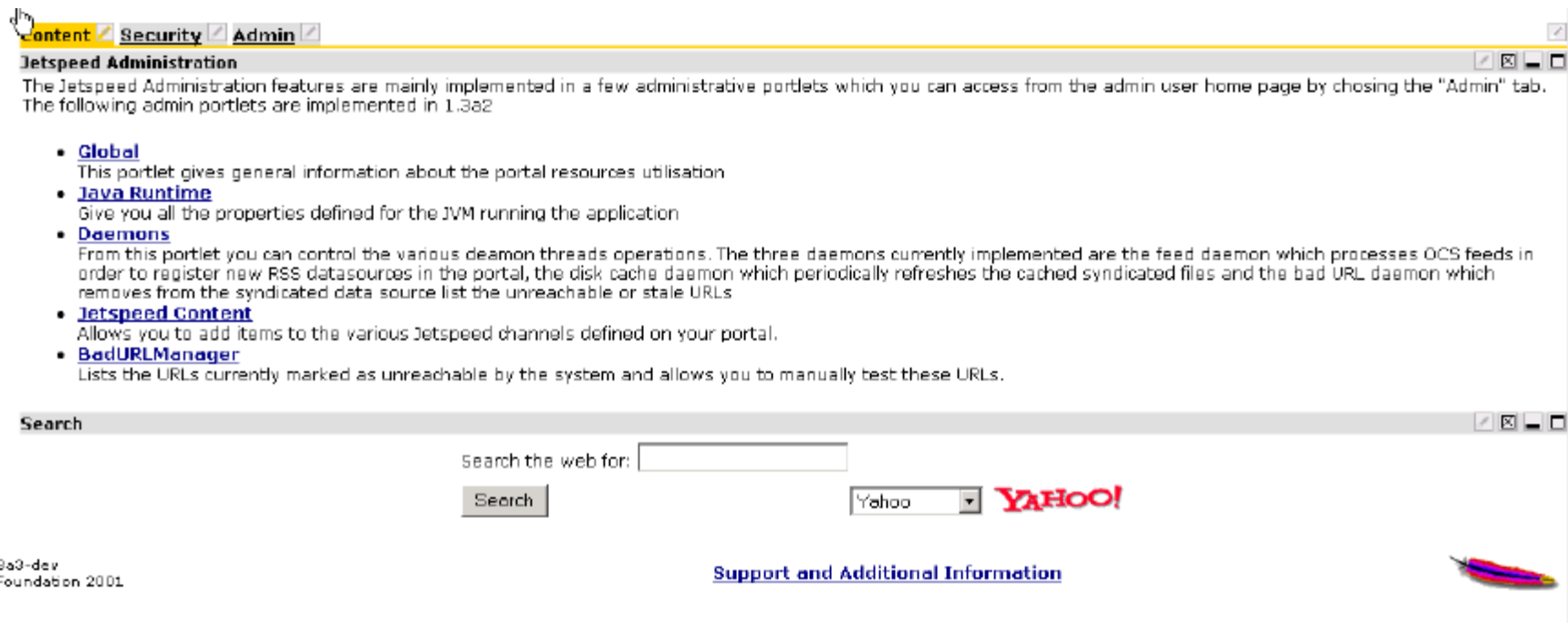
Changing The Layout



From 2 column to 3 column (33/33/33)

Panes

Panes are collections of portlets specified directly with either a Menu-pane layout or a Tab-pane layout. Panes allow you to overlay collections of portlets on top of the same screen area. You can then select the visible collection by selecting a tab or menu option.



The screenshot shows a web browser window with a yellow header bar containing three tabs: "Content", "Security", and "Admin". The "Admin" tab is selected. Below the header, the page title is "Jetspeed Administration". The main content area contains a paragraph of text and a bulleted list of portlets. At the bottom of the page, there is a search bar with a "Search" button and a "Yahoo" search engine selector. A small logo is visible in the bottom right corner.


