

# Configuration Options Inventory

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## fcrepo-webapp

Fedora [RESTful HTTP API](#) uses the open source Jersey RESTful Web Services framework that provides support for JAX-RS APIs and serves as a JAX-RS (JSR 311 & JSR 339) Reference Implementation. The jersey servlet dispatcher is configured in [web.xml](#) as follows:

## web.xml

```
<servlet>
    <servlet-name>jersey-servlet</servlet-name>
    <servlet-class>com.sun.jersey.spi.spring.container.servlet.SpringServlet</servlet-class>
    <init-param>
        <param-name>com.sun.jersey.config.property.packages</param-name>
        <param-value>org.fcrepo</param-value>
    </init-param>
    <init-param>
        <param-name>com.sun.jersey.api.json.POJOMappingFeature</param-name>
        <param-value>true</param-value>
    </init-param>
    <load-on-startup>1</load-on-startup>
</servlet>
```

The following spring files exist in a directory as configured in [web.xml](#), which contains a context-param element with param-name "contextConfigLocation". The param-value points to your spring context configuration files, WEB-INF/classes/\*.xml. Note that these files are in the source tree under fcrepo-webapp/src/main/resources/spring and copied to WEB-INF/classes upon build.

## fcrepo-webapp/src/main/resources/spring

### repo.xml

- here you can specify the repository.json file to be loaded as the repositoryConfiguration, as well as the bean for repository factory and metrics

## repo.xml

```
<bean name="modeshapeRepofactory" class="org.fcrepo.kernel.spring.ModeshapeRepositoryFactoryBean">
    <property name="repositoryConfiguration" value="{fcrepo.modeshape.configuration:classpath:/config
/single/repository.json}" />
</bean>
```

### rest.xml

- bean implementation for InternalIdentifierConverter (identifier translationChain), StoragePolicyDecisionPointImpl, SessionFactory, and base-packages to auto scan into spring

### eventing.xml

- bean implementation for eventing - observer, filter, event bus

### jms.xml

- here you can specify the implementation for processing events

### generator.xml

- beans implementation for datastream generation, ex: dublin core

### security.xml

- bean implementation for OAuth security

### transactions.xml

- Specify the config for transactions

### minter.xml

- bean implementation for minting identifiers

fcrepo4/fcrepo-configs/src/main/resources/config

### **activemq.xml**

- config for message broker

### **jgroups-fcrepo-tcp.xml**

- Config for the Messaging Toolkit JGroups to transfer state between nodes in a Fedora Cluster.

fcrepo4/fcrepo-webapp/src/main/resources

### **logback.xml**

- logging configuration (logging can also be [configured with System properties](#))

## Modeshape repository configuration

Fedora 4 uses Modeshape, a JCR implementation. We distribute a handful of known-good configurations for Modeshape and Infinispan, although we anticipate configuration tuning for deployment environments will be common.

<https://github.com/ModeShape/modeshape/blob/master/modeshape-jcr/src/main/resources/org/modeshape/jcr/repository-config-schema.json>

<http://docs.jboss.org/infinispan/5.3/configdocs/>

## Modeshape Configurations

These configuration files are copied to WEB-INF/classes from [fcrepo-configs/src/main/resources](#) upon build.

### **/config/minimal-default/repository.json**

- Our default Modeshape configuration.

### **/config/servlet-auth/repository.json**

- Default configuration with servlet authentication enabled.

### **/config/clustered/repository.json**

- Default configuration with repository clustering enabled. By default, uses /config/infinispan/clustered/infinispan.xml persistence configuration.

## Infinispan configurations

These configuration files are copied to WEB-INF/classes from [fcrepo-configs/src/main/resources](#) upon build.

### **/config/infinispan/leveldb-default/infinispan.xml**

- Default configuration with leveldb object storage

### **/config/infinispan/leveldb/infinispan.xml**

- Configuration with leveldb object storage and filecachestore object storage

### **/config/infinispan/clustered/infinispan.xml**

- Example clustering configuration. Replicates object storage, distributes 2 copies of binary storage.

