Agenda

- Overview
- Developing Features
- Releases
- Future Directions
Overview: Managing code changes

• Large product team: 15 developers, 4 testers, 2 PM’s
• 619 pull requests in 19.2.0, on track for > 700 in 19.3.0
• Challenging to keep the platform in a shippable state
• Balancing stability and feature delivery
Overview : Transition to Git

• Started using git 6.5 years ago
• Migration from ant to gradle
• Major investment in svn->git migration
• 2019 is the first year we have been able to take advantage of git on a large scale
• Other process improvements : scrum->kanban
Overview

- Result has been increased stability on trunk
- Larger refactors/features are more approachable
  - provisioned sample sets
  - immutable table info
  - security improvements (CSRF, HTML encoding)
Developing Features
Feature Lifecycle Overview

- Feature Proposal
- Backlog Grooming
- Spec Writing and Estimation
- Development and Acceptance Testing
- Merging and Branch Protection
- Regression Testing
- Delivery and Ongoing Maintenance
Feature Proposal

• Define high-level requirements
• Add feature to company backlog
  – Assign to specific team backlog if particular expertise is needed
• Provide initial estimate of effort required
  – Large projects ("Epics") are split up into manageable sub-projects ("Stories")
Backlog Grooming

- Teams meet periodically for backlog "grooming"
  - Update priorities
  - Re-assign
  - Refine estimates
  - Remove obsolete stories
Spec Writing and Estimation

- Feature Specification
  - Requirements
  - Functional Design
  - Implementation Plan
  - Test Plan

- Divide story into small tasks
  - Small tasks are easier to estimate
  - Provides a more reliable progress indicator
Development and Acceptance Testing

- Use Git to develop features in isolation
- Targeted tests run throughout development
- Manual Testing to verify new functionality
Pull-request and Branch Protection

- GitHub Pull-request
- Merge new feature into mainline branch!
Regression Testing

- Extensive regression testing is performed nightly on mainline branch
  - Fix regressions caused by new feature
- Automated tests are written to cover new feature
Delivery and Ongoing Maintenance

• Regression tests are in place and will verify functionality throughout the life of the feature

• Ready for inclusion in the next LabKey release!
Releasing Software
Releases

- Mechanism to deliver functionality to clients and community
- Historical types
  - Major: every 4 months
  - Sprint: monthly from trunk
  - Hotfix: as needed to fix high-priority issues
  - Modules branch: client module-specific changes
Releases

• Artifact naming standard was problematic
• Difficult to determine the changes contained in an installer build
• Adopted elements of semantic versioning
  – incorporation of a patch number
  – <major>.<minor>.<patch>
Adoption of semantic versioning for our build artifacts

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
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<tbody>
<tr>
<td>Alpha/Sprint</td>
<td>19.1</td>
<td>19.1Alpha2</td>
</tr>
<tr>
<td>Release candidate</td>
<td>19.1</td>
<td>19.1Beta</td>
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<td>Major release</td>
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<td>19.1.0</td>
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<tr>
<td>Maintenance/patch</td>
<td>19.1</td>
<td>19.1.1</td>
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</table>
Releases

Maintenance releases

• 6 scheduled per major release cycle
• Allows deployment of fixes/features to our clients
• Improves our ability to track changes in releases
# Releases

<table>
<thead>
<tr>
<th>Name</th>
<th>Base Branch</th>
<th>Repository</th>
<th>Base Ref</th>
<th>Name</th>
<th>Updated At</th>
<th>Author</th>
<th>Title</th>
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<tbody>
<tr>
<td>19.3.0</td>
<td>develop</td>
<td>biologics</td>
<td>release19.2-SNAPSHOT</td>
<td>2019-08-09</td>
<td>labkey-tchad</td>
<td>Update test for new search behavior</td>
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<tr>
<td>19.2 Beta</td>
<td>develop</td>
<td>biologics</td>
<td>release19.2-SNAPSHOT</td>
<td>2019-08-05</td>
<td>labkey-kevink</td>
<td>Issue 38097: <code>~q</code> filter slow for large lookup target</td>
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<td>biologics</td>
<td>release19.2-SNAPSHOT</td>
<td>2019-08-01</td>
<td>labkey-tchad</td>
<td>Allow test data to be loaded on server running in production mode</td>
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<tr>
<td>19.2 Alpha 2</td>
<td>develop</td>
<td>cdisc_ODM</td>
<td>release19.2-SNAPSHOT</td>
<td>2019-08-12</td>
<td>labkey-klum</td>
<td>Dynamically compute visit ranges</td>
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<tr>
<td>19.2 Alpha 1</td>
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<td>cloud</td>
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<td>2019-08-12</td>
<td>labkey-jeckels</td>
<td>Issue 38230: Caching of BlobStores in CloudManager causes the problem</td>
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<td>19.2.4</td>
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<td>commonAssays</td>
<td>release19.2-SNAPSHOT</td>
<td>2019-08-09</td>
<td>labkey-kevink</td>
<td>Issue 38209: reduce queries when linking FCS files to samples</td>
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<td>Fix GitHub pull request to include module containers</td>
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<td>2019-08-09</td>
<td>labkey-klum</td>
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<td>labkey-klum</td>
<td>Work around for yuicompressor issue</td>
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<td>labkey-klum</td>
<td>QC state scoping fixes for test and product. Dropdown was not tricked</td>
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<td>iilikepies101</td>
<td>Issue 38218: Print preview bug fix into 19.2</td>
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<td>labkey-jeckels</td>
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<tr>
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<td>2019-08-13</td>
<td>labkey-matthewb</td>
<td>Fb button cleanup</td>
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<td>2019-08-14</td>
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<tr>
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<td>premium</td>
<td>release19.2-SNAPSHOT</td>
<td>2019-08-12</td>
<td>labkey-klum</td>
<td>Assay QC states not scoped correctly</td>
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</table>
Future Directions

• Wrap up git migration
• Improved support for building against binaries
• Migrate to new javascript API
• Improved tooling to manage enlisting and branching
Questions?