



Embed BA into Web Applications



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For information about instructor-led training, visit <http://www.pentaho.com/training>.

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Introduction

This document is intended for **developers** with HTML and JavaScript experience. It explains ways to integrate BA Server functionality and content into your own web application.

Prerequisites

This document assumes you have a correctly installed and configured Pentaho BA Server EE running locally on your machine. It also assumes you know how to start and stop the server if necessary. Please refer to the following sections for help with installing, configuring and administering a Pentaho BA server:

- [*Install Pentaho Software*](#)
- [*Configure Pentaho Systems*](#)
- [*Fine-Tune Pentaho Systems*](#)

Integration Samples

This document comes with a set of sample web pages that show ways to integrate BA Server functionality and content into your web application. This document describes the techniques used by the various samples, so we recommend you deploy the samples on your Pentaho BA Server when following this document.

Obtaining the Samples

The samples are packaged into a file named **penaho-sdk.zip** accessible for download in your [Customer Support Portal](#).

Deploying the Samples

The **pentaho_integration_samples.war** file is a J2EE Web application archive that must be deployed to the application server that runs the Pentaho BA Server.

To deploy the samples to your Pentaho server, follow these steps:

- stop the Pentaho BA Server
- copy **pentaho_integration_samples.war** to your `biserver-ee/tomcat/webapps` directory
- start the Pentaho BA Server

The war file should now be unpacked in the webapps directory and running in your application server. You can access the example index page by opening a web browser and navigating to `http://localhost:8080/pentaho_integration_examples`.

Integrating BA Server Functionality

Pentaho 5.0 implements a REST web interface to deliver content as well as expose various services. The following sections comment on the various samples and how they utilize the REST URLs.

For the full reference of the Pentaho REST API, please refer to <http://javadoc.pentaho.com>.

General Notes

The REST APIs often allow interaction with repository files. The REST API expects references to repository files to be specified using the `:` character as file separator.

Reporting Samples

Executing a report from a HTML form (POSTing parameters)

This sample renders a prpt report by posting the report parameters to the report REST URL:

`http://localhost:8080/pentaho/api/repos/<path>/generatedContent`

The POST request contains all parameters the report expects, plus the additional rendering parameter `output-type`, which controls the rendering format (HTML, PDF, XLS, etc.)

The following output formats are supported:

Option	Purpose
table/html;page-mode=stream	HTML as a single page, all report pagebreaks are ignored.
table/html;page-mode=page	HTML as a sequence of physical pages, manual and automatic pagebreaks are active.
application/vnd.openxmlformats-officedocument.spreadsheetml.sheet;page-mode=flow	Excel 2007 XLSX Workbook
table/excel;page-mode=flow	Excel 97 Workbook
table/csv;page-mode=stream	CSV output
table/rtf;page-mode=flow	Rich text format
pageable/pdf	PDF output
pageable/text	Plain text
pageable/xml	Pageable layouted XML
table/xml	Table-XML output
pageable/X-AWT-Graphics;image-type=png	A single report page as PNG.
mime-message/text/html	MIME email with HTML as body text and all style and images as inline attachments.

Rendering a report in an IFRAME

This sample renders a prpt report using a regular GET request, by populating an HTML IFRAME with the report REST URL:

`http://localhost:8080/pentaho/api/repos/<path>/generatedContent?<parameters>`

The request contains all parameters as part of the URL.

Rendering report viewer with available parameters and executed report

The sample renders the **Pentaho Report Viewer IU** by populating an HTML IFRAME with the report REST URL:

`http://localhost:8080/pentaho/api/repos/<path>/viewer?<parameters>`

The request contains the initial report parameters as part of the URL.

Analyzer Samples

Displaying a report in viewer mode

This sample renders a xanalyzer report using a regular GET request, by populating an HTML IFRAME with the report REST URL:

`http://localhost:8080/pentaho/api/repos/<path>/viewer`

The viewer has limited possibilities for interaction and does not allow changing the report.

Displaying a report in editor mode

The sample renders the report with full **Analyzer IU** by populating an HTML IFRAME with the report REST URL:

`http://localhost:8080/pentaho/api/repos/<path>/editor`

The IFRAME now renders the full Analyzer user interface, allowing users to interact with the data.

Creating a new report

The sample prepares a new report by populating an HTML IFRAME with the report REST URL:

`http://localhost:8080/pentaho/api/repos/xanalyzer/editor?
catalog=<Schema>&cube=<CubeName>`

The mandatory **catalog** and **cube** parameters specify the analysis schema and cube to use for the new report.

Integrating into a custom web application via an IFRAME

The sample opens a new page that mimics a parent application that integrates Analyzer using an IFrame. The parent application has a set of buttons interacting with the Analyzer UI in the embedded IFRAME. Studying this page is a good starting point, if you are trying to deeply integrate analyzer into your own web application.

Interactive Reporting Samples

Displaying an interactive report

This sample renders a prpti report using a regular GET request, by populating an HTML IFRAME with the report REST URL:

`http://localhost:8080/pentaho/api/repos/<path>/prpti.view`

The viewer has limited possibilities for interaction and does not allow changing the report.

