

# Java EE Configuration JSR

## Boundaries

Application-to-ConfigurationManager  
ConfigurationManager-interface-to-vendor-supplied-ConfigurationManagerImplementation  
ConfigurationManagerImplementation-to-vendor-implemented-configuration-store  
? ConfigurationManagerImplementation-to-vendor-implemented-deployment-descriptor-store  
Configuration-package-to-application-server

★ Configuration portability is paramount, according to Bill Shannon

Is it important for configuration portability?

Standardization

Configuration archive

## Packaging and deployment

## Areas

Management  
Profiles  
Inheritance  
Staging  
Multitenancy  
Tailoring

## Related Technologies

JNDI  
DeltaSpike configuration  
Extension?  
CDI  
Seam Config  
java.util.Preferences  
EJB  
alt-dd  
Annotations JSR

## Related JSRs

JSR 77 (Management)  
JSR 88 (Deployment)

## Configuration

Multiple values?  
Addition  
Set-based  
Map<String, String>  
Configuration archive  
Standard packaging type for deploying to application servers

Mutability

Way for application to expose slots?

## Backwards Compatibility

Simple cases  
ejb-jar.xml  
web.xml fragments?  
Vendor-specific deployment descriptors?  
Names and IDs  
Deployment descriptor identifiers

## Wild ideas

Special classloader

## Use Cases

Integrate with provisioning tooling  
Retrieve configuration  
Deploy one app under different configurations  
Decouple configuration information from descriptor location  
I want to specify my own alternate EJB implementation  
Automatic injection  
I want to specify my own CDI implementation  
CDI-123  
Seam Solder  
.car file implications

## Actors

Configuration service  
Management tools  
Containers  
Application  
Application Server administrators  
Customizers/Application Assemblers  
Responsible for supplying injection points, querying configuration service for values  
Responsible for supplying configurations to the application server  
Responsible for building configuration archives

## Configuration providers

Configuration service  
@Resource injection?  
Configuration CDI provider  
Lookup-based  
Type-safe injection is hard  
Needed for multitenancy

## Scope

Questions  
Management?  
Versioning?  
Staging?  
Standalone?  
Mutability  
Reloading?  
Customization?

## @Resource injection?

Might have impact on annotations JSR; e.g. @Resource(configs = "fred, joe, default")

## Addition

e.g.

## Automatic injection

[https://groups.google.com/d/msg/java-config/FrgH9\\_O1qkU/fW8aLxtpIOEJ](https://groups.google.com/d/msg/java-config/FrgH9_O1qkU/fW8aLxtpIOEJ)

As a developper I want to be able to configure something like this :

```
public MyPojo {
    private String currency;
    private Long currencyRate;
```

```
    // complex algorithm based on the currency
}
```

How do I configure that depending if my app is dealing with dollars or euros ? The DeltaSpike way of doing is something like :

```
public MyPojo {
    @Inject @Config("myCurrency")
    private String currency;
    @Inject @Config("myCurrencyRate")
    private Long currencyRate;
```

```
    // complex algorithm based on the currency
}
```

The Seam Config way of doing is quite clever. They use a namespace that is relative to the packing. So, without changing the initial code (so, forget about the @Inject above) they have an XML file that is able to override each attribute of any file.

## CDI-123

<https://issues.jboss.org/browse/CDI-123>

## Configuration archive

A configuration archive, if it is going to be standardized, needs to permit code and resources to be part of it.

Inciting use case is: I want to supply my own alternate implementation of a business interface as a stateless session bean.

## Configuration archive

Must permit code to support alternate implementations of EJBs.

## Decouple configuration information from descriptor location

Some standard way to access a configuration resource let frameworks / other JSR decouple from actual descriptor location, and option to store them externally with a large set of (vendor specific) options.

## DeltaSpike configuration

<http://deltaspike.apache.org/configuration.html>

## Deploy one app under different configurations

As a release engineer, when I have a package which is to be deployed to multiple environments, I want to be able to inject configurations into the package and then deploy.

## EJB

Hazy thoughts about ejb-refs here.

If a configuration archive can have alternate code in it (i.e. I want to implement the Frobnicator interface using a different sort of EJB), then we have EJB JSR implications.

## Extension?

Probably shouldn't investigate doing configuration service as a CDI extension because then everything would have to be a CDI bean archive. It is not clear this is the right thing.

## I want to specify my own alternate EJB implementation

<http://lairdnelson.wordpress.com/2013/06/21/how-to-override-an-ejb-reference/>

I receive an .ear file with an EJB implementation of a business interface. I'd like to supply an alternate implementation and configure that EJB module to use mine instead.

