



CommitStrip.com



# Building XWiki

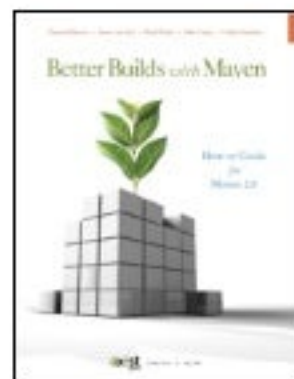
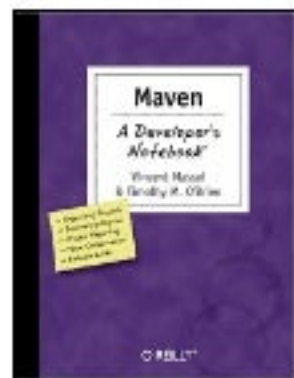
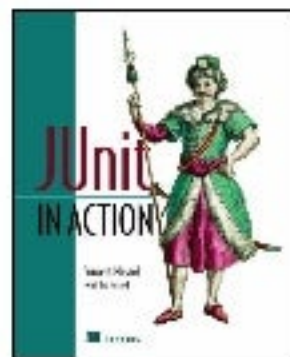


Vincent Massol, April 2019

# Vincent Massol



- CTO XWiki SAS
- Open source developer
- My Projects
  - XWiki (community-driven open source project)
  - Past: Maven, Apache Cargo, Apache Cactus, Pattern Testing
- Other Credentials:
  - LesCastCodeurs podcast about Java news
  - Creator of OSSGTP open source group in Paris
  - 3 books: JUnit in Action, Maven: A Developer's Notebook, BBWM



# Agenda

---

- Part 0: XWiki
  - The project
- Part 1: The XWiki Build
  - Automated quality checks
  - Different types of tests
- Part 2: The CI (Jenkins)
  - The various XWiki pipelines
- Part 3: Release Process
  - Putting it all together
- Future



# Agenda

---

- **Part 0: XWiki**

- The project
- Part 1: The XWiki Build
  - Automated quality checks
  - Different types of tests
- Part 2: The CI (Jenkins)
  - The various XWiki pipelines
- Part 3: Release Process
  - Putting it all together
- Future

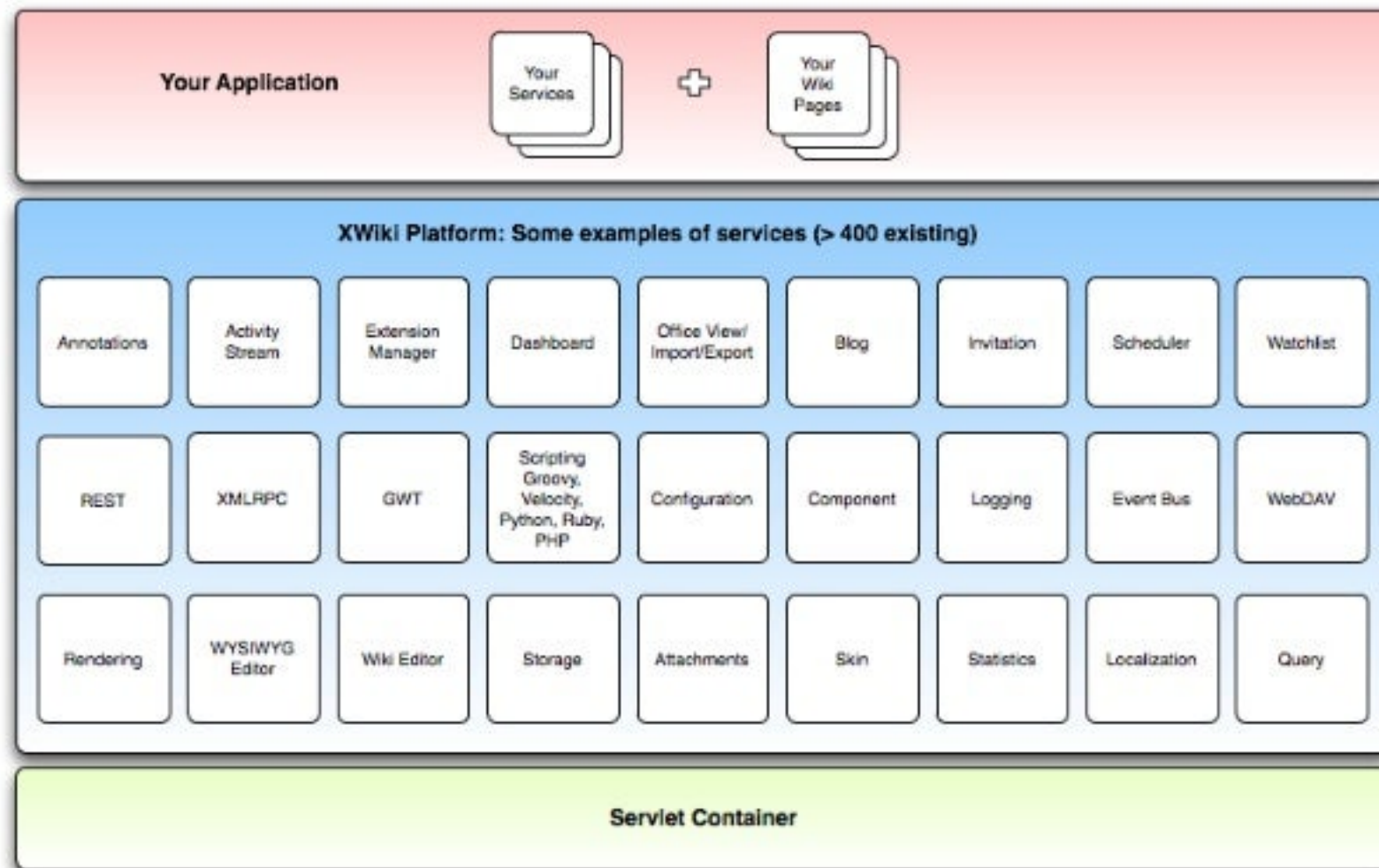
# What is XWiki? (1/2)

- A structured open source enterprise wiki

The screenshot displays the XWiki Home page. On the left, there is a sidebar with 'Applications' (Blog, Dashboard, Sandbox, More applications) and 'Navigation' (Blog, Home, Sandbox, XWiki). The main content area is titled 'Home' and includes a 'Welcome to your wiki' section with introductory text and a video thumbnail titled 'Discover XWiki - EN ver...'. Below this is 'The basics' section with instructions on editing and navigating. Further down are 'Extend your wiki' and 'Create your application' sections. The right sidebar contains 'Tips', 'Need help?' with links to 'Community Support' and 'Professional Support', and a 'Show tour' button at the bottom. The footer shows 'Page 1/1' and 'Created by Admin on 2006-03-06 10:00'.

