

# Road to Fedora 6.0

The release of Fedora 6.0 marks a significant milestone for the community. Fedora 6.0 addresses some of the performance and scale limitations of earlier releases, introduces a standards-based, long-term preservation-focused persistence layer, and adds a basic search service.

As such, the process for moving to the production release of Fedora 6.0 will include both Alpha and Beta releases to ensure the broader community has ample opportunity to confirm the functionality against local needs and use cases, and to provide feedback from local testing.

## Alpha

The Alpha release includes the following features:

- Oxford Common File Layout persistence
- Search service
- Alpha release of migration tooling that provides for upgrades from Fedora 3, 4, and 5 to Fedora 6

Additionally, the following features will be in the Beta release of Fedora 6.0.0 but are not found in the Alpha:

- Targeted rebuild of side-loaded OCFL objects
- Search service user interface
- Migration of Fedora 4 ACLs to Fedora 6
- Support for LDP Indirect Containers
- Support for the <http://www.w3.org/ns/oa#PreferContainedDescriptions> header

## Breaking changes from Fedora 5.x

The following are breaking changes in Fedora 6 that should be considered if porting a client application that interacted with a Fedora 5 repository:

- API for creating and managing [Transactions](#) has changed
- POST-ing to a URL which does not exist will now create the destination as a pseudo-container, i.e. "ghost node", and create a child node inside of it. Previously, this would result in a 404
- Memento timestamps may no longer be specified when creating a memento
- Mementos cannot be deleted
- ActivityStream Actors, in event notifications, now correctly contain a single type rather than a list of types
- No more <http://fedora.info/definitions/v4/repository#hasParent> property on nested containers
- No more <http://fedora.info/definitions/v4/repository#writable> property on resources

## Fedora API Compliance

One of the goals of the Fedora 6.0 release is to retain compliance with the featureset found in Fedora 5.1 which includes continuing to be compliant with the [Fedora API Specification](#).

The Alpha release of Fedora 6 has the following results when the Fedora API TestSuite is run against it. Before the production release of Fedora 6, we strive to have 100% compliance with this test suite.

Req Level	Num Pass	Num Fail	Num Skip	% Pass
MUST	142	7	6	95%
SHOULD	38	5	1	88%
MAY	23	1	18	96%
Total	203	13	25	94%

- 3.1.3-0: Implementations must allow the `ldp:insertedContentRelation` property to be set by default to an implementation defined value.
- 3.1.3-P: Implementations SHOULD allow the `ldp:insertedContentRelation` property to be set by default to `ldp:MemberSubject`.
- 3.10.2-D: A client may include the `X-If-State-Token` header field in a PUT request to make the request conditional on the resource's current state token matching the client's value.
- 3.2.1-B: In addition to the requirements of [LDP], an implementation ... may support the value <http://www.w3.org/ns/oa#PreferContainedDescriptions> for the `Prefer` header when making GET requests on LDPC resources.
- 3.6.1-A: Any LDP-RS must support PUT to update statements that are not server-managed triples (as defined in [LDP] 2). [LDP] 4.2.4.1 and 4.2.4.3 remain in effect. (This is a failure of the [test suite](#))
- 4.1.1-A-1: If no LDPRm is appropriate to the `Accept-Datetime` value, implementations should return a 406 (Unacceptable).
- 4.1.2-B: Must support PUT for updating existing LDPRvs
- 4.2.6: LDPRm resources must support DELETE if DELETE is advertised in OPTIONS (<https://github.com/fcrepo/fcrepo/pull/1790>)
- 4.3.3.1-E: If an LDPCv supports POST, a POST with a `Memento-Datetime` header should be understood to create a new LDPRm contained by the LDPCv, with the state given in the request body.
- 4.3.3.1-F: If an LDPCv supports POST, a POST with a `Memento-Datetime` header should be understood to create a new LDPRm contained by the LDPCv, with the datetime given in the `Memento-Datetime` request header.
- 6.1: For every resource whose state is changed as a result of an HTTP operation, there MUST be a corresponding notification made available describing that change.
- 6.2-A: The notification serialization MUST conform to the [activitystreams-core] specification, and each event MUST contain the IRI of the resource and the event type.

- 6.2-B: Wherever possible, data SHOULD be expressed using the [activitystreams-vocabulary].

For comparison, here are the results of Fedora 5.1.1:

Req Level	Num Pass	Num Fail	Num Skip	% Pass
MUST	146	3	6	98%
SHOULD	43	0	1	100%
MAY	30	0	12	100%
Total	219	3	19	99%

Full results can be found at <https://fedora.info/spec-tests/>.

## Upgrading to the Alpha

In conjunction with the Fedora 6.0 Alpha release comes upgrade tooling that allows for migrating Fedora 3, 4 and 5 repositories to Fedora 6.0. Please see the [Migrate to Fedora 6](#) instructions for details on how to perform these upgrades.

## Beta

### Community integrations

During the course of Beta testing, it is important to verify that applications in the Islandora and Samvera communities integrate with the Beta release of Fedora 6.0.

#### Islandora

The Islandora community will build a new forepo container using ISLE and encourage our community to pull it in and test using Fedora 6. We will manually test integration by walking through our Fedora relevant use cases. We will seek to test:

- Green-field installations
- Existing Islandora 8 installations
- Islandora 7 installations that are migrating into Islandora 8

#### Samvera

Initial sanity testing of Fedora 6.0 with Valkyrie has already been successfully conducted. Further testing should focus on Valkyrie-based use cases since ActiveFedora is unlikely to be updated to work with Fedora 6.0. Candidates for testing include Hyrax, Hyku, and Avalon, though this will depend on the timeline for Valkyrie integration.

Testing should begin with green-field scenarios and include performance and scale tests. Migration testing will likely be out of scope for the beta because the current Fedora-based migration tools do not take Samvera applications into consideration when migrating from Fedora 3, 4, or 5 to Fedora 6.0. However, the current tools should be tested in order to determine whether or not they represent a suitable starting point for Samvera migrations vs. creating a new tool for this purpose.

### Performance criteria

Before releasing the Beta version of Fedora 6.0, a list of performance and scale tests will be identified, designed and executed in order to provide clarity to the community regarding the application's characteristics under various usage scenarios. Examples of such tests will include:

- How many resources can be ingested into Fedora? How long does it take?
- How do POST response times change on binary resources as the size of the binaries increases?
- How do GET/POST response times change as the size of the repository increases?
- How do GET/POST response times change on a compound resource as the number of resource versions increases?
- How do GET response times change on binary resources as the number of binary resources in the repository increases?
- How do GET response times change on containers as the number of child and/or member resources increases?
- etc

## Feedback

Community testing and feedback is vital during the the Alpha and Beta phases of Fedora 6.0 in order to ensure that the application meets (exceeds?) the needs of production use cases. Any feedback that you have during the testing process will be valuable to know; good or bad.

Please use any of the project communication channels for sharing your results: [Mailing Lists](#) etc.