Getting started with agile development using the Atlassian Suite at DESY

Jürgen Starek and Karsten Schwank

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What to expect

- Brief introduction into Scrum
- Example from Summer Students’ project
- Stash walk-through
- Getting started with Bamboo

What we expect

- Questions
- Requests on the Demo parts
1 Agile Development with Scrum
   Goals and Motivation
   Framework
   Summer Students’ project
   Questions

2 Atlassian Tools
   Stash: Repository Management
   Bamboo: Continuous Integration and Testing
Goals and Motivation

- Transparent project progress
- Be able to react to changing requirements
- Short “time to market”
- Be able to release any time
- Motivation of developers
Framework

• Fixed set of roles
• Fixed (basic) set of meetings
• Fixed set of artefacts
• Principles

Definition of work packages

• Epics > User Stories > Subtasks
• Times estimated in Story Points
• Vertical cuts \(\rightarrow\) affect all layers

Actual work done in *Sprints*

• Work on fixed set of User Stories
• Usually 2-4 weeks
Roles

- **Product Owner:**
  - responsible for projects rentability
  - defines requirements
  - decides about priority of features
  - reports progress to stakeholders
  - accepts or rejects increments

- **Scrum Master:**
  - responsible for team effectiveness
  - coach, mentor, moderator, trainer
  - shields team from external influences
  - removes impediments

- **Developer:**
  - fixes bugs
  - implements user stories
  - refactors code
  - writes tests
  - maintains Sprint Backlog
  - reports progress
Meetings

- **Sprint Kick-Off**
  - Decide what user-stories to implement in Sprint

- **Daily Scrum**
  - *Standup*: Work done, work planned, impediments
  - More discussion as needed

- **Sprint Review**
  - Present work to Product Owner and confirm it is “done”

- **Sprint Retrospective**
  - Review internal process, suggest improvements
Artefacts

- **Product Backlog**
  - List of not yet implemented Epics and User-Stories
  - Sorted by importance and value
  - May be modified at any time

- **Sprint Backlog**
  - List of User-Stories with detailed sub-tasks
  - Fixed for the Sprint

- **Burndown Chart**
  - One chart per Sprint
  - Graph of work done over time

**Figure:** Graphics by Logan Ingalls. Licensed under CC-A 2.0 via Wikimedia Commons
Scrum Process

Figure: "Scrum process" by Lakeworks - Own work. Licensed under GNU Free Documentation License via Wikimedia Commons
Principles

Some of the principles are

- Pair Programming
- Test Driven Development
- Continuous Integration
- ...

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Summer Students’ project

Team:
- Product Owner: Jürgen
- Scrum Master: Karsten
- Developers: Lilit, Victor

Sprints: 1 Week

Meetings:
- Kickoff: Friday Afternoon
- Standup: Daily 11:00
- Retrospective: Friday 11:30

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Agile Development with JIRA@DESY
Summer Students’ project

- **Team:**
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*Figure:* NexusBuilder 0.1
Questions?
1. Agile Development with Scrum
   Goals and Motivation
   Framework
   Roles
   Meetings
   Artefacts
   Summer Students’ project
   Questions

2. Atlassian Tools
   Stash: Repository Management
   Bamboo: Continuous Integration and Testing
Simple use cases for individuals and workgroups:
- supports *git* for version control
- multiple repositories per project
- access management
- branch management
- private repositories

More advanced use cases:
- integration in agile workflows with *Jira* and *Bamboo*
Stash and the Others

- SourceTree: Atlassian *git* and *hg* client for Win and Mac
- Mercurial: Currently not supported
  - Ad-hoc ports via fast-export or hg-git
    (https://github.com/frej/fast-export or http://hg-git.github.io) possible, but tricky
- Subversion:
  - Server http://svnsrv.desy.de from Zeuthen
After logging in, stash shows us the overview of all projects we are allowed to see.

**Figure:** Projects Overview

<table>
<thead>
<tr>
<th>Project</th>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agile Development with Atlassian</td>
<td>AGAT</td>
<td>Presentation about the Atlassian Suite at DESY and suggested agile workflows.</td>
</tr>
<tr>
<td>CFEL-DESY-Theory</td>
<td>CDT</td>
<td>Software repositories of the CFEL-DESY-Theory Division.</td>
</tr>
<tr>
<td>CrystFEL</td>
<td>CRYX</td>
<td>Data processing for serial crystallography</td>
</tr>
<tr>
<td>DOOCS</td>
<td>DOOCS</td>
<td>The Distributed Object Oriented Control System</td>
</tr>
<tr>
<td>Gamma Portal</td>
<td>GP</td>
<td>Imported PSG project from SVN</td>
</tr>
<tr>
<td>Nexus Builder</td>
<td>NKB</td>
<td>Summer Student project 2014: A GUI tool for the creation of Nexus files</td>
</tr>
</tbody>
</table>
Stash: Create Project

If we have sufficient rights we can create a new project by clicking on the “Create project“-button.