# What is XWiki? (2/2)

- A platform for developing content-based web applications



# Project Stats

## 30 Day Summary

Sep 8 2018 — Oct 8 2018

1369 Commits

43 Contributors

including 14 new contributors

3 New Languages :

TeX/LaTeX added Sep 13

Java added Sep 20

XML added Sep 23

## 12 Month Summary

Oct 8 2017 — Oct 8 2018

5661 Commits

Up + 1477 (35%) from previous 12 months

114 Contributors

Up + 65 (132%) from previous 12 months

## Lines of Code



## Active Installs History



15

YEARS OF EXPERIENCE

LGPL2.1

OPEN SOURCE LICENSE

100K

CODE COMMITS

750

EXTENSIONS

64K

YEARLY INSTALLATIONS

4500

ACTIVE INSTALLATIONS



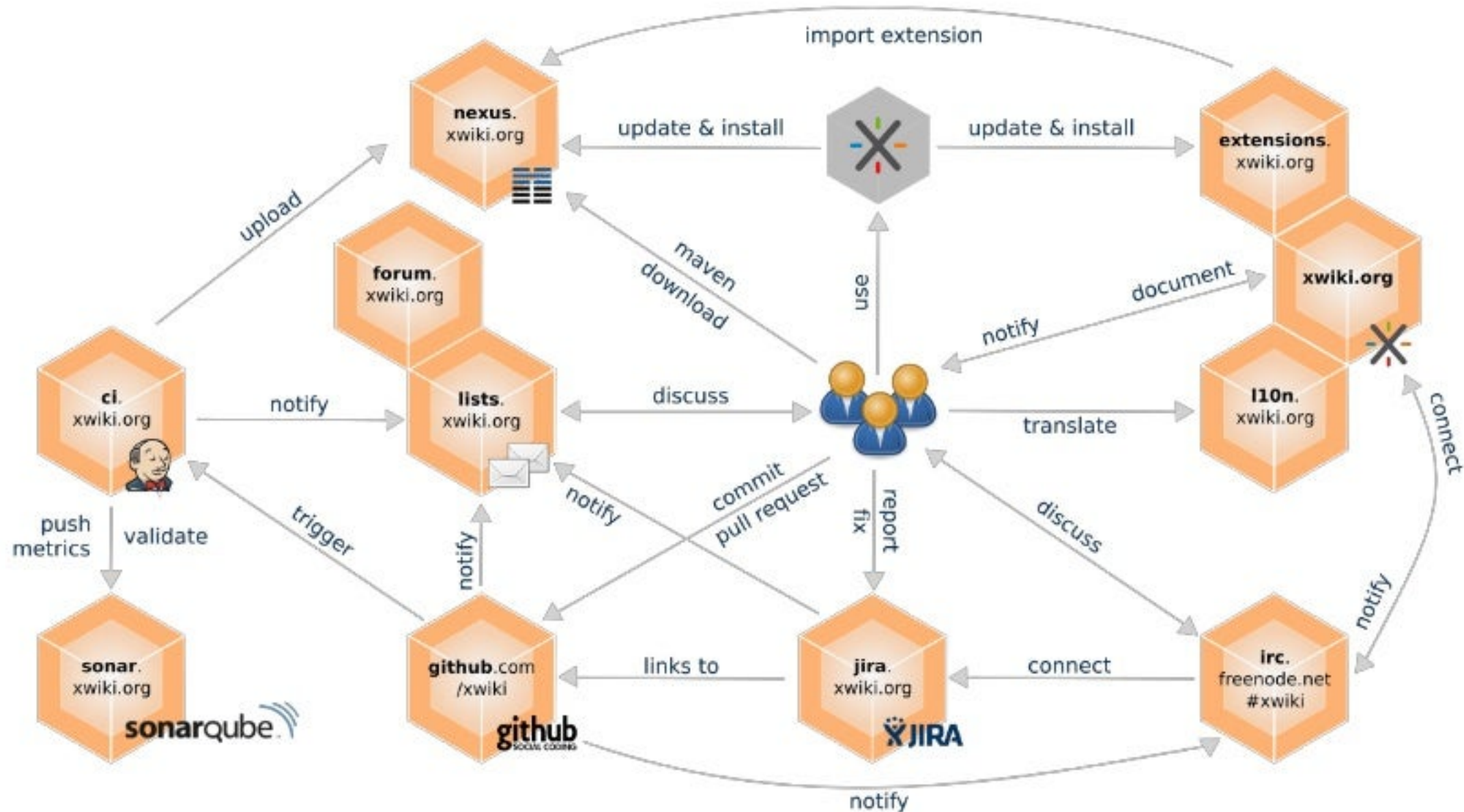
# Motivation

---

- Change the world!
  - Needs impact
    - Needs max number of users
    - **Open source**
    - Needs to show progress
    - **Release often**
  - Needs developers / contributors
    - **Community-driven**
- 
- ```
graph LR; A[Release often] --> B[Requires Time-boxing]; A --> C[Requires integration between all parts]; A --> D[Requires quality-control]; A --> E[Requires automated Tests]; A --> F[Requires releases as automated as possible]; A --> G[Requires automated Build]; A --> H[Requires good communication]; I[Community-driven] --> H;
```
- Requires Time-boxing
    - XWiki releases every month (3 weeks for RCI, 1w for final)
  - Requires integration between all parts
  - Requires CI tool
  - Requires quality-control
  - Requires automated Tests
  - Requires releases as automated as possible
  - Requires automated Build
  - Requires good communication