You can use the `prpti.edit` end-point instead, to allow more user interaction.

Creating a new interactive report

The sample prepares a new report by populating an HTML IFRAME with the report REST URL:

`http://localhost:8080/pentaho/api/repos/pentaho-interactive-reporting/prpti.new`

Users will be prompted to select the datasource they want to work with.

Integrating into a custom web application via an IFRAME

The sample opens a new page that mimics a parent application that integrates the Interactive Reporting editor using an IFrame. The parent application has a set of buttons interacting with the Interactive Reporting UI in the embedded IFRAME. Studying this page is a good starting point, if you are trying to deeply integrate Interactive Reporting into your own web application.

Action Sequence Samples

Running an action sequence to generate a report

This sample renders an xaction report using a regular GET request, by populating an HTML IFRAME with the report REST URL:

```
http://localhost:8080/pentaho/api/repos/<path>/generatedContent?<parameters>
```

The parameters for the xaction are passed as simple GET parameters on the URL.

Running an action sequence to generate a report with prompts

The sample prepares a form to collect parameters and POSTs them to the xaction REST URL:

```
http://localhost:8080/pentaho/api/repos/<path>/generatedContent
```

The xaction now retrieves its parameters from the POST request body.

Repository and Scheduler REST APIs

This sample is an interactive page that showcases the use of repository and scheduler REST services.

The samples cover the following topics:

Repository Service

- exporting content
- browsing
- access control
- creating directories
- deleting content

Scheduler Service

- listing jobs
- creating jobs
- triggering jobs
- deleting jobs

Integrating Pentaho Mobile for OEM Software Vendors

Pentaho uses Sencha Touch as a framework for building navigation features for our mobile product. If you are an independent software vendor who wants to create your own mobile application that integrates with Pentaho Mobile, you can use Sencha Touch or any other mobile SDK that meets your needs. These instructions use Sencha Touch. If you have chosen another mobile SDK, replace all references to Sencha Touch with the appropriate SDK.

These instructions specify Sencha Touch. If you have chosen to use a different Mobile SDK, replace all references to Sencha Touch with the alternate Mobile SDK.

1. Extract and install the `pentaho-mobile-plugin` to `pentaho-solutions/system`.
2. Download the `sencha-touch-2.0.1.1-commercial.zip` file and extract it to a temporary folder. See <http://www.sencha.com/products/touch/download/> for more information.
3. From the extracted files in the temporary folder, copy these files.

```
/sencha-touch-2.0.1.1/resources/css/apple.css
/sencha-touch-2.0.1.1/sencha-touch.js
/sencha-touch-2.0.1.1/sencha-touch-all.js
/sencha-touch-2.0.1.1/sencha-touch-all-debug.js
/sencha-touch-2.0.1.1/sencha-touch-debug.js
```

4. Paste the copied files into the mobile plugin touch folder: `/pentaho-solutions/system/pentaho-mobile-plugin/resources/touch`.
5. Ensure that the BA Server is running. It is not necessary to restart the BA server.

Access your content on an iPad by opening a web browser and entering

`http://<HostName:PortNumber>/pentaho/`.

Security Integration

Pentaho relies on the Spring Security pluggable authentication framework. By default, the BA Server uses a JDBC-based data access object that is tied to a Jackrabbit database. Users and roles are configured through the Pentaho Enterprise Console, and content authorization is controlled by the BA Server administrator. However, you can easily configure the server to use existing security tables in a different database, or to authenticate through your existing LDAP (including Active Directory) server or Central Authentication Service. Pentaho's security is also extensible to the point that you can create your own custom data access object, or completely remove all authentication functionality.

Developer Support

The examples in this section are simple and easy to follow, but with more complex requirements come more advanced programs. While reading the source code comments can help quite a bit, you may still need help to develop an application within a reasonable time-frame. Should you need personal assistance, you can have direct access to the most knowledgeable support resources through a Pentaho Enterprise Edition software vendor annual subscription:

[ISV/OEM support options](#)

If phone and email support are not enough, Pentaho can also arrange for an on-site consulting engagement:

[Consultative support options](#)

License Information

Most of the software comprising Pentaho Business Analytics is open source, licensed under the GNU General Public License version 2. Business Analytics also contains a large volume of third-party open source libraries that are licensed under a number of different licenses. Most of this software is freely redistributable, with the notable exceptions of the following Pentaho-authored programs:

- Dashboard Designer
- Analyzer
- Interactive Reporting
- Various individual BI Platform JARs

If you already have regular Pentaho licenses for the BI Platform, Dashboard Designer, Interactive Reporting, and Analyzer, then no further licenses are required to integrate BA Server functionality into a third-party application. If you wish to embed pieces of the BA Server into an application that you intend to sell or distribute, you must familiarize yourself with the licenses of all of the pieces you are including in order to make sure you are complying properly. Proprietary Pentaho software may not be redistributed under any circumstances.

This section is not intended for redistribution. However, the example code and example application that accompany this document may be freely modified or reused.