(Argues for more than just docs in a .car file.)

## Integrate with provisioning tooling

As an Ops, when I have to deploy a java application I want a standard way to define it's configuration, resources and environment to integrate with my provisioning tooling (Nicolas deLoof)

## JSR 77 (Management)

Note the requirement that JSR-77 objects return their deployment descriptors as a String.

## JSR 88 (Deployment)

Depending on whether use cases such as "I want to implement the Frobnicator using an alternate EJB implementation" are supported by way of configuration archives, there may be effects on this JSR.

## Management?

Seems like a different JSR, but there is a lot of cry for this in the community.

## Multiple values?

I don't see a need for a configuration (think: properties file, XML) to be exposed as a tree format. Maybe that's naïve.

## Mutability

This seems like it should be omitted.

Some configuration, like env-entries, can change just fine, and when it does, listeners should be notified. These kinds of things don't need a redeploy.

Other kinds of things, like new code, should involve a redeploy. This kind of mutability must not be supported.

## Names and IDs

Some deployment descriptors let you name an application or a module (e.g. <module-name>). So if we are going to link configuration to modules, we need to link the configuration to them carefully so that a module's name can still be configured. Module-name, in other words, is like a business key—we need to link configuration to Java EE modules by a surrogate key that is nonetheless predictable. META-INF/moduleId, perhaps, or MANIFEST.MF header?

## Needed for multitenancy

There apparently needs to be a ConfigurationService that can be programmatically queried in order to support multitenancy, given that a tenant identifier is a runtime attribute.

## Reloading?

Reloading should probably be impossible out of the gate as a redeploy would probably be necessary.

## Retrieve configuration

I want standardized way (interface? maybe, but in broader sense of the word) get a configuration for already deployed application.

## Scope

Always keep in mind: what should be possible, vs. what should be standardized?

For example, it should be possible to load configuration in different orders. But it should be standardized that there must be a prescribed order.

## Seam Config

[http://docs.jboss.org/seam/3/config/latest/reference/en-US/html\\_single/](http://docs.jboss.org/seam/3/config/latest/reference/en-US/html_single/)

## Seam Solder

<http://docs.jboss.org/seam/3/solder/latest/reference/en-US/html/introduction.html>

## Set-based

[https://groups.google.com/d/msg/java-config/FrgH9\\_O1qkU/9hBKNZQ6figJ](https://groups.google.com/d/msg/java-config/FrgH9_O1qkU/9hBKNZQ6figJ)

Need ideas of:

Add and replace  
Add as defaults  
Full replace  
Metadata-complete

## Special classloader

For full backwards compatibility, I wonder if it would be possible to load a resource using a special Java EE classloader that was configuration-aware? That would probably provide a ton of backwards compatibility. EclipseLink could load its deployment descriptors, for example, that could be logical assemblages of several deployment descriptors.

## Staging

Staging, e.g. "dev" as a shorthand for "all the settings used for development in my organization"

## Standard packaging type for deploying to application servers

Seems unnecessary.

## Standardization

Don't know if we want to standardize a configuration archive, or simply mandate that application server vendors make a "configuration" (whatever that is) available under a name for subsequent retrieval by the application by using that name.

## Tailoring

Tailoring, e.g.

## Type-safe injection is hard

[https://groups.google.com/d/msg/java-config/FrgH9\\_O1qkU/fW8aLxtpIOEJ](https://groups.google.com/d/msg/java-config/FrgH9_O1qkU/fW8aLxtpIOEJ)

Because of the way CDI works, a @Producer has to produce a value of a common supertype. So there's no way to have a "generic" configuration producer, singular. Instead, several would have to be auto-registered based on discovered injection points.

## Use Cases

[https://groups.google.com/forum/#!topic/java-config/FrgH9\\_O1qkU](https://groups.google.com/forum/#!topic/java-config/FrgH9_O1qkU)

## Vendor-specific deployment descriptors?

There's not really any way to mandate that a vendor upend its vendor-specific deployment descriptors. To process overrides this might be necessary.

## Versioning?

This seems to be right out.

## Way for application to expose slots?

IWBNI an application could report to the configuration service all of its "slots" that need filling. Think of EJB references.

## java.util.Preferences

A few remarks about Preferences "synchronization hell", but otherwise seems to be the right sort of structure?

## web.xml fragments?

Can't web.xml fragments be scattered all over the place? What do we do with these?