Jetspeed Administration

The Jetspeed Administration features are mainly implemented in a few administrative portlets which you can access from the admin user home page by choosing the "Admin" tab. The following admin portlets are implemented in 1.3a2

- **Global**
This portlet gives general information about the portal resources utilisation
- **Java Runtime**
Give you all the properties defined for the JVM running the application
- **Daemons**
From this portlet you can control the various daemon threads operations. The three daemons currently implemented are the feed daemon which processes OCS feeds in order to register new RSS datasources in the portal, the disk cache daemon which periodically refreshes the cached syndicated files and the bad URL daemon which removes from the syndicated data source list the unreachable or stale URLs
- **Jetspeed Content**
Allows you to add items to the various Jetspeed channels defined on your portal.
- **BadURLManager**
Lists the URLs currently marked as unreachable by the system and allows you to manually test these URLs.

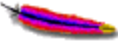
Search

Search the web for:

Search Yahoo 

[Support and Additional Information](#)

3a3-dev
Foundation 2001



Adding/Removing/Moving Panes

Customize pane

Media Type : **html**

Layout : skin :

Name	Action
<input checked="" type="checkbox"/> Content	<input type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/> Security	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input checked="" type="checkbox"/> Admin	<input type="checkbox"/> <input type="checkbox"/>

Registries

Registries are used to define the portal components:

- Portlets
- Controllers (Layouts)
- Controls (Decorators)
- Skins
- Media Types

Registries can be defined in multiple files with the extension “.xreg” and placed in the webapp’s WEB-INF/conf directory. This allows for easily integrating new registries into the portal.

```
<?xml version="1.0" encoding="UTF-8"?>
<registry>
  <portlet-entry name="HelloVelocity" hidden="false" type="ref"
    parent="CustomizerVelocity" application="false">
    <meta-info>
      <title>HelloVelocity</title>
      <description>Simple Velocity Portlet Example</description>
    </meta-info>
    <parameter name="template" value="hello" hidden="false"/>
    <parameter name="action" value="portlets.HelloAction" hidden="false"/>
    <parameter name="text" value="Hello World in Velocity" hidden="false"/>
    <media-type ref="html"/>
  </portlet-entry>
  <portlet-entry name="HelloJSP" hidden="false" type="ref"
    parent="JSP" application="false">
    <meta-info>
      <title>HelloJSP</title>
      <description>Simple JSP Portlet Example</description>
    </meta-info>
    <parameter name="template"
      value="hello.jsp" hidden="false"/>
    <media-type ref="html"/>
  </portlet-entry>
</registry>
```

Portlet Registry Entry Types

- **instance** - This is the basic entry type. An instance entry should provide all the necessary informations to instantiate the portlet (at least the classname). This type of entry is instantiated as is by the Jetspeed engine.
- **abstract** - An abstract entry is an entry, which can't be instantiated directly because it misses some, required information. It acts as a portlet template, useful for defining common properties for a group of related portlets. This type of entry is never instantiated by Jetspeed.
- **ref** - The ref entry is an entry that define a new entry based on some other entry definition, thus the ref entry definition must reference another registry entry which may be of any type, even other ref entries. The engine will cascade all refs until it finds either an abstract or instance entry. It will then override all the parameters found in the abstract or instance definitions by those found in the ref(s) definition and try to instantiate this portlet.

