



## How we test MarkLogic Server

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# Agenda

- What tools do we use to test MarkLogic
- What processes do we follow
- Our nightly builds
- Test output aggregation

# Tools do we use to test

- Performance Meters
  - Available at [developer.marklogic.com/code/performance-meters](http://developer.marklogic.com/code/performance-meters)
    - XML driving Java application
  - XMLFileTest
  - Admin API used for all set up and tear down for tests
  - Not just for performance testing
- JUnit for XCC testing
- Selenium for admin UI and Application Services testing



Developer Community &gt; Code &gt; PerformanceMeters

# PerformanceMeters

PerformanceMeters is a Java-based, XML-driven tool for testing XQuery with MarkLogic Server. To get started with PerformanceMeters, try the [tutorial](#).

Capabilities include:

- test arbitrary queries
- test via XCC or HTTP
- configure via XML
- supports setup and tear-down queries
- performance metrics, including percentile-response times
- support for arbitrary query generator classes
- support for arbitrary result formatter classes

► [BROWSE GITHUB REPOSITORY](#)

**Download**

[performance-meters.jar](#)

**MarkLogic Version Needed**

MarkLogic Server 4.1 or later

## OPEN SOURCE PROJECTS

### DEBUGGING, PROFILING, AND EXPLORING TOOLS

CQ

DQ

XQDebug

Narthex

### TESTING TOOLS

xquery-unit

### PerformanceMeters

### LOADING AND PROCESSING TOOLS

AutoLoader

Corb

RecordLoader

XQSync

### DEPLOYMENT AND CONFIGURATION

Booster

# Small example of a test

```
<h:script xmlns:h="http://marklogic.com/xdmp/harness">
  <h:test>
    <h:name>test 1</h:name>
    <h:comment-expected-result>hello</h:comment-expected-result>
    <h:query><![CDATA[
      <hello>{"hello"}</hello>
    ]]>
    </h:query>
  </h:test>
</h:script>
```

# Processes we follow

- **Participate in requirements from PM**
- **Participate in functional specification from development**
- **Test Plan**
  - **Functional**
    - **Interactions with other components of the server**
  - **Stress**
  - **Performance**
  - **High availability**

# Continuous short regression

- Regression that is run every 2 hours
- Subset of nightly regression run
- Alerting system that contacts people that checked in code/tests

# Our nightly build process

- Nightly builds on all supported platforms including EC2
- Regression suite run in cluster and single host
  - ~26 machines on each of the 3 supported versions
  - 13+ hours to run leading to split regressions
- 200,000+ functional tests run nightly
  - Conformance test suites
    - XQTS (XQuery Conformance Test Suite)
    - Schema Validation (a dozen suites)
    - XSLT



# Weekly/Release tests

- Performance tests run once a week
- Stress tests run every release including service releases
- Upgrade testing
- High availability tests run every release

# Test output aggregation

- With 200,000+ tests X 26 machines how do we analyze the results
- All Machines push their results to a MarkLogic instance
  - Done so incrementally as tests finish
- Regression status application uses xinclude to aggregate results

SandBox

**Server**

App Services

Sharepoint

Stress

Performance

GUI

B4\_0 B4\_1 B4\_2 B5\_0

Alert platforms not run : sol10-sparc-42-test-1.marklogic.com suse-intel64-43-test-1.marklogic.com

0

[Select the platforms to display](#)

## Summary for build level b4\_2:



Diff

[linux](#)[linux](#) [linux](#) [linux](#) [linux](#) [linux](#) [linux](#) [linux](#) [linux](#) [solaris](#)[solaris](#) [spark](#)[winnt](#)[winnt](#) [winnt](#)  
[32](#) [64](#) [64](#) [ec2](#) [64](#) [64](#) [rh5](#) [64](#) [rh5](#) [64](#) [64](#) [64](#) [64](#) [sol10](#) [32](#) [64](#) [64](#)  
[rh5](#) [ec2](#) [cluster](#) [rh5](#) [cluster](#)[cluster](#)[rh5v](#) [rh5v](#) [sol10](#) [sol10](#) [w2k3](#)[w2k3](#) [w2k3](#)  
[ami](#) [RH5.4](#) [cluster](#) [cluster](#) [cluster](#)