Figure: create a project
Empty Project

After creating a new project Stash shows us the empty repository page

**Figure:** newly created project
Create a new repository

![Create a new repository](figure.png)

**Figure:** new repository
Agile Development with Scrum
Atlassian Tools

Stash: Repository Management
Bamboo: Continuous Integration and Testing

Figure: empty repository

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Agile Development with JIRA@DESY
Figure: repository details
Figure: pull requests
Agile Development with Scrum
Atlassian Tools

Stash: Repository Management
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Figure: repositories
Figure: source
Figure: branches
**Figure:** create pull request
**Figure:** pull request
Figure: review pull request
Figure: branches network

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Agile Development with JIRA@DESY
Figure: branches network
Private repositories

- Until now: Repositories as part of projects
  - Projects can be made private
- "Proper" private repositories are created in one’s account page
Figure: Creating private repositories
**Figure:** List of private repositories and access URL
How do I / we get on?

- Write to it-atlassian@desy.de, describing your use case and ask for Stash access
- After getting an account, you can create projects and repositories yourself
  - Please use responsibly (and keep the distinction between projects and repositories in mind)
Compile, test and (potentially) package and deploy your code

- at every commit to the git repository
- at given time intervals
- nightly
Advantages

...for teams:

- Overview of development status, semi-public status display
- Confidence when editing other people’s code
- Overview of implemented bugfixes in releases
- Simple, centralized build and deployment to several targets

...for individuals:

- Confidence when editing code left alone since last year
- Overview of implemented bugfixes in releases
A use case for multiplatform targets

- Optimize software for a heterogeneous cluster like it-hpc or NAF
  - Have Bamboo build versions for i386, i686 and all target environments
  - Let Bamboo package the results and store them centrally
  - Deploy as needed (using helper scripts or similar)

- Ask us if you need special build environments
Bamboo vs. Jenkins

- Jenkins offers most of the features Bamboo has
- For existing installations:
  - Integration with Stash and Jira possible, but more work
  - not supported by IT
Documentation

- Atlassian documentation on the web: https://confluence.atlassian.com/display/ALLDOC/
- DESY IT mailing list for further questions: it-atlassian@desy.de
Questions?
Content

3 Recap

4 Jira Agile
   Product Backlog
   Sprint Backlog
   Burndown Chart

5 Integration
What to expect

- Short recap of last weeks presentation
- Basic Workflows with Jira Agile (Demo)
- Integrate Jira, Stash and Bamboo (Demo)

What we expect

- Questions
- Requests on the Demo parts
Recap Scrum

- Roles: Product Owner, Scrum Master, Developer
Recap Scrum

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- Artefacts: Product Backlog, Sprint Backlog, Burndown Chart
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- Meetings: Sprint Kickoff, Daily Scrum, Sprint Review, Sprint Retrospective
Recap Scrum

- Roles: Product Owner, Scrum Master, Developer
- Artefacts: Product Backlog, Sprint Backlog, Burndown Chart
- Meetings: Sprint Kickoff, Daily Scrum, Sprint Review, Sprint Retrospective
- Principles: TDD, CI, Pair Programming, ...
Recap Stash

- git repository management
Recap Stash

- git repository management
- public and private repositories
Recap Stash

- git repository management
- public and private repositories
- Review and merge Pull Requests
Recap Bamboo

- Automated Builds
Recap Bamboo

- Automated Builds
- Build plan configuration
  - Triggers
  - Actions
Recap Bamboo

- Automated Builds
- Build plan configuration
  - Triggers
  - Actions
- Monitor build status
Jira Agile

3 Recap

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5 Integration
Jira Agile

...the "ag" in agira.desy.de :-)

Figure: Jira Startpage

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Recap
Jira Agile Integration
Product Backlog
Sprint Backlog
Burndown Chart

Jira Agile

Figure: Product Backlog
Recap
Jira Agile Integration

Product Backlog
Sprint Backlog
Burndown Chart

Jira Agile

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Figure: Plan Sprints
**Figure:** Sprint Backlog
Figure: Report with Burndown Chart

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Agile Development with JIRA@DESY
Recap

Jira Agile Integration

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5 Integration
The Atlassian tools are highly integrable

- with each other
- with other development tools
Starting work from Jira

Jira Agile offers "plan" and "work" views. To start implementing a task,

- select a ticket from the work view
- click "Development -> Create branch"
- (optionally: Check branch creation in Stash and Bamboo)
- check out your new branch in your development environment and implement the feature

An equivalent command for manual branching is

```
$ git checkout -b MYPR-42-Task-title-from-Jira
$ # do something
$ git push origin MYPR-42-Task-title-from-Jira
```
Testing and integrating your work

As soon as a subtask is implemented:

- Push new code to *origin*
- Bamboo should detect the commit and start building your branch

Once you are confident about your changes:

- Create pull request
- Have ticket closed
Recap
Jira Agile
Integration

Integration with IntelliJ

Figure: Stash is accessed like any git repository

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Agile Development with JIRA@DESY
Integration with IntelliJ

Figure: There is a dedicated plugin to work with Jira issues...
Recap
Jira Agile Integration

Integration with IntelliJ

Figure: ...and monitor Bamboo status
SourceTree

Comfortable git environment for Mac and Windows

Figure: Atlassian SourceTree

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Agile Development with JIRA@DESY
Questions?