Referencing Registry Entries in PSML

-- Referencing a portlet

```
<entry parent="StockQuote"/>
```

-- Referencing a controller

```
<controller name="TabController"/>
```

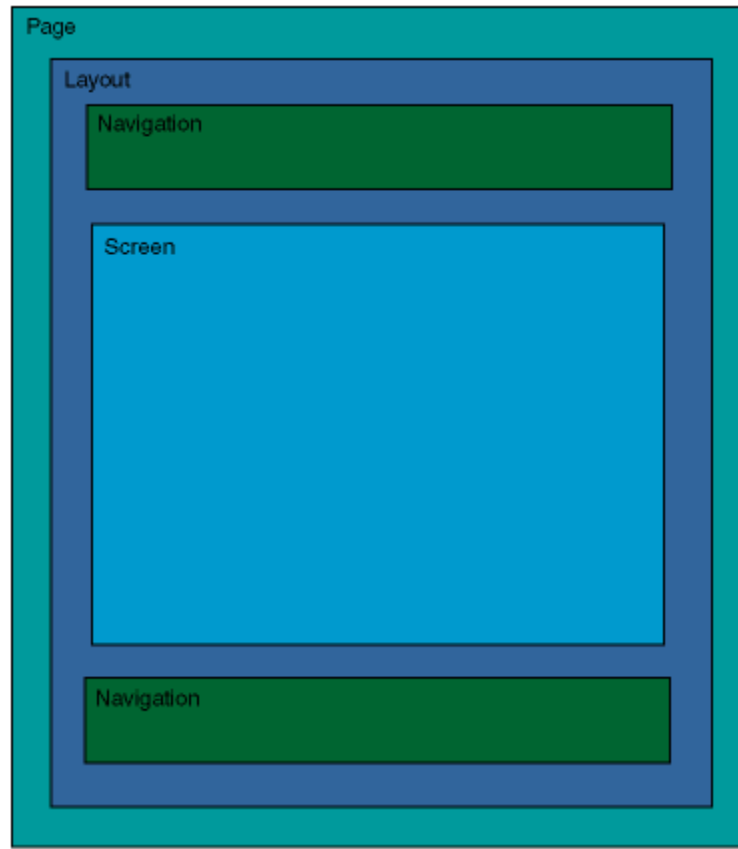
-- Referencing a skin

```
<skin name="orange-red"/>
```

Complete Portal Page Layout

Looking deeper into how Jetspeed works, we can see how the web application framework, Turbine, is used in the portal container implementation of Jetspeed. Turbine is a Model-View-Controller (MVC-2) type servlet framework. It introduces the concept of modules:

- ❑ **Layouts** – controls the layout of the entire web page.
- ❑ **Navigations** – Top, Bottom, Right, Left areas of the web page
- ❑ **Screens** (templates) – the center area of the web page, where the PSML is placed.

