

XSpec v0.5.0

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Oxford University Press and XSpec

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- Lead Language Technologist at **Oxford University Press**
- **Co-maintainer of XSpec**
- **Certified Jenkins Engineer**
- Co-organizer of **DevOps Oxford Meetup**

What is XSpec?

- XSpec is an open source **unit test** and behaviour-driven development (BDD) framework **for XSLT, XQuery, and Schematron**
- **XSpec v0.5.0** was released in **January 2017**
- XSpec v0.5.0 is **included in oXygen 19**



XSpec

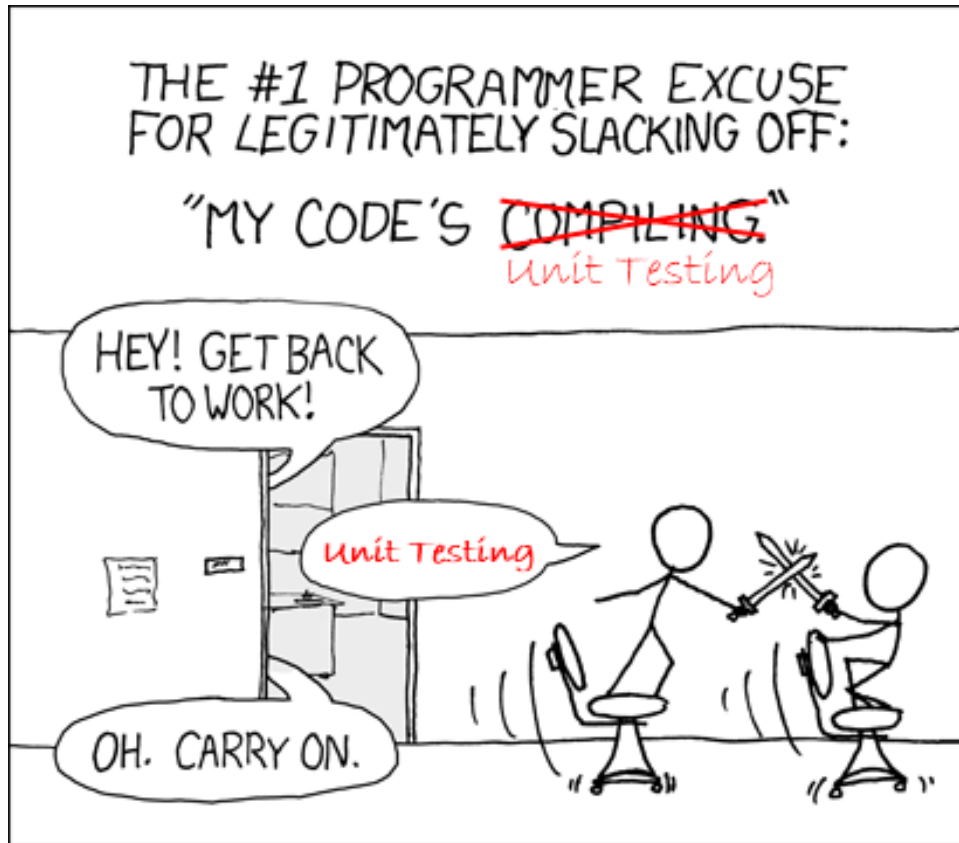
Unit Test and Behaviour Driven Development (BDD) Framework for XSLT, XQuery, and Schematron

<https://github.com/xspec/xspec>

The Importance of Testing

- Testing forces developers to **write smaller units of code**
- Testing act as **self-documentation**
- Testing **reduces** the risk of **regression bugs** in software releases
- Unit testing contributes to **removing 30% of bugs** [McConnell]

The Importance of Testing



From xkcd.com, revisited by Daniel Ballinger

The Importance of Testing

OK, I'm convinced. But where to start testing?

- **Functions**
- **Named Templates**
- Any piece of **code that get called more than once**

- Testing an XSLT template
- Testing an XQuery function


```
<x:description
  xmlns:x="http://www.jenitennison.com/xslt/xspec"
  stylesheet="title.xsl">

  <x:scenario label="When converting a title element">

    <x:context>
      <title>My Title</title>
    </x:context>

    <x:expect label="it should return a h1 element">
      <h1>My Title</h1>
    </x:expect>

  </x:scenario>
</x:description>
```

```
<xsl:stylesheet
  xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  exclude-result-prefixes="xs" version="2.0">

  <xsl:template match="title">
    <h2>
      <xsl:value-of select="."/>
    </h2>
  </xsl:template>

</xsl:stylesheet>
```