[QA Person](#)

**Comment**

Total Diffs:

3 3 2 2 1 0 0 0 0 0 8 14 2 4

**suite: 00flexrep**

<a href="#">flex-rep2.xml</a>														Larry	[2011-04-12]timing issue with test	<input type="button" value="cmnt"/>	<input type="button" value="bug"/>
<a href="#">flex-rep3.xml</a>														Larry	[2011-04-12]timing issue with test	<input type="button" value="cmnt"/>	<input type="button" value="bug"/>
<b>suite: 30</b>																	
<a href="#">near_query1.xml</a>														yann	[2010-11-17]bug12257	<input type="button" value="cmnt"/>	<input type="button" value="bug"/>
<b>suite: 31</b>																	
<a href="#">fast_pagination.xml</a>														yann	[2011-03-11]fixed	<input type="button" value="cmnt"/>	<input type="button" value="bug"/>
<a href="#">invoke_spawn.xml</a>																<input type="button" value="cmnt"/>	<input type="button" value="bug"/>
<b>suite: 32</b>																	
<a href="#">cancel_request.xml</a>														skottam	[2011-01-28]Updated the test	<input type="button" value="cmnt"/>	<input type="button" value="bug"/>
<a href="#">doc_lang_support.xml</a>														Larry	[2010-12-16]my typo	<input type="button" value="cmnt"/>	<input type="button" value="bug"/>
<a href="#">element_range.xml</a>														Larry	[2010-11-30]bug12302	<input type="button" value="cmnt"/>	<input type="button" value="bug"/>
<a href="#">element v_freq2.xml</a>														Kapil	[2011-01-31]Updated the test	<input type="button" value="cmnt"/>	<input type="button" value="bug"/>

SandBox

Server

App Services

Sharepoint

Stress

Performance

GUI

B4\_1 | B4\_2 | B5\_0

0  
[Select the platforms to display](#)

## Summary for build level sand-box/b5\_0:

 find-diff

Diff

[0007](#) [0207](#) [0407](#) [0607](#) [0807](#) [1007](#) [1207](#) [1407](#) [1607](#) [1807](#) [2007](#) [2207](#) [Developer](#)

Comment

Total Diffs:

11 12 11 24 11 11 12 12 11 11 12 11

suite: bugs

[bug3585.xml](#) Larry [2011-04-18]filed bug 13303

suite: bugs4-1

[bug10209.xml](#)

[bug8693.xml](#)

[bug9368.xml](#) Haitao [2011-03-25]passd locally

[zzDummyTest.xml](#)

suite: bugs42

[bug11296.xml](#) Larry [2011-04-18]bug13304

[bug11668.xml](#) subi [2011-03-02]Passed in 3/2 build lo

[bug12487.xml](#)

[bug12518.xml](#)

[bug12557.xml](#)

[bug12561\\_1.xml](#)

[bug12561.xml](#)

[bug12568.xml](#)

[bug12625.xml](#)

[bug12657.xml](#)

[bug12755.xml](#)

SandBox

Server

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GUI

B4\_1

B4\_2

B5\_0

0

[Select the platforms to display](#)

## Summary for build level sand-box/b4\_2:

Diff

[0007](#)

[0307](#)

[0607](#)

[0908](#)

[1207](#)

[Developer](#)

Comment

Total Diffs:

1

1

1

1

0

suite: bugs4-1

[zzDummyTest.xml](#)



ss

[2011-03-11]megha

Total Diffs: 1

[2011-04-18 Diffs](#)PT0.027279S

# Additional presentations

- Thursday at 10:30, Rob Rudin from Boeing Mission Systems, Transitioning from Java to XQuery (this talks a little about testing)
- Thursday at 10:30, Colleen's talk on monitoring
- Friday at 10:15, Jake Trent from LDS, Unit Testing on XQuery

# Summary

- We test MarkLogic severely to deliver reliability
- The Main test tool we use is available at
  - [developer.marklogic.com/code/PerformanceMeters](http://developer.marklogic.com/code/PerformanceMeters)
- Questions?