# Global Development Workflow



# Governance

- Complete separation from XWiki SAS and XWiki.org
- Only individuals working on the open source project
- Rules similar to the ASF
  - Committership, voting (0, +1, -1), lazy consensus
- xwiki.org governance and company advertising: sponsoring companies

| [Committers] [VOTE] Add Guillaume Delhumeau as a committer                          |                     |                                                                    |            |
|-------------------------------------------------------------------------------------|---------------------|--------------------------------------------------------------------|------------|
|  | Vincent Massol      | Hi committers, Guillaume Delhumeau has been sending pull request ! | 12/16/13 ☆ |
|  | Thomas Mortagne     | +1                                                                 | 12/16/13 ☆ |
|  | Caleb James DeLisle | +1 Thanks, Caleb                                                   | 12/16/13 ☆ |
|  | Sergiu Dumitriu     | +1.                                                                | 12/16/13 ☆ |

| Logo                                                                                  | Company     | Support provided to the XWiki project                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Professional Services/Support |
|---------------------------------------------------------------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
|  | XWiki SAS   | <ul style="list-style-type: none"><li>• Creator of the XWiki open source project</li><li>• 11 active committers developing the project</li><li>• Financing and operating the various xwiki.org web sites (xwiki.org, l10n.xwiki.org, ci.xwiki.org, nexus.xwiki.org, maven.xwiki.org, sonar.xwiki.org, jira.xwiki.org, lists.xwiki.org, etc)</li><li>• Financing and operating the free myxwiki.org farm<sup>®</sup> for non profit companies and individuals.</li><li>• Community support on the XWiki mailing lists/forums and IRC</li></ul> | <a href="#">See offer</a>     |
|  | SOFTEC      | <ul style="list-style-type: none"><li>• 1 active committer developing the project</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <a href="#">See offer</a>     |
|  | EsPresto AG | <ul style="list-style-type: none"><li>• 1 active committer developing the project</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <a href="#">See offer</a>     |

Thus XWiki SAS is currently the Top Sponsoring company according to the Governance definition.

# Agenda

---

- Part 0: XWiki
  - The project
- **Part 1: The XWiki Build**
  - Automated quality checks
  - Different types of tests
- Part 2: The CI (Jenkins)
  - The various XWiki pipelines
- Part 3: Release Process
  - Putting it all together
- Future



# Build

- Maven-based with several custom plugins
- Active Quality vs Passive Quality.
- Strategy: **if it's not in the build it doesn't exist!**
  - Common to everyone
  - If something is important it must fail the build, otherwise it's not important
  - Try to reduce CI code to the maximum for local reproducibility and to be less tied to the CI



Build = implement quality

# Automated Checks

---

- Standard ones: compilation, tests, javadoc linter, etc
- Test execution: unit, functional, configuration, WCAG, HTML validation
- Backward compatibility checks
- Code quality checks
- Best practices checks
- Test coverage checks
- Test quality checks

# Tests (1/3)

---

- Unit tests with JUnit5 & Mockito
  - XWiki is Component-based and we have some JUnit5 Extensions to make it easy to test/mock dependent components

```
@ComponentTest
public class DefaultVelocityConfigurationTest
{
    @InjectMockComponents
    private DefaultVelocityConfiguration configuration;

    @Test
    public void getToolsReturnsDefaultTools()
    {
        assertEquals(ListTool.class.getName(), this.configuration.getTools().get("listtool"));
    }
}
```



# Tests (2/3)

- Functional tests with Selenium/WebDriver
- Using a PageObjects strategy

```
public class FAQTest extends AbstractTest
{
    // Login as superadmin to have delete rights.
    @Rule
    public SuperAdminAuthenticationRule authenticationRule = new SuperAdminAuthenticationRule(getUtil());

    @Test
    public void testFAQ() throws Exception
    {
        // Note: we use a dot in the page name to verify it's supported by the FAQ application and we use an accent to
        // verify encoding.
        String faqTestPage = "Test.entrée de FAQ";

        // Delete pages that we create in the test
        getUtil().rest().deletePage(getTestClassName(), faqTestPage);

        // Navigate to the FAQ app by clicking in the Application Panel.
        // This verifies that the FAQ application is registered in the Applications Panel.
        // It also verifies that the Translation is registered properly.
        ApplicationsPanel applicationPanel = ApplicationsPanel.gotoPage();
        ViewPage vp = applicationPanel.clickApplication("FAQ");
    }
}
```

# Tests (3/3)



- Configuration tests, based on Docker
  - Based on TestContainers
  - Supported Browsers, Servlet Engines & Databases
  - Usable on dev machine, in the IDE! **DEMO**
  - Various other more exotic configurations: LibreOffice server, Clustering, External SOLR server
  - Supports Docker Out Of Docker (DOOD)

|                      |                  |
|----------------------|------------------|
| Google Chrome 48     | HyperSQL 2.3.3   |
| Internet Explorer 11 | PostgreSQL 9.5   |
| Internet Explorer 11 | HyperSQL 2.3.3   |
| Mozilla Firefox 44   | HyperSQL 2.3.3   |
| Mozilla Firefox 43   | HyperSQL 2.3.3   |
| Mozilla Firefox 34   | MySQL 5.7        |
| Google Chrome 51     | MySQL 5.7        |
| Internet Explorer 10 | HyperSQL 2.3.4   |
| Internet Explorer 11 | HyperSQL 2.3.4   |
| Microsoft Edge 40    | MySQL 5.7        |
| Internet Explorer 11 | PostgreSQL 9.6.2 |
| Google Chrome 58     | PostgreSQL 9.6.2 |
| Google Chrome 59     | Oracle 11.2      |
| Internet Explorer 11 | HyperSQL 2.4.0   |
| Internet Explorer 11 | MySQL 5.7        |

```
@UITest(database = Database.MYSQL, databaseTag = "5", servletEngine = ServletEngine.TOMCAT,  
servletEngineTag = "8", browser = Browser.CHROME)  
public class MenuIT  
...
```