XSLT UNIT TEST REPORT

Stylesheet: <home/sandro/Documents/programming/xml.com/code/title.xsl>

Tested: 12 March 2017 at 16:25

Contents

✘ When converting a title element	passed:0	pending:0	failed:1	total:1
	0	0	1	1

When Converting A Title Element

Passed:0 / Pending:0 / Failed:1 / Total:1

When converting a title element

passed:0 / pending:0 / failed:1 /
total:1

✘ it should return a h1 element

Failure

When Converting A Title Element

it should return a h1 element

Result

```
<h2>My Title</h2>
```

Expected Result

```
<h1>My Title</h1>
```

XSLT UNIT TEST REPORT

Stylesheet: <home/sandro/Documents/programming/xml.com/title.xsl>

Tested: 12 March 2017 at 14:49

Contents

	passed:1	pending:0	failed:0	total:1
 When converting a title element	1	0	0	1

When Converting A Title Element

Passed:1 / Pending:0 / Failed:0 / Total:1

When converting a title element	passed:1 / pending:0 / failed:0 / total:1
 it should return a h1 element	Success

```
module namespace functx = "http://www.functx.com";

declare function functx:capitalize-first
($arg as xs:string?) as xs:string? {

    concat(upper-case(substring($arg, 1, 1)),
    substring($arg, 2))

};
```

```
<x:description
```

```
  xmlns:x="http://www.jenitennison.com/xslt/xspec"  
  xmlns:functx="http://www.functx.com"  
  query="http://www.functx.com"  
  query-at="xquery-tutorial.xq">
```

```
<x:scenario label="Calling function capitalize-first">
```

```
  <x:call function="functx:capitalize-first">
```

```
    <x:param select="'hello'"/>
```

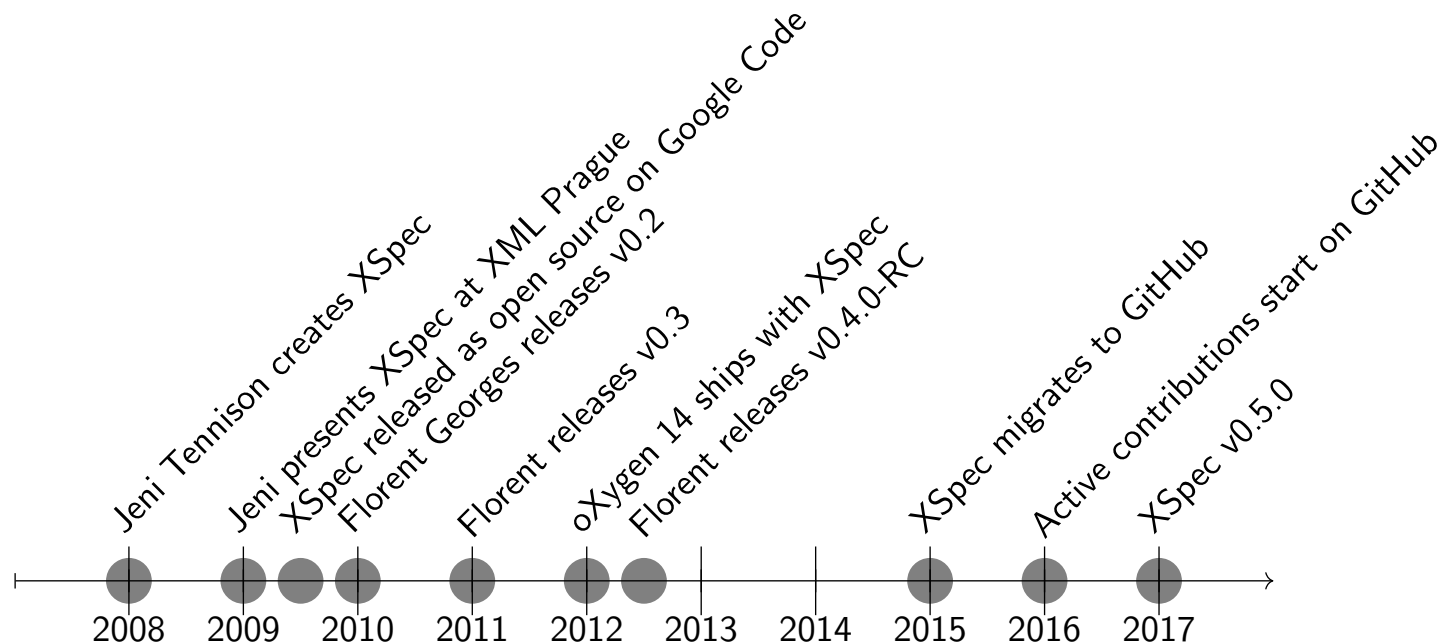
```
  </x:call>
```

```
  <x:expect label="should capitalize the first character  
    of the string" select="'Hello'"/>
```

```
</x:scenario>
```

```
</x:description>
```

A Brief History of XSpec






 **c4s4** commented on 11 Jan

This release is a great news.

