



adaptTo()

Automated self-testing and health check of live Sling instances



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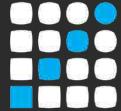
How can you trust your current (fragile?) combination of OSGi bundles and configs?

It needs live TESTING.



The image shows two overlapping windows. The top window is titled "Sling Health Check" and is part of the "Java Monitoring & Management Console". It displays a "Sling Health Check" configuration page with fields for "Path" and "Tags". The bottom window is the "Java Monitoring & Management Console" itself, showing a tree view of JMX objects and a detailed view of the "HealthCheck" object under "org.apache.sling.healthcheck". The "Attributes" tab is selected, showing properties like "hc.name", "hc.tags", "service.pid", "ok", "status", and "log". The "log" pane shows a log entry with index 2, level DEBUG, and message "Got JMX Object [java.lang:type=ClassLoading]". The status is listed as "OK". A status bar at the bottom of the console window indicates "Just TEST_PASSED so the corresponding rule will fail... will fail... does not match expression [TEST_PASSED]".





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what do we mean by

Health Checks?



HealthCheck APIs

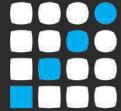
```
public interface HealthCheck {  
    Result execute();  
}
```

HealthCheck
OSGi services

Service props:
name, MBean, tags

```
public class Result {  
    public boolean isOk() ...  
    public Status getStatus() ...  
    public Iterator<ResultLog.Entry> iterator() ...  
}
```





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Webconsole, JMX



Webconsole plugin

/system/console/healthcheck

Sling Health Check

To execute health check services, enter an optional list of tags, to select specific health checks, or no tags for all checks. Prefix a tag with a minus sign (-) to omit checks having that tag.

Health Check
tags (comma-separated)
-composite,security

Show DEBUG logs

Show failed
checks only

Execute selected health checks

Default logins should fail

Tags: [security]
Result: **WARN**

WARN Login as [admin] succeeded, was expecting it to fail
WARN Checked 2 logins, 1 failures

Summary

1 HealthCheck executed, 1 failures

Health Check tags (comma-separated)

Show DEBUG logs

Show failed checks only

Execute selected health checks

LoadedClassCount is in range

Tags: [jvm, classloading, jmx]
Result: **OK**

DEBUG Checking java.lang:type=ClassLoading / LoadedClassCount
DEBUG java.lang:type=ClassLoading LoadedClassCount returned value 7426
DEBUG Value [7426] matches constraint [between 5000 and 10000]



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Health Check MBeans

pid: 2206 org.apache.sling.launchpad-7-SNAPSHOT-standalone.jar

Overview Memory Threads Classes VM Summary MBeans

Attribute values

Name	Value
hc.name	Default logins should fail
hc.tags	[security]