# Backward Compatibility Strategy

- Check in the build with Revapi
- When wanted failure, add to ignore list in pom.xml
- `@Deprecated` then move to Legacy module using AspectJ
- Use `@Unstable` + `@Since` for young APIs

## API Breakages

The following APIs were modified since XWiki 6.1.2:

- The `ExtensionId.hashCode` field was wrongly introduced as non-transient and deserializing some data serialized with the previous XWiki version should at worst initialize it to the default value which is 1 and not 0. In any case we're using the `IgnoreUnrecognizedElements` option on the `XStream` side so we should be ok anyway.
  - Violation type: `java:field:serialVersionUIDUnchanged`
  - Old: `field org.xwiki.extension.ExtensionId,serialVersionUID`
  - New: `field org.xwiki.extension.ExtensionId,serialVersionUID`
- Does not break anything: new static field with no impact on the serialization/deserialization.
  - Violation type: `java:field:serialVersionUIDUnchanged`
  - Old: `field org.xwiki.extension.job.AbstractExtensionRequest,serialVersionUID`
  - New: `field org.xwiki.extension.job.AbstractExtensionRequest,serialVersionUID`
- This method was wrongly exposed as protected and was exposing the `Event` class which is a private class and thus the method couldn't be used as protected anyway.
  - Violation type: `java:method:visibilityReduced`
  - Old:  
`method void org.xwiki.rendering.wiki.model.xhtml.filter.XHTMLWhitespaceXMLFilter.appendInlineEvent(org.xwiki.rendering.wiki.model.xhtml.filter.XHTMLWhitespaceXMLFilter)`
  - New:  
`method void org.xwiki.rendering.wiki.model.xhtml.filter.XHTMLWhitespaceXMLFilter.appendInlineEvent(org.xwiki.rendering.wiki.model.xhtml.filter.XHTMLWhitespaceXMLFilter)`
- This method was wrongly exposed as protected and was exposing the `Event` class which is a private class and thus the method couldn't be used as protected anyway.
  - Violation type: `java:method:visibilityReduced`
  - Old:  
`method void org.xwiki.rendering.wiki.model.xhtml.filter.XHTMLWhitespaceXMLFilter.sendInlineEvent(org.xwiki.rendering.wiki.model.xhtml.filter.XHTMLWhitespaceXMLFilter)`
  - New:  
`method void org.xwiki.rendering.wiki.model.xhtml.filter.XHTMLWhitespaceXMLFilter.sendInlineEvent(org.xwiki.rendering.wiki.model.xhtml.filter.XHTMLWhitespaceXMLFilter)`
- Not a breakage from REST API point of view.
  - Violation type: `java:annotation:removed`
  - Old: `field org.xwiki.rest.model.jaxb.JobStatus,id`
  - New: `field org.xwiki.rest.model.jaxb.JobStatus,id`
- Not a breakage from REST API point of view.
  - Violation type: `java:annotation:removed`
  - Old: `field org.xwiki.rest.model.jaxb.JobStatus,progress`
  - New: `field org.xwiki.rest.model.jaxb.JobStatus,progress`

- Custom checkstyle check in build to prevent `@Unstable` from staying more than 1 cycle
- `{{backwardCompatibility}}` xwiki macro in release notes



# Code Quality Checks

---

- Checkstyle with custom rules. For example
  - Verify that Script Services are not located in the internal package
  - Verify that @since javadoc tags have the correct format
  - Verify that @Unstable annotation don't stay too long
  - Verify that components.txt contains all Components
- Verify that JUnit tests don't output content to stdout or stderr.
- Verify header licenses
- And more...

# Best Practices Checks

---

- Spoon checks
  - Verify none of the listed methods are called in our Java code
    - `File#deleteOnExit()` - Causes memory leaks since not guaranteed to be called. Not good with server software.
    - `URL#equals()` - Very slow, access the host with HTTP calls
- Verify that we don't use Commons Lang < 3 (i.e. that `commons-lang:commons-lang` artifact is forbidden)
- Verify we don't use Commons Logging or Log4j (since we use SLF4J)
- And a lot more...

# Test Coverage Checks - Local

- Using Jacoco and Clover
- Strategy - “Ratchet effect”:
  - Each Maven module has a threshold
  - Jacoco Maven plugin fails if new code has less coverage than before in %
  - Dev is allowed to increase threshold
- Global Coverage addressed in CI (see later)

**Code coverage** 5,770 classes, 130,115 / 180,255 elements  
72.2%   
[See more](#)

**Test results** 10,171 / 10,325 tests 9,656.66 secs  
98.5%   
[See more](#)



# Test Quality Checks

- Using PIT/Descartes Maven plugin
- Concepts of PIT
  - Modify code under test (mutants) and run tests
  - Good tests kill mutants
  - Generates a mutation score similar to the coverage %
  - Descartes = extreme mutations that execute fast and have high values



# Mutation - Example

```
106  @Override
107  public boolean equals(Object object)
108  {
109      boolean result;
110
111      // See http://www.technofundo.com/tech/java/equalhash.html for the detail of this algorithm.
112  1. equals : All method body replaced by: return true → SURVIVED
113  2. equals : All method body replaced by: return false → KILLED
114      } else {
115          if ((object == null) || (object.getClass() != this.getClass())) {
116              result = false;
117          } else {
118              MacroId macroId = (MacroId) object;
119              result =
120                  (getId() == macroId.getId() || (getId() != null && getId().equals(macroId.getId())))
121                  && (getSyntax() == macroId.getSyntax() || (getSyntax() != null && getSyntax().equals(
122                      macroId.getSyntax())));
123          }
124      }
125      return result;
126  }
127 }
```

```
result =
    (getId() == macroId.getId() || (getId() != null && getId().equals(macroId.getId())))
    && (getSyntax() == macroId.getSyntax() || (getSyntax() != null && getSyntax().equals(
        macroId.getSyntax())));
```