I don't even understand how a serious XSLT coder might develop without using your tool in 2017!

Best wishes for this project

 In reply to Erik Wilde



Johan Mören @hutchkintoot · 10 Feb 2016

@dret @anarchivist don't be fooled about the low version number. It's a wonderful tool. Every #xsl should be backed by an #xspec test.



New features:

- XSLT 3.0 support
- JUnit support
- Feature parity between Windows & MacOS/Linux
- Test suite for testing XSpec itself

Bug fixes:

- Code coverage

XSLT 3.0 Support

```
<xsl:stylesheet
  xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  exclude-result-prefixes="xs" version="3.0">
<xsl:template name="supportXPath3">
  <root>
    <question>
      <xsl:text>Does XSpec support XPath 3.0?</xsl:text>
    </question>
    <answer>
      <xsl:value-of
        select="let $answer := 'Yes it does' return $answer"/>
    </answer>
  </root>
</xsl:template>
</xsl:stylesheet>
```

XSLT 3.0 Support

```
<x:description
  xmlns:x="http://www.jenitennison.com/xslt/xspec"
  stylesheet="xspec-xslt3.xsl"
  xslt-version="3.0">
  <x:scenario label="When testing the inline function
                expression in XPath 3">
    <x:call template="supportXPath3"/>

    <x:expect label="it returns the expected answer">
      <root>
        <question>Does XSpec support XPath 3.0?</question>
        <answer>Yes it does</answer>
      </root>
    </x:expect>
  </x:scenario>
</x:description>
```

- JUnit is a **popular unit testing framework for Java**
- JUnit is **understood natively by CI servers** like Jenkins
- Generate XSpec reports in JUnit with:

```
/bin/xspec.sh -j tutorial/escape-for-regex.xspec
```

JUnit Support

Jenkins CI

Jenkins Sandro Cirulli | log out

Jenkins > xspec > #16 > Test Results [ENABLE AUTO REFRESH](#)

- Back to Project
- Status
- Changes
- Console Output
- Edit Build Information
- History
- Git Build Data
- No Tags
- Test Result**
- Previous Build

Test Result

1 failures (±0)

6 tests (±0)
[Took 0 ms.](#)
[add description](#)

All Failed Tests

Test Name	Duration	Age
When processing a list of phrases. Strings should be escaped and status attributes should be added	0 ms	4

All Tests

Package	Duration	Fail	(diff) Skip	(diff) Pass	(diff) Total	(diff)
(root)	0 ms	1	0	5	6	

- XSpec is **tested itself** with a mix of shell and batch scripts and XSpec tests
- The **test suite runs automatically** at each pull request and code merge
- Tests runs on **Travis CI** and **AppVeyor**
- Documentation available on the wiki to **integrate automatic XSpec test suites in GitHub projects**

Bonus Feature: Schematron Support

- Vincent Lizzi added **Schematron support in XSpec**
- The feature is **already available in the master branch** and will be included in XSpec 0.6.0
- **Documentation and tutorials available** on the wiki
- **Try it out!**

Schematron Support

demo-01.xml

```
<?xml version="1.0"?>  
<article>  
  <title>Example</title>  
</article>
```


Schematron Support

demo-01.sch

```
<sch:schema
  xmlns:sch="http://purl.oclc.org/dsdl/schematron"
  queryBinding="xslt2">

  <sch:pattern>
    <sch:rule context="article">
      <sch:assert test="title" id="a001">
        article should have a title
      </sch:assert>
    </sch:rule>
  </sch:pattern>

</sch:schema>
```

Schematron Support

demo-01.xspec

```
<x:description
  xmlns:x="http://www.jenitennison.com/xslt/xspec"
  schematron="demo-01.sch">

  <x:scenario label="Given an XML file with an article">

    <x:context href="demo-01.xml"/>

    <x:scenario label="article should have a title">
      <x:expect-not-assert id="a001"/>
    </x:scenario>

  </x:scenario>

</x:description>
```

Contribute to XSpec

- Checkout out github.com/xspec/xspec and star it
- Raise **issues**, send **pull requests**, contribute to tests, documentation, and **code reviews**
- **Integrate XSpec** test suites in your projects
- **Spread the word!**

- XSpec is an open source **unit test** and behaviour-driven development (BDD) framework **for XSLT, XQuery, and Schematron**
- Check out new features in **XSpec v0.5.0**
- Use and contribute to XSpec on **github.com/xspec/xspec**

Acknowledgements



Jeni Tennison



Tony Graham



Florent Georges



XSpec Community

Thank you for your attention!

Contact:

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sandrocirulli.net/contact

Slides:

sandrocirulli.net/xml-london-2017

XSpec:

github.com/xspec/xspec
github.com/xspec/xspec/wiki