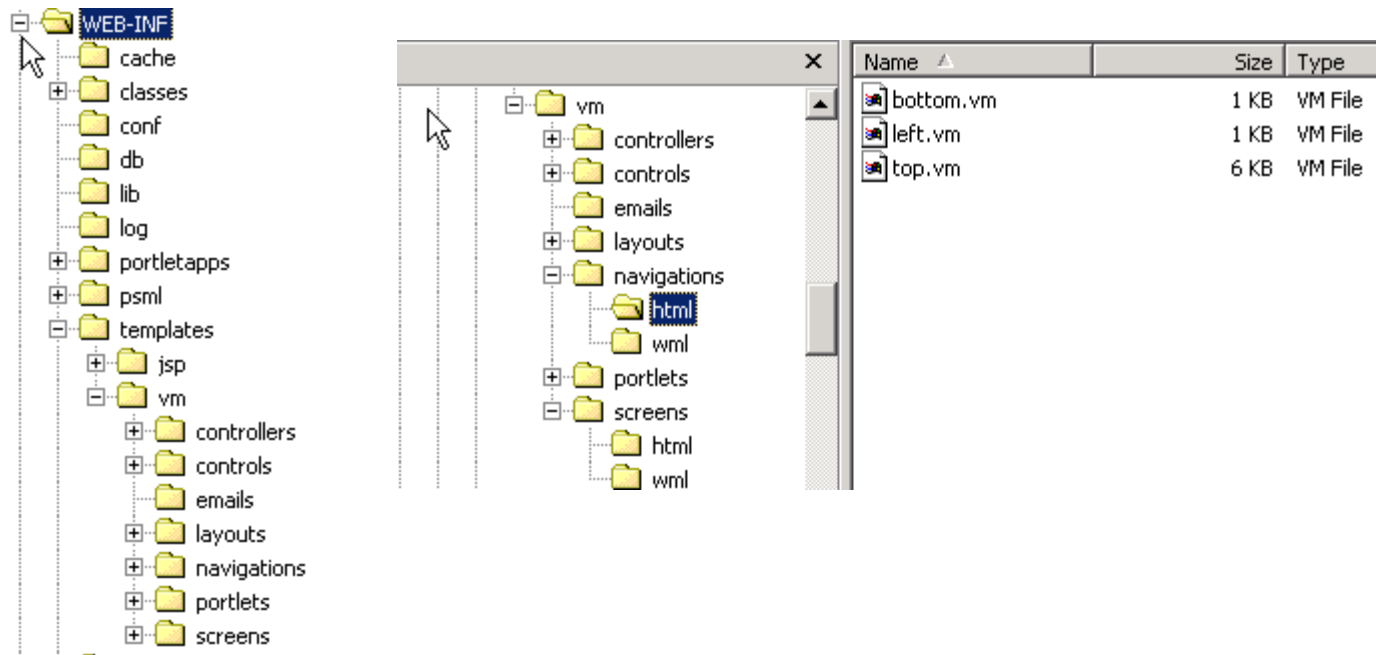


All of these modules are defined as templates. Jetspeed supports two templating engines:

- Apache Velocity
- JSP (Java Server Pages)

Editing Templates

When configuring a website, you will need to edit the default layouts, navigations and screen template modules. For the default site, all of these templates are defined in Velocity. You can find all templates under the /WEB-INF directory in the web application.



Profile Requests