# Mutation Example

```
@Test
public void testEquality()
{
    MacroId id1 = new MacroId("id", Syntax.XWIKI_2_0);
    MacroId id2 = new MacroId("id", Syntax.XWIKI_2_0);
    MacroId id3 = new MacroId("otherid", Syntax.XWIKI_2_0);
    MacroId id4 = new MacroId("id", Syntax.XHTML_1_0);
    MacroId id5 = new MacroId("otherid", Syntax.XHTML_1_0);
    MacroId id6 = new MacroId("id");
    MacroId id7 = new MacroId("id");

    Assert.assertEquals(id2, id1);
    // Equal objects must have equal hashCode
    Assert.assertTrue(id1.hashCode() == id2.hashCode());

    Assert.assertFalse(id3 == id1);
    Assert.assertFalse(id4 == id1);
    Assert.assertFalse(id5 == id3);
    Assert.assertFalse(id6 == id1);

    Assert.assertEquals(id7, id6);
    // Equal objects must have equal hashCode
    Assert.assertTrue(id6.hashCode() == id7.hashCode());
}
```

Not testing  
for inequality!

```
@Test
public void testEquality()
{
    MacroId id1 = new MacroId("id", Syntax.XWIKI_2_0);
    MacroId id2 = new MacroId("id", Syntax.XWIKI_2_0);
    MacroId id3 = new MacroId("otherid", Syntax.XWIKI_2_0);
    MacroId id4 = new MacroId("id", Syntax.XHTML_1_0);
    MacroId id5 = new MacroId("otherid", Syntax.XHTML_1_0);
    MacroId id6 = new MacroId("id");
    MacroId id7 = new MacroId("id");

    Assert.assertEquals(id2, id1);
    // Equal objects must have equal hashCode
    Assert.assertTrue(id1.hashCode() == id2.hashCode());

    Assert.assertFalse(id3 == id1);
    Assert.assertFalse(id3.equals(id1));
    Assert.assertFalse(id1.equals(id3));

    Assert.assertFalse(id4 == id1);
    Assert.assertFalse(id4.equals(id1));
    Assert.assertFalse(id1.equals(id4));

    Assert.assertFalse(id5 == id3);
    Assert.assertFalse(id5.equals(id1));
    Assert.assertFalse(id1.equals(id5));

    Assert.assertFalse(id6 == id1);
    Assert.assertFalse(id6.equals(id1));
    Assert.assertFalse(id1.equals(id6));

    Assert.assertEquals(id7, id6);
}
```

Improved thanks to Descartes!



# Mutation Limitations

---

- Takes time to find interesting things to look at and decide if that's an issue to handle or not. Need better categorisation in report (now reported by Descartes):
  - *Strong pseudo-tested methods*: The worst! No matter what the return values are the tests always fail
  - *Pseudo-tested methods*: Grey area. The tests pass with at least one modified value.
- Multi module support - PITmp
  - But slow on large projects (e.g. 7+ hours just for xwiki-rendering)

# Test Quality Checks - Strategy

---

- Fail the build when the mutation score of a given module is below a defined threshold in the pom.xml
- The idea is that new tests should, in average, be of quality equal or better  
General goal with coverage + mutation: maintain quality than past tests.
- Other idea: hook on CI to run it only on modified code/tests.
- Still some hiccups regarding the mutation score stability!

**General goal with coverage + mutation: maintain quality**

# Agenda

---

- Part 0: XWiki
  - The project
- Part 1: The XWiki Build
  - Automated quality checks
  - Different types of tests
- **Part 2: The CI (Jenkins)**
  - The various XWiki pipelines
- Part 3: Release Process
  - Putting it all together
- Future



# XWiki's CI - Jenkins

|   |   | A1                                      | All Failed Builds   | Contrib             | Last Builds   | Recommended Builds | Recommended Failing | Tools | + |
|---|---|-----------------------------------------|---------------------|---------------------|---------------|--------------------|---------------------|-------|---|
| S | W | Name                                    | Last Success        | Last Failure        | Last Duration | Fav                |                     |       |   |
|   |   | XWiki Contrib - steps - master          | 18 hr - #83         | 4 hr 57 min - #84   | 4 min 28 sec  |                    |                     |       |   |
|   |   | XWiki - xwiki-platform - master         | 1 day 19 hr - #1908 | 4 hr 08 min - #1908 | 4 hr 10 min   |                    |                     |       |   |
|   |   | XWiki - xwiki-platform - stable-10.11.x | 7 hr 42 min - #158  | 19 hr - #158        | 2 hr 59 min   |                    |                     |       |   |
|   |   | XWiki - xwiki-platform - stable-10.8.x  | 2 days 16 hr - #60  | 2 days 28 hr - #60  | 3 hr 5 min    |                    |                     |       |   |
|   |   | XWiki - xwiki-platform - stable-11.0.x  | 1 day 21 hr - #12   | 22 hr - #14         | 4 hr 7 min    |                    |                     |       |   |
|   |   | xwiki-platform - docker                 | 14 hr - #221        | 3 days 21 hr - #214 | 4 hr 28 min   |                    |                     |       |   |
|   |   | xwiki-platform - prest                  | 1 day 21 hr - #105  | 39 min - #105       | 2 hr 4 min    |                    |                     |       |   |

- XWiki Jobs are Pipeline jobs
- Using “GitHub Organization” type of jobs
  - Autodiscovering of all Jenkinsfile in a GitHub organization
  - Automatic handling of branches (job creation/deletion)
- Shared Pipeline library for all jobs
- Clover Pipeline job to compute global TPC
- Docker Pipeline jobs for running Docker-based tests on all configurations
- Moving to Docker agent and DOOD (Docker Out of Docker)

# Shared Pipeline Library

- Features

- Maven build

- Check for flickers both environment flickers and test flickers and don't send false positives emails in this case. Examples of environment flickers:



