

Bonita BPM: an open-source BPM-based application development platform to build adaptable business applications

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Abstract. Companies today need business applications that can support continuous change in business environments and in technical/IS environments. The innovative technology of the recently released, open source Bonita BPM version 7 offers developers a new way to develop process-based applications that permits adaptability after deployment. By decoupling the user interface, business logic, and business data, this BPM-based application platform enables application developers to modify live applications “on the fly.”

This demo shows application development using Bonita BPM 7 Studio to model business logic in BPMN 2.0, and the UI Designer based on AngularJS to independently create the end user interfaces. The demo will cover how user interface can be changed in a live, deployed application.

This demo is of particular interest to developers who are responsible for business application development, to business analysts who want flexible, user-friendly business applications, and to researchers who need flexible redeployment cycles allowing changes to be made and tested over time.

1 SIGNIFICANCE TO THE BPM FIELD

Where business agility provides competitive advantage, adaptable business process-based applications support business agility.

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Adaptability for BPM-based applications BPM starts with developers having the right tooling, the ability to extend that tooling and the means to write code when it is needed for specific purpose such as customization.

The innovative technology of the open source, Bonita BPM 7 BPM-based application development platform was developed to create business applications that are built for change. Developers and process managers in business and in R&D environments can apply changes, updates and improvement after deployment. As a result the BPM lifecycle is more flexible; redeployment cycles are possible so changes can be made and tested over time.

What enables this agility is the decoupled architecture of Bonita BPM 7, which offers a clear separation between the business logic, data and user interfaces. The specific concept applied is a *contract* that acts as an interface. This brings in greater flexibility and agility: the front-end team and the workflow team can collaborate and develop in parallel, and can both make changes when the application is in production. Once the UI designer and the process developers agree on a contract definition, they can each work independently.

The role of the contract is to define what data are expected by the process to execute a step, or to start a new instance. The web interface designer ensures that all required data are taken as input and then sent to the Bonita BPM Engine as it executes the process.

The Bonita BPM Engine checks the data received from the user interface against the contract. If the contract is not met, the execution engine ignores the request and can keep the process in a stable and coherent state. If the contract is met, the process flow proceeds.

1.1 Update applications continuously

Often, the focus in business is on how fast a system can be put into production. But just as important is how fast can that system in production can evolve and change. Bonita BPM 7 permits changes in real time to both business logic and user interfaces, without interrupting running instances or re-deploying the application.

Via the contract, Bonita BPM 7 permits integration of BPM functionality with adaptable, reconfigurable user interfaces. With this capability redeployment cycles are possible so changes can be made and tested. Applications can go to production sooner, deployed quickly even if not ideal, and changed even after it is in production. R&D testing, maintenance, and adaptation to changing business and IS environments becomes easier.

As the resulting user interface is decoupled from the business logic that runs the process via the contract, the form can be updated while live instances of the process are running. In addition to modification such as CSS change, the content of a form can also be changed.

For example, in a process in which there is a requestor user field, in a first iteration, the data input required is a simple user login. In a second iteration, more information on the requestor can be taken (eg first name, last name, email). With the live

update of forms, the process application can be switched to the second form iteration with no downtime.

Other elements that can be changed in live processes include parameters, connector implementation, and Groovy scripts.

1.2 Extensible, adaptable end user interfaces

Bonita BPM 7 provides a web based UI Designer, based on Angular JS, which is extensible. As it is now separate from the Bonita BPM Studio, it provides developers the ability to extend the tooling beyond the features available in the product, for example custom widget creation.

The integration of Bootstrap enables user interfaces that are responsive for display on multiple devices.

1.3 Integration with external IS

Bonita BPM provides a rich set of connectors to connect processes to nearly any enterprise system – such as CRMs, ECMs, ERPs, databases, social platforms, web services, and more – with minimal custom coding. As the platform is open source, connectors source code is public and sharable.

But as extensibility is key for development flexibility, Bonita BPM 7 also provides open & extensible REST and Java APIs.

The stable extension points of Bonita BPM Engine include custom connectors, actor filters, engine and REST APIs. Extension points or user interfaces include custom widgets, custom data types, and custom pages. Full explanation of extension points are given in the documentation for Bonita BPM 7 (see <http://documentation.bonitasoft.com/software-extensibility-1>).

1.4 Demo of Bonita BPM 7

Our demonstration will highlight the decoupling between business logic (processes), business data and user interfaces (forms and applications) introduced by Bonita BPM 7.

It will be based on a simple but realistic use case, a business application serving procurement request processes.

Several concepts and tools involved in the implementation of the process and application will be shown, with emphasis on one the main impacts of the decoupled architecture: live update of a web form on a running process.

The demo will also feature a look at the contract, its relationship to the process logic and to the user interface, and how custom user interface for an application can be built.

2 MATURITY OF THE TOOL

Bonita BPM was first released in 2001 when the open source Bonita Project was established. Bonitasoft was founded in 2009 to continue its development and has released three major versions of the platform. It comprises:

- Bonita BPM Studio – a graphic modeling tool based on the BPMN 2.0 standard. Inside the studio, developers define the business data model, add connectors to external systems, and create the contracts that permit independent UI design.
- Bonita BPM Engine – handles large, high-demand processes with a large transaction volume in a complex environment.
- Bonita BPM Portal – a standard, customizable end-user interface for mobile and desktop, for applications that don't need or want customized user interfaces, for health monitoring and error management.

Bonita BPM Community edition is fully open source and is freely available for download. The Bonita Community counts more than 120,000 members and many contributions (e.g. connectors).

Bonita BPM is employed by more than 1000 customers in more than 70 countries. Industries using Bonita BPM for process-based applications include aeronautics, construction, banking and financial services, chemical, education, energy, finance, agribusiness, food and beverage, government, Insurance, manufacturing, retail, transportation and logistics, and more.

3 SCREENCAST (VIDEO)

Demos of Bonita BPM 7, including this one (*Bonita BPM 7: UI Designer Technical Deep Dive*: <http://www.bonitasoft.com/for-you-to-read/videos/bonita-bpm-7-ui-designer-technical-deep-dive>) can be found in the Bonitasoft video library at <http://www.bonitasoft.com/resources/videos-webinars-on-demand?category=Tutorials&language=en> and <http://www.bonitasoft.com/resources/videos-webinars-on-demand>.

4 LINK

Bonita BPM can be downloaded from the Bonitasoft web site: <http://www.bonitasoft.com/how-we-do-it/downloads>.