Testing

We like tests. We use JUnit and Mockito. Tests over HTTP use Grizzly.

Ensuring that the quality of the code base is maintained (as it is extended, refactored, or otherwise modified) can be addressed through the extensive coverage of functionality by unit or integration testing. One approach often undertaken within the domain of software development is that of *test driven development*, in which the appropriate testing suites outlining the behavior of some method are structured concurrently or before the method itself is actually implemented. Adhering to this methodology is by no means mandatory, but it does often assist in ensuring that the code base is quality assured to a higher degree.

Writing tests

Unit Tests

Each module has unit tests in the `src/test/java/org/fcrepo/` directory and integration tests in the `src/test/java/org/fcrepo/integration/` directory.

The unit tests often use mock objects to create surrogates for the Modeshape and webapp machinery that much of the Fedora code interacts with. Some good examples of mock object usage are in the `fcrepo-http-api` module (e.g., FedoraNodesTest.java) and in the `fcrepo-jms-indexer-core` module (e.g. IndexerGroupTest.java). By convention, unit test classes are named as: <FunctionalClass>Test.java

Examples

Integration Tests

Integration tests use embedded Modeshape, servlet engine, etc. to run real requests against the code. The web-based tests typically use HttpClient to make requests. Non-web tests, use injection to have the repository and service objects made accessible to the tests (the embedded repository and injection are configured in the `src/test/resources` directory). Some good examples are in the `fcrepo-http-api` module (e.g. FedoraNodesIT.java) and `fcrepo-kernel` module (e.g., FedoraResourceImplIT.java). By convention, integration test classes are named as: <FunctionalClass>IT.java

Examples

Remember to follow the Code Style Guide when writing your test classes. This is especially true if writing a test class is your first foray into contributing to Fedora.

Running the tests

```
$ mvn test verify
```

See the fcrepo4 README file for more detailed instructions concerning Maven settings, etc., to build from source.