- JVM crash
    - GitHub connection issue
    - X Display not ready for UI tests
  - Uses JIRA to log test flickers
  - Display screenshot of failing test in job report



#1600

Mar 25, 2019 9:06 PM



## Unknown connection issue!

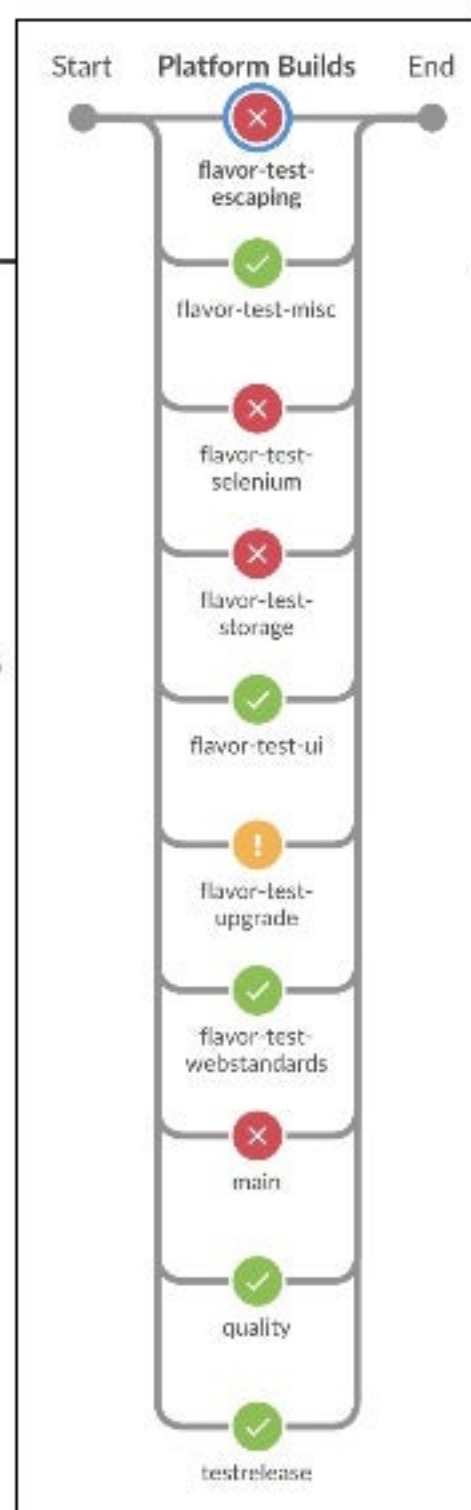


Deployed Artifacts

- [xwiki-platform-activeinstalls-client-api-11.3-SNAPSHOT.jar](#)
- [xwiki-platform-activeinstalls-common-11.3-SNAPSHOT.jar](#)

# Standard Pipeline Jobs

- 1 job = several builds (13+ in our case)
- Validates different things:
  - “Main”: compile and test execution including functional tests
  - “Quality”: Revapi checks, checkstyle, Descartes, Jacoco
  - “TestRelease”: Simulate a release. Verifies Maven Central requirements (javadoc, etc)
  - “Flavor\*”: Various types of functional tests
- Parallel execution for some jobs





# Clover Pipeline



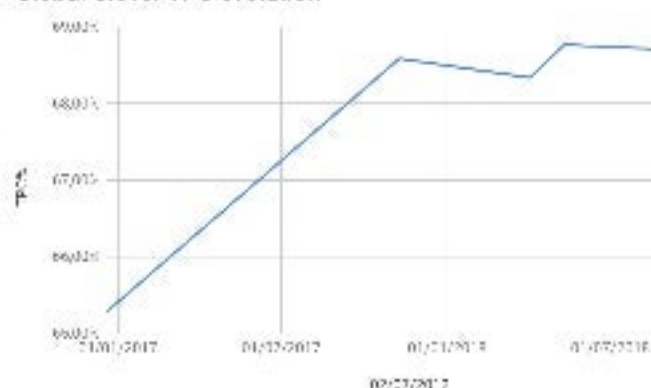
Report - 20190320-0128 -> 20190328-0128

FAILURE: There are modules lowering the global TPC

## Modules affecting TPC

| Module                                           | TPC Old | TPC New | TPC Diff | Global TPC Contribution |
|--------------------------------------------------|---------|---------|----------|-------------------------|
| ALL                                              | 69.8385 | 69.9111 | 0.0726   | N/A                     |
| xwiki-platform-eventstream-store                 | 58.7706 | 57.6751 | -1.0955  | -0.005                  |
| xwiki-commons-extension-handler-jar              | 90.458  | 89.3129 | -1.145   | -0.0019                 |
| xwiki-platform-office-importer                   | 64.2857 | 64.0641 | -0.2215  | -0.0017                 |
| xwiki-platform-rendering-macro-gallery           | 95.1219 | 94.5945 | -0.5273  | -0.0015                 |
| xwiki-platform-edit-api                          | 70.0389 | 69.2607 | -0.7782  | -0.0012                 |
| xwiki-platform-rendering-async-default           | 89.6634 | 89.1826 | -0.4807  | -0.0012                 |
| xwiki-platform-mailsender                        | 62.0738 | 61.8571 | -0.2167  | -0.0007                 |
| xwiki-platform-sheet-api                         | 92.5    | 91.6666 | -0.8333  | -0.0006                 |
| xwiki-platform-flavor-api                        | 56.2724 | 55.9139 | -0.3584  | -0.0006                 |
| xwiki-platform-user-default                      | 90.0523 | 89.7905 | -0.2617  | -0.0006                 |
| xwiki-platform-display-api                       | 87.2791 | 86.9257 | -0.3533  | -0.0006                 |
| xwiki-platform-notifications-preferences-default | 78.5185 | 77.3972 | -1.1212  | -0.0004                 |
| xwiki-platform-notifications-preferences-api     | 85.1735 | 85.2664 | 0.0929   | 0.0003                  |
| xwiki-platform-notifications-filters-api         | 78.1409 | 78.1855 | 0.0445   | 0.0003                  |
|                                                  |         | 89.0871 | 0.0611   | 0.0004                  |
|                                                  |         | 83.9684 | 0.0148   | 0.0006                  |
|                                                  |         | 93.083  | 0.1976   | 0.0006                  |
|                                                  |         | 78.3985 | 0.0257   | 0.0006                  |
|                                                  |         | 71.7086 | 0.2801   | 0.0006                  |
|                                                  |         | 57.3863 | 0.5986   | 0.0016                  |
|                                                  |         | 82.1678 | 1.0489   | 0.0019                  |
|                                                  |         | 62.426  | 0.3944   | 0.0025                  |
|                                                  |         | 51.9607 | 0.7843   | 0.0025                  |
|                                                  |         | 87.3563 | 0.6055   | 0.0047                  |
|                                                  |         | 63.6201 | 0.0284   | 0.0075                  |
|                                                  |         | 79.6442 | 9.0746   | 0.0303                  |
| xwiki-platform-wysiwyg-api                       | 54.0485 | 64.7773 | 10.7287  | 0.034                   |