When a request is received by the portal, the Profiler will map the request to template and PSML resources based on request parameters and user information. When no user information is available, the profiler will know to provide ‘anonymous’ PSML content. The profile uses a fallback algorithm to find templates and PSML. This fallback algorithm first searches for the most specific resource, and then falls back to least specific resources. Here are the criteria listed from most to least specific:

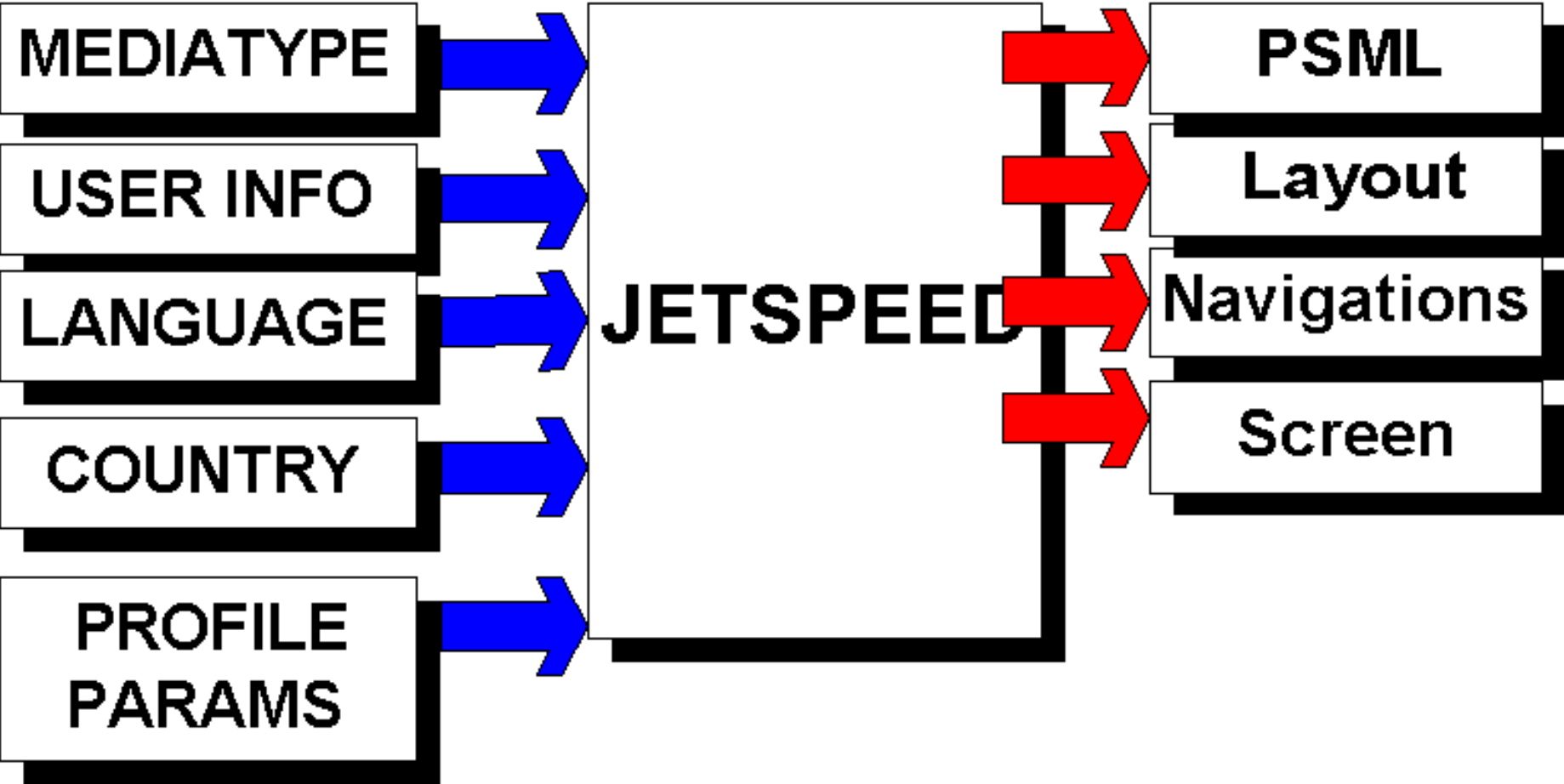
- Country Code
- Language
- Media Type
- User Type

