

**Seam for Apache Wicket Module**

# **Reference Guide**

**3.0.0-SNAPSHOT**

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Introduction .....	v
<b>1. Installation .....</b>	<b>1</b>
<b>2. Seam for Apache Wicket Features .....</b>	<b>3</b>
2.1. Injection .....	3
2.2. Conversation Control .....	3
2.3. Conversation Propagation .....	4



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## Introduction

The goal of Seam for Apache Wicket is to provide a fully integrated CDI programming model to the Apache Wicket web framework. Although Apache components (pages, panels, buttons, etc.) are created by direct construction using "new", and therefore are not themselves CDI contextual instances, with seam-wicket they can receive injections of scoped contextual instances via `@Inject`. In addition, conversation propagation is supported to allow a conversation scope to be tied to a wicket page and propagated across pages.

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# Installation

The `seam-wicket.jar` should be placed in the web application library folder. If you are using [Maven](http://maven.apache.org/) [http://maven.apache.org/] as your build tool, you can add the following dependency to your `pom.xml` file:

```
<dependency>
  <groupId>org.jboss.seam.wicket</groupId>
  <artifactId>seam-wicket</artifactId>
  <version>${seam-wicket-version}</version>
</dependency>
```



## Tip

Replace `${seam-wicket-version}` with the most recent or appropriate version of Seam for Apache Wicket.

As Wicket is normally used in a servlet (non-JavaEE) environment, you most likely will need to bootstrap the CDI container yourself. This is most easily accomplished using the Weld Servlet integration, described in the [Weld Reference Guide](http://docs.jboss.org/weld/reference/latest/en-US/html/environments.html) [http://docs.jboss.org/weld/reference/latest/en-US/html/environments.html].

You must extend `org.jboss.seam.wicket.SeamApplication` rather than `org.apache.wicket.protocol.http.WebApplication`. In addition:

- if you override `newRequestCycleProcessor()` to return your own `IRequestCycleProcessor` subclass, you must instead override `getWebRequestCycleProcessorClass()` and return the class of your processor, and your processor must extend `SeamWebRequestCycleProcessor`.
- if you override `newRequestCycle` to return your own `RequestCycle` subclass, you must make that subclass extend `SeamRequestCycle`.

If you can't extend `SeamApplication`, for example if you use an alternate `Application` superclass for which you do not control the source, you can duplicate the three steps `SeamApplication` takes, i.e. return a `SeamWebRequestCycleProcessor` `NonContextual` instance in `newRequestCycleProcessor()`, return a `SeamRequestCycle` instance in `newRequestCycle()`, and add a `SeamComponentInstantiationListener` with `addComponentInstantiationListener()`.





# Seam for Apache Wicket Features

Seam's integration with Wicket is focused on two tasks: conversation propagation through Wicket page metadata and contextual injection of Wicket components.

## 2.1. Injection

Any object that extends `org.apache.wicket.Component` or one of its subclasses is eligible for injection with CDI beans. This is accomplished by annotating fields of the component with the `@javax.inject.Inject` annotation:

```
public class MyPage extends WebPage {
    @Inject SomeDependency dependency;

    public MyPage()
    {
        dependency.doSomeWork();
    }
}
```

Note that since Wicket components must be serializable, any non-transient field of a Wicket component must be serializable. In the case of injected dependencies, the injected object itself will be serializable if the scope of the dependency is not `@Dependent`, because the object injected will be a serializable proxy, as required by the CDI specification. For injections of non-serializable `@Dependent` objects, the field should be marked transient and the injection should be looked up again in a component-specific `attach()` override, using the `BeanManager` API.

Upon startup, the CDI container will examine your component classes to ensure that the injections you use are resolvable and unambiguous, as per the CDI specification. If any injections fail this check, your application will fail to bootstrap.

The scopes available are similar to those in a JSF application, and are described by the CDI specification. The container, in a Java EE environment, or the Servlet listeners, in a Servlet environment, will set up the application, session, and request scopes. The conversation scope is set up by the `SeamWebRequestCycle` as outlined in the next two sections.

## 2.2. Conversation Control

Application conversation control is accomplished as per the CDI specification. By default, like JSF/CDI, each Wicket HTTP request (whether AJAX or not) has a *transient* conversation, which is destroyed at the end of the request. A conversation is marked *long-running* by injecting the `javax.enterprise.context.Conversation` bean and calling its `begin()` method.

```
public class MyPage extends WebPage {
```

```
@Inject Conversation conversation;
```

```
public MyPage()
{
    conversation.begin();
    //set up components here
}
```

Similarly, a conversation is ended with the `Conversation` bean's `end()` method.

### 2.3. Conversation Propagation

A transient conversation is created when the first Wicket `IRequestTarget` is set during a request. If the request target is an `IPageRequestTarget` for a page which has previously marked a conversation as non-transient, or if the `cid` parameter is present in the request, the specified conversation will be activated. If the conversation is missing (i.e. has timed out and been destroyed), `SeamRequestCycle.handleMissingConversation()` will be invoked. By default this does nothing, and your conversation will be new and transient. You can however override this, for example to throw a `PageExpiredException` or something similar. Upon the end of a response, `SeamRequestCycleProcessor` will store the `cid` of a long running conversation, if one exists, to the current page's metadata map, if there is a current page. The key for the `cid` in the metadata map is the singleton `SeamMetaData.CID`. Finally, upon `detach()`, the `SeamRequestCycle` will invalidate and deactivate the conversation context.

Note that the above process indicates that after a conversation is marked long-running by a page, requests made back to that page (whether AJAX or not) will activate that conversation. It also means that new `Page` objects assigned as a `RequestTarget`, whether directly via `setResponsePage(somePageInstance)` or with `setResponsePage(SomePage.class, pageParameters)`, will have the conversation propagated to them. This can be avoided by:

1. ending the conversation before the call to `setResponsePage`,
2. using a `BookmarkablePageLink` rather than directly instantiating the response page, or
3. specifying an empty `cid` parameter in `PageParameters` when using `setResponsePage()`.



#### Note

The final case also provides a mechanism for switching conversations: if a `cid` is specified in `PageParameters`, it will be used by bookmarkable pages, rather than the current conversation.