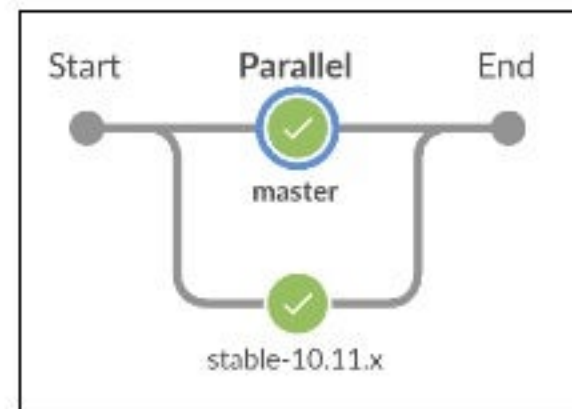
Global Clover TPC evolution



- Issue: Local coverage can increase and global decrease
- Removed code with high TPC
- Code tested indirectly by functional tests and code refactoring led to different paths used
- New module with lower TPC than average
- Strategy: Fail the CI build if Global TPC decreases for the current version

# Docker Pipeline Jobs

- Currently a separate pipeline from the main one
- Two issues
  - Requires Jenkins Docker agent to be used (Docker doesn't work inside vServer that we use). Migration in progress.
  - Long to execute since it tests all configurations and thus should only be executed once per day.
- Finds all Docker test modules and run Maven on each of them, passing the configuration as system properties.



# DOOD

---

- Jenkins agent running as a Docker container
- Pipeline (and thus Maven) executing inside Docker
- Thus Functional tests based on Docker executing inside Docker
- To make it work:
  - Mount Docker socket (only Docker client inside Docker)
  - Don't mount volumes: copy data (in and out)
    - Requires special care when writing the JUnit5 Test Container extension



# Jenkins Docker Cloud Configuration

- 3 volumes:
  - Docker socket
  - Maven settings.xml since it contains passwords
  - SSH keys (private data)

|                        |                                                                                                                                                                                                                                            |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Docker Agent templates |                                                                                                                                                                                                                                            |
| Labels                 | <input type="text" value="docker"/>                                                                                                                                                                                                        |
| Enabled                | <input checked="" type="checkbox"/>                                                                                                                                                                                                        |
| Name                   | <input type="text" value="Jenkins SSH Slave KS4"/>                                                                                                                                                                                         |
| Docker Image           | <input type="text" value="xwiki/xwiki-jenkins-slave"/>                                                                                                                                                                                     |
| Docker Command         | <input type="text"/>                                                                                                                                                                                                                       |
| Hostname               | <input type="text"/>                                                                                                                                                                                                                       |
| DNS                    | <input type="text"/>                                                                                                                                                                                                                       |
| Network                | <input type="text"/>                                                                                                                                                                                                                       |
| Volumes                | <input type="text" value="/var/run/docker.sock:/var/run/docker.sock"/><br><input type="text" value="/home/hudsonagent/.m2/settings.xml:/root/.m2/settings.xml"/><br><input type="text" value="/home/hudsonagent/.ssh:/tmp/xwiki/.ssh:ro"/> |

# Copying with TestContainers

```
protected void mountFromHostToContainer(GenericContainer container, String sourceDirectory,
    String targetDirectory)
{
    // Note 1: File mounting is awfully slow on Mac OSX. For example starting Tomcat with XWiki mounted takes
    // 45s+, while doing a COPY first and then starting Tomcat takes 8s (+5s for the copy).
    // Note 2: For the DOOD use case, we also do the copy instead of the volume mounting since that would require
    // to have the sourceDirectory path mounted from the host and this would put and leave files on the host which
    // would not work with parallel executions (think about multiple CI jobs executing in parallel on the same host)
    // and would also not be clean.
    String osName = System.getProperty("os.name").toLowerCase();
    if (isInAContainer() || osName.startsWith("mac os x")) {
        MountableFile mountableDirectory = MountableFile.forHostPath(sourceDirectory);
        container.withCopyFileToContainer(mountableDirectory, targetDirectory);
    } else {
        container.withFileSystemBind(sourceDirectory, targetDirectory);
    }
}
```

# Agenda

---

- Part 0: XWiki
  - The project
- Part 1: The XWiki Build
  - Automated quality checks
  - Different types of tests
- Part 2: The CI (Jenkins)
  - The various XWiki pipelines
- **Part 3: Release Process**
  - Putting it all together
- Future