Media Types

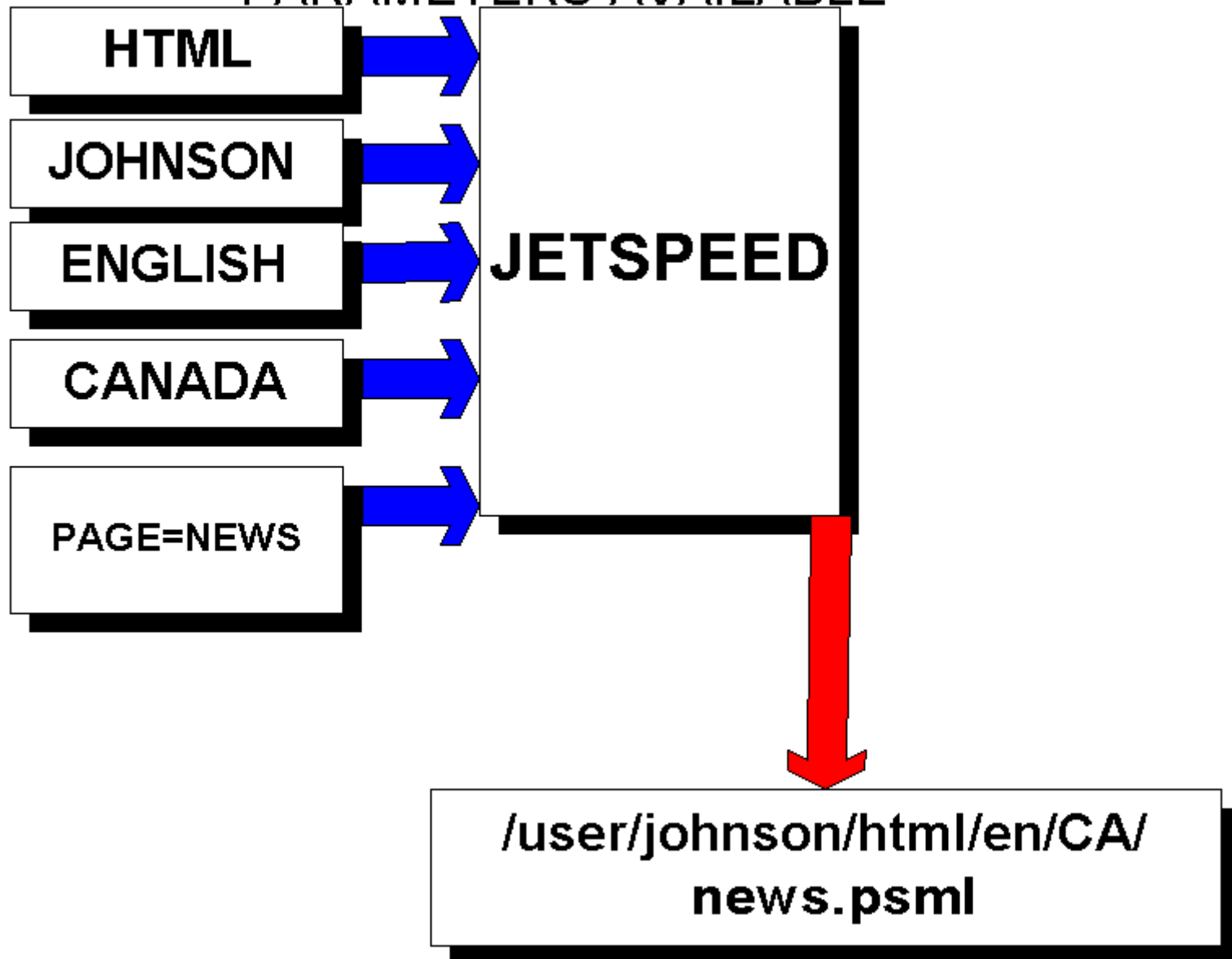
Media Types are defined in the Media Type registry.
Currently Jetspeed has 3 entries in the registry:

- HTML
- WML
- VXML

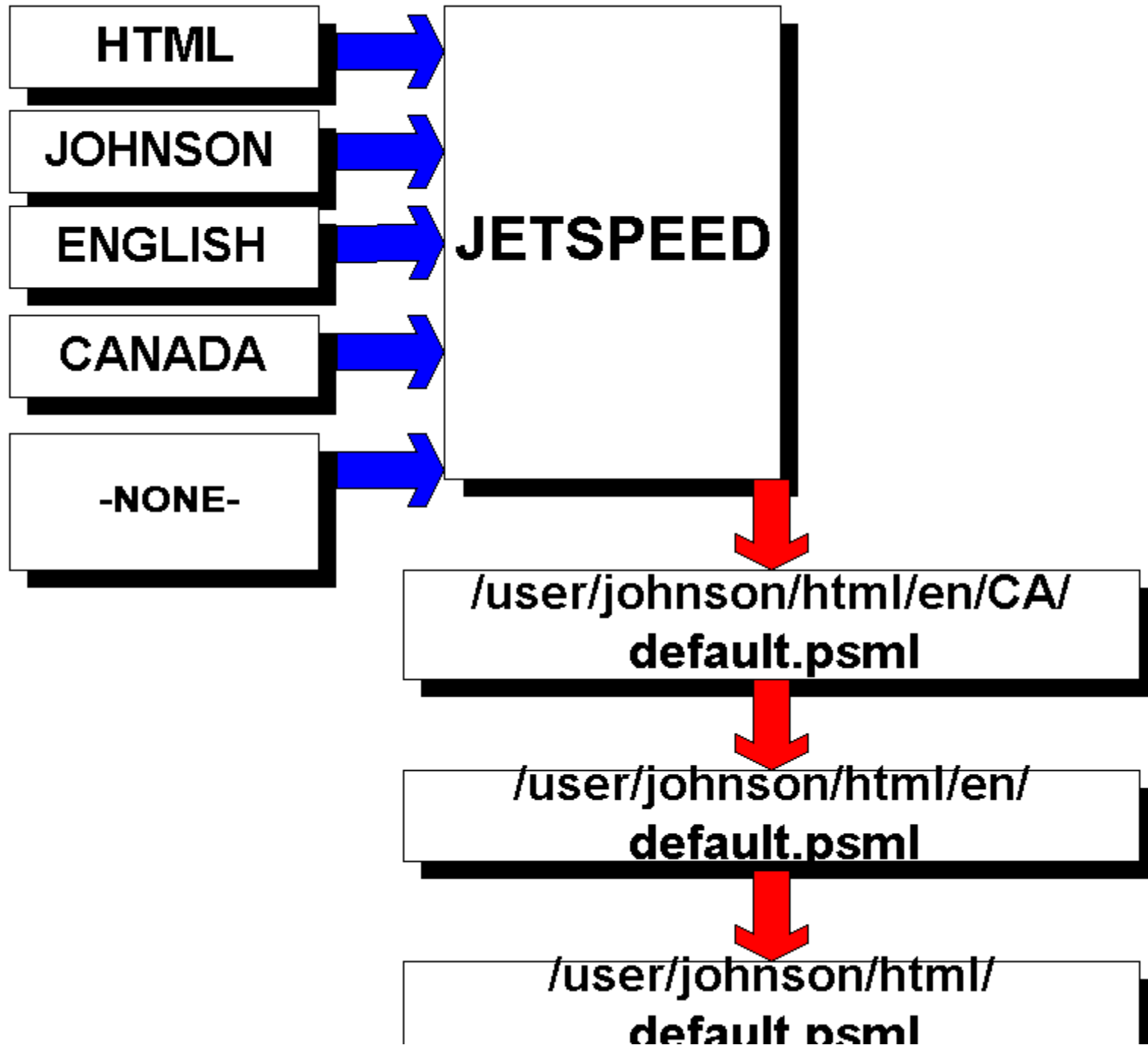
REQUEST



EXAMPLE OF FINDING WITH ALL
PARAMETERS AVAILABLE



EXAMPLE OF FALLBACK



Velocity and JSP

In order to incorporate dynamic content into your web pages and portlets, it is strongly recommended to use a templating engine such as Velocity or JSP. Here we demonstrate Jetspeed's Tools and how they can be used with the Velocity Templating Engine. Velocity allows you to access these tools by specifying a \$dollar sign to denote the tool. Similarly, you can put easily expose your business objects to the designer. Below is an example of walking through a list of users and displaying them in an HTML table (Jetspeed also has corresponding JSP Custom Tags)


```
#set ( $headings = ["Username", "First Name", "Last Name", "Email", "Actions"] )
<table>
  <tr>
    <td>
      <table border="true" cellspacing="1" cellpadding="3">
        <tr>
          #foreach ( $heading in $headings )
            #headerCell ( $heading )
          #end
        </tr>
        #foreach ( $user in $users )
          <tr>
            #entryCell ( $!user.UserName )
            #entryCell ( $!user.FirstName )
            #entryCell ( $!user.LastName )
            #entryCell ( "<a href=mailto:$!user.Email>$!user.Email</a>" )
            <td>
              <a href="$jlink.setPanel("User").addPathInfo("entityid", $user.UserName
                .addQueryData("mode", "update") ">Edit</a> &nbsp;   
              <a href="$jlink.setPanel("User Roles")
                .addPathInfo("entityid", $user.UserName) ">Roles</a>
              <a href="$jlink.setPanel("User")
                .addPathInfo("entityid", $user.UserName).addQueryData("mode", "delete") "
            </td>
          </tr>
        #end
      </table>
    </td>
  </tr>
  <tr>
    <td>
      <a href="$jlink.setPanel("User") ">Add User</a>
    </td>
  </tr>
</table>
```

The macro:

```
■ #macro (entryCell $body)
    <td>
        $body &nbsp;
    </td>
#end
```

Velocity simplicity #if, #else, #end ## comment:

```
I <p>${10n.NEWACCOUNT_NOTICE}</p>
  #if ( $config.getBoolean("newuser.approval.enable") == false )
    #if ( $config.getBoolean("newuser.confirm.enable") == true )
      <p>${10n.NEWACCOUNT_CONFIRMATION}</p>
    #end
  #else
    <p>${10n.NEWACCOUNT_APPROVAL}</p>
  #end
  #if ($data.Message)
    ## Message include account creation failure messages.
    <p><b>${data.Message}</b></p>
  #end
```

The velocity-portlet action, put the User in the context:

```
Criteria criteria = new Criteria();
User[] users = JetspeedSecurity.getUsers(criteria);
context.put(SecurityConstants.CONTEXT_USERS, users);
```

\$link - Link

```
<a href="$link">
```

<http://localhost:8080/jetspeed/portal>

```
<a href="$link.setAction("controls.Customize")>
```

<http://localhost:8080/jetspeed/portal?action=controls.Customize>

```
<a href="$link.setPage("NewAccount")>
```

<http://localhost:8080/jetspeed/portal/template/NewAccount>

```
addQueryData("mode","insert")
```