### **/config/infinispan/file/infinispan.xml**

- Configuration with filecachestore

## /config/infinispam/ram/infinispan.xml

- In-memory configuration for object storage (useful for testing)

## Repository Config Options

```
fcrepo.modeshape.index.directory:target/indexes
fcrepo.infinispan.configuration:config/infinispan/leveldb-default/infinispan.xml
```

Fedora 4 can be configured to use different Infinispan configurations. By default, Fedora 4 configurations use the leveldb-default configuration.

```
fcrepo.ispn.repo.cache:target/FedoraRepository/storage
```

Fedora 4 will store object properties to `fcrepo.ispn.repo.cache`. These probably won't be very large, and should be stored on fast disk. The object properties are stored as binary JSON documents within the given cache store configuration.

```
fcrepo.binary.directory:target/binaries
fcrepo.ispn.binary.cache:target/FedoraRepositoryBinaryData/storage
```

`fcrepo.ispn.binary.CacheDirPath:target/FedoraRepositoryBinaryData/storage` - path to store binary content (when it's stored in infinispan e.g. `/config/infinispan/clustered/infinispan.xml`)

Fedora 4 stores binary content separately (to one of the above paths, depending on configuration). These files are stored hashed by the content SHA-1 hash.

## Performance considerations

Different Infinispan configurations can also have an impact on repository performance.

Infinispan Configuration	Average	Median	Standard Deviation
filecachestore	0.1121	0.105	0.0313
leveldb	0.0736	0.0630	0.0445
leveldb with async persistence	0.0610	0.0550	0.0220
RAM	0.0517	0.0480	0.0148
leveldb with file binary store *	0.0644	0.0570	0.0196
Total	0.0703	0.0590	0.0318

\* default configuration

## Other module resources

### fcrepo-module-auth-xacml

This XACML Authorization Delegate Module is based on the design documented here: [XACML Authorization Delegate](#)

## /src/main/resources/policies

### AdminPermissionPolicySet.xml

- policy set for the admin role

### AdminRolePolicySet.xml

- define the policies for the admin role

#### **GlobalPermissionPolicySet.xml**

- policy set for the basic role

#### **GlobalRolesPolicySet.xml**

- define the policies for the basic role

#### **PreventReadingMasterFilesPolicySet.xml**

- policy set that prevents access to any files with the mime type "image/tiff" that have the "http://example.com/mixins#master" type (example-mixins: master mixin)

#### **ReadNormalNodePermissionPolicySet.xml**

- policy set for reading normal nodes

#### **ReadOnlyExceptToLocalPolicySet.xml**

- policy set that prevents all repository-changing actions by all but those a localhost or on an internal network.

#### **ReaderRolePolicySet.xml**

- define the policies for the reader role

#### **WriteNormalNodePermissionPolicySet.xml**

- policy set for writing normals nodes.

#### **WriterRolePolicySet.xml**

- define the policies for writing the normal nodes

### **/src/main/resources/cnd**

#### **xacml-policy.cnd**

- namespace properties to enable XACML authorization

### **fcrepo-jms-indexer-pluggable**

This is an indexer that listens to the Fedora JMS topic, retrieves a message including pid and eventType, looks up object properties, gets and passes the transformed or untransformed properties on to any number of registered handlers.

### **/fcrepo-jms-indexer-webapp/src/main/resources/spring**

#### **indexer-core.xml**

- bean implementation for HttpSolrServer, SolrIndexer and IndexerGroup (SparqlIndexer, FileSerializer)

#### **indexer-events.xml**

- config for jms messaging with ActiveMQ

### **/fcrepo-jms-indexer-webapp/src/main/resources**

#### **logback.xml**

- logging configuration

### **/fcrepo-jms-indexer-core/src/main/resources**

#### **indexing.cnd**

- namespace property to enable object indexing using triplestore and solr