# Release Process

- Ongoing Release Notes and reference documentation
- Marked in JIRA with 2 custom fields
- Rolling Release Managers

| Details                         |                                                                                                                                                                                                         |                |                                                                                            |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------------------------------------------------------------------------------|
| Type:                           |  Improvement                                                                                                         | Status:        |  Closed |
| Priority:                       |  Major                                                                                                               | Resolution:    | Fixed                                                                                      |
| Affects Version/s:              | 8.4.4                                                                                                                                                                                                   | Fix Version/s: | 9.3-rc-1, 8.4.5                                                                            |
| Component/s:                    | Query                                                                                                                                                                                                   |                |                                                                                            |
| Labels:                         | None                                                                                                                                                                                                    |                |                                                                                            |
| Tests:                          | Unit                                                                                                                                                                                                    |                |                                                                                            |
| Difficulty:                     | Unknown                                                                                                                                                                                                 |                |                                                                                            |
| Documentation:                  | <a href="http://extensions.xwiki.org/xwiki/bin/view/Extension/Query%20Module#HQueryFilters">http://extensions.xwiki.org/xwiki/bin/view/Extension/Query%20Module#HQueryFilters</a>                       |                |                                                                                            |
| Documentation in Release Notes: | <a href="http://www.xwiki.org/xwiki/bin/view/ReleaseNotes/Data/XWiki/9.3RC1#HFilteringQueryparameters">http://www.xwiki.org/xwiki/bin/view/ReleaseNotes/Data/XWiki/9.3RC1#HFilteringQueryparameters</a> |                |                                                                                            |

## Next Release Managers

The list of the next Release Managers (once a Release Manager finishes a release he must move himself/herself to the end of the list):

- mflorea - XWiki 9.4RC1
- gdelhumeau - XWiki 9.4 Final
- enygma - TBD
- vmassol - TBD
- evalica - TBD
- tmortagne - TBD

- Create Release Plan for the release

# Release Plans (1/2)

## Release Plans





Last modified by [Thomas Mortagne](#) on 2017/04/26 15:00

### Create Release Plan

Version:  [Create this plan](#)

### Existing Plans

Results 1 - 15 out of 337 per page of 15

| Version                  | Release Managers                                                                     | Released on          | Release Notes                            |
|--------------------------|--------------------------------------------------------------------------------------|----------------------|------------------------------------------|
| <input type="text"/>     | <input type="text"/>                                                                 | <input type="text"/> |                                          |
| <a href="#">9.3.1</a>    |   | 26/04/2017           | <a href="#">Release Notes</a> (Computed) |
| <a href="#">8.4.5</a>    |  | 24/04/2017           | <a href="#">Release Notes</a> (Computed) |
| <a href="#">9.3</a>      |  | 24/04/2017           | <a href="#">Release Notes</a> (Computed) |
| <a href="#">9.3-rc-1</a> |  | 19/04/2017           | <a href="#">Release Notes</a> (Computed) |

#### Contents

- [Create Release Plan](#)
- [Existing Plans](#)
- [Statistics](#)
- [Next Release Managers](#)

# Release Plans (2/2)

- Release in JIRA
- Check that all issues are documented
- Check Release Notes
- Import translations
- Build the Release
- Create mail announcement
- Push to Maven Central
- Update Docker official image
- etc

## Release Plan for version 8.4.5

Last modified by Vincent Massol on 2017/04/24 14:48

Use these icons to mark the release progress: not done, done, not done for a good reason (explain reason)

- Verify that the xwiki-commons top level POM has a `xwiki.compatibility.previous.version` property correctly pointing to the latest stable (non-milestone) release and if not, change it.
- Make sure next version exists on `jrnf` projects:
  - Commons JIRA:cf
  - Rendering JIRA:cf
  - Platform JIRA:cf
  - Enterprise JIRA:cf
- Verify that there are no open issues on JIRA for version 8.4.5:cf
- Verify that no tests are failing on the CI Server:cf (or that failures are understood, see known flickering tests:cf)
- Verify that there are no missing documentation for closed JIRA issues for version 8.4.5:cf
- Ensure that the Release Notes are complete and nice-looking for version 8.4.5
- Since the release is performed on agent-1-1, mark it offline in the Jenkins admin screen:cf to avoid using it in the CI. Put as comment: `Temporarily marking agent-1-1 offline for the release of 8.4.5.`
- Log on the release machine, set up your identity, update the release scripts and set the correct Java version
- Update translations: *This is dangerous since changes have been made for 8.x. Not running it.*
- Build the release
- Clean up your identity
- Mark agent-1-1 online again in the Jenkins admin screen:cf (button on the right).
- Publish backward compatibility reports in the Release Notes for version 8.4.5
- Publish code contributors list in the Release Notes for version 8.4.5
- Push distribution files to OW2 and release them
- Force rebuild of the Debian repository index
- Update the Download page:cf (Use bullet points for the major features to make it easy to read; Update/Bump the LTS if doing a final major version release, i.e. new cycle)
- Force extensions update
- Set the Release date + Release tag in the Release Notes for version 8.4.5 by editing with the object editor.
- Create blog post on `xwiki.org`
- Update the API doc, including Rendering
- Update Wikipedia (en):cf, Wikipedia (fr):cf and Wikipedia (compare wiki software):cf
- WikiMatrix:cf with Ludovic's account
- Announcement Mail
- Announce on Twitter with the xwikiorg account:cf
- Update the Release Plan page to move yourself to the bottom of the list for your next release.
- Ensure that the release date in this Release Plan corresponds to the date when the release was finished
- Update the release date on the Roadmap page for non bugfix releases and move the roadmap items to the archive page (for final releases)
- Push Commons and Rendering to Maven Central
- Update the XWiki official Docker images

Release Date: 24/04/2017

Released by:





# Agenda

---

- Part 0: XWiki
  - The project
- Part 1: The XWiki Build
  - Automated quality checks
  - Different types of tests
- Part 2: The CI (Jenkins)
  - The various XWiki pipelines
- Part 3: Release Process
  - Putting it all together
- **Future**

# Future - Build Level

---

- Move Test configurations to the build
- Fix UI flickerings which are a plague
  - Idea: Change our DSL so that all calls always wait on something

# Future - CI Level

---

- Docker pipeline integrated into main Pipeline library
  - To handle branches (a pain right now)
  - Needs Parametrized Scheduler Plugin
- Move to CD, i.e. implement the release steps in the CI
  - Need to resolve Maven versions and put on staging & promote when we want
  - Auto deploy on myxwiki.org
- STAMP: DSpot on diffs, Evocrash (JIRA -> CI)



# Q&A

---



Me