<http://localhost:8080/jetspeed/portal?mode=insert>

```
addPathInfo("mode","insert")
```

<http://localhost:8080/jetspeed/portal/mode/insert>

\$clink - ContentLink

```
<base href="$clink.External">
```

<http://localhost:8080/jetspeed/portal>

```
<link
```

```
href="$clink.setURI("css/default.css").Absolute
```

```
/jetspeed/css/default.css
```

\$jlink – extends \$link

```
$jlink.setPanel("Group")
```

```
http://localhost:8080/jetspeed/portal/template/Home/select-panel2/Group
```

\$config - Configuration

```
$config.getString("newuser.confirm.email.name")
```

david@bluesunrise.com

Gets strings out of TurbineResources.properties
and JetspeedResources.properties

\$data - JetspeedRunData

\$data.User.UserName
\$data.getStackTrace()
\$data.setMode("customize")
\$data.User.hasLoggedIn()

\$I10n – Internationalized Strings

<code><td>\$I10n.USERFORM_USERNAMEMSG</td> ></code>
<code><td>\$I10n.LOGIN_PASSWORD</td></code>
<code><p>\$I10n.CONFIRMREGISTRATION_MESSAGE</p></code>

\$skin - Skins

titleColor
backgroundColor
titleTextColor
titleBackgroundColor
titleStyleClass
highlightTextColor
highlightBackgroundColor

Common Portlets

(AbstractPortlet) – the base portlet to all other portlets. (You cannot instantiate this)

XSL – does XSL transforms to generate portlet output.

RSS – formats RSS news feeds (Rich Site Summary) from local or remote feeds

JSP – uses a JSP template to generate portlet output.

Velocity – uses a Velocity template to generate portlet output.

CustomizerVelocity – extends Velocity portlet with portlet customization mode support built-in. This is one of the most useful portlets.

HTML– serves up an HTML page – only supports HTML media type.

WML – serves up a WML page – only supports WML media type.

WebPagePortlet– Includes content from another website into a portlet, rewriting any relative links as absolute back to original site.

LinkPortlet– a sample web Link Manager.

Demo Portlets

HelloVelocity – extends CustomizerVelocity portlet – good example to get started.

HelloJSP– obligatory JSP example.

Search– searches the web from a portlet.

XMLHack– good example of RSS – no coding

Apacheweek– good example of RSS – no coding

JavaWeb – example of WebPagePortlet hitting <http://java.sun.com>

StockQuote – advanced example of extending CustomizerVelocity portlet with Web Services and SOAP!

Admin Portlets

PortletCustomizer– used by Customizer to customize a single portlet, based on VelocityPortlet.

HomepageCustomizer– used by Customizer to customizes a PSML page.

PortletBrowser– lists all the portlets in the registry. There are similar browser for controllers, controls, skins and media-types.

JavaRuntimePortlet– supplies complete summary of state of the Java Runtime.

UserBrowser, UserForm– browses and edits users in the Jetspeed database. There are also browsers and editforms for Permissions, Roles

Security Model

Jetspeed provides secure access to the portal. The basic security model has:

- ❑ **Users** – users in the portal system.
- ❑ **Permissions** – portal permissions to portal resources (view, customize, minimize, maximize...)
- ❑ **Groups** – Users can be associated to groups through roles.
- ❑ **Roles** – Users can have several roles. Roles control access to portal resources (such as portlets, PSML).

Example of a security role in a portlet registry:

```
<portlet-entry type="ref"  
parent="CustomizerVelocity" name="UserForm" >  
  <security role="admin"/>  
  ....
```


Databases

Jetspeed stores its security information in a relational database. The PSML can also be configured to be stored in a database. The default system comes installed with a **HypersonicSQL** database pre-populated with the demo system data. Jetspeed can be easily configured to work with most leading database systems by changing the settings in the **TurbineResources.properties**:

database.default.driver=org.hsql.jdbcDriver

database.default.url=jdbc:HypersonicSQL:\${webappRoot}/WEB-INF/db/jetspeed

database.default.username=sa

database.default.password=

database.adaptor=DBHypersonicSQL