Tabular Navigation 2/3

Composite Navigation

log

Name	Value
index	2
level	DEBUG
message	Login as [foo] failed, as expected

ok false

service.pid org.apache.sling.hc.support.DefaultLoginsHealthCheck.S

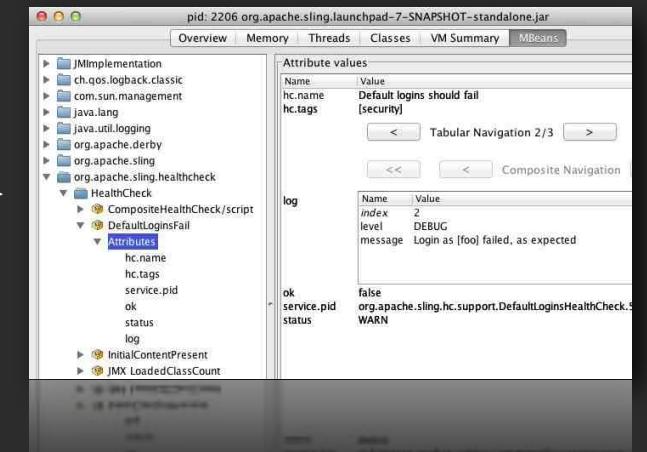
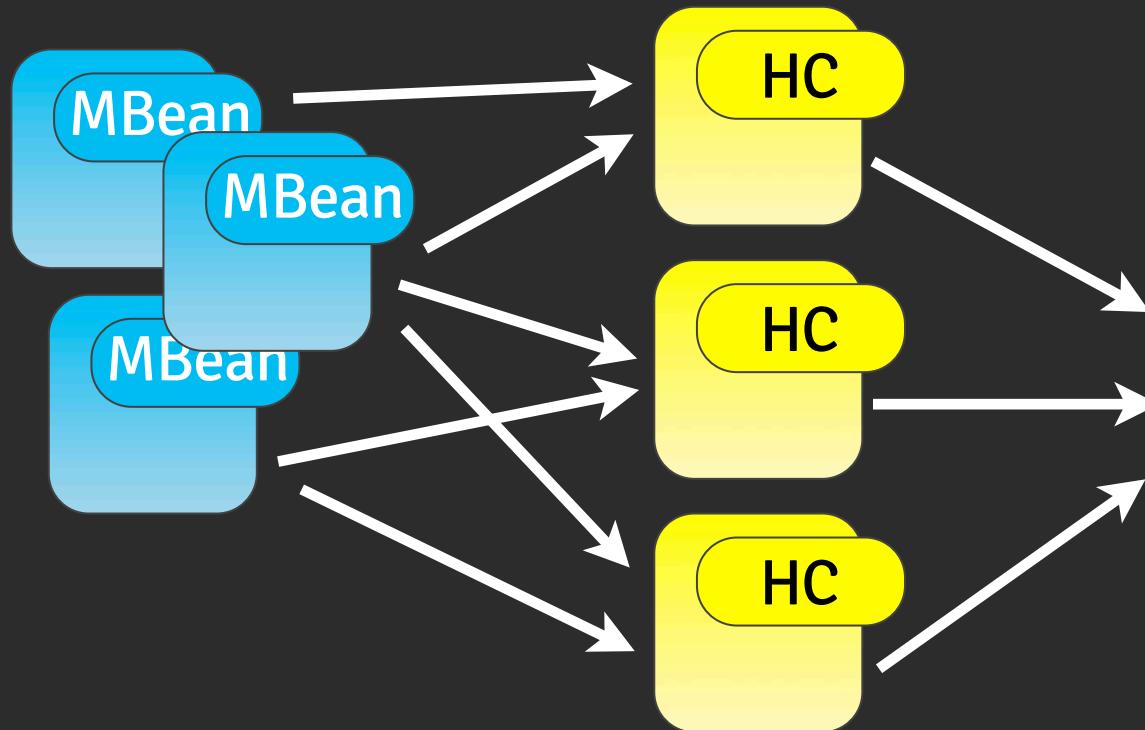
status WARN

Service props
name, MBean, tags





Health Checks as JMX processors



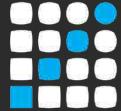
using expressions like

```
jmx.attribute('java.lang:type=ClassLoader', 'LoadedClassCount') > 10
```

&&

```
jmx.attribute('java.lang:type=Runtime', 'ManagementSpecVersion') > 1
```





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Use cases



Use cases

System status

All bundles up?
Initial content ready?
Disk space ok?
External services ok?
Load within bounds? (for jobs)

Configuration

Security checklist ok?
Default accounts disabled?
Demo content removed?

Performance

Requests per second ok?
Request duration ok?
Free memory ok?
Replication queues ok?

Self-test

Startup smoke tests?
Keep history of results?





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what do you get

Out of the box?



Adobe



Out of the box - core

JmxAttributeHealthCheck

Single JMX attributes

ScriptableHealthCheck

Script(let)s in any language
using BindingValuesProviders

CompositeHealthCheck

Run other Health Checks
based on their tags





Out of the box - support bundle

SlingRequestStatusHC

Is my resource there?
Including its scripts?

DefaultLoginsHealthCheck

admin:admin -> fail?

current HC bundles:

org.apache.sling.hc.core
org.apache.sling.hc.support
org.apache.sling.hc.webconsole
org.apache.sling.hc.jmx
org.apache.sling.hc.samples





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how do you write

Your own Health Checks?





Custom Health Checks

```
@Component(...policy=ConfigurationPolicy.REQUIRE, metatype=true)
@Property(name=HealthCheck.NAME),
@Property(name=HealthCheck.TAGS,unbounded=PropertyUnbounded.ARRAY),
@Property(name=HealthCheck.MBEAN_NAME)
@Service(value=HealthCheck.class)
public class MyHealthCheck {
    public Result execute() {
        FormattingResultLog f = new FormattingResultLog();
        ...
        if(badThings) f.warn("Something happened with {}", foo);
        return new Result(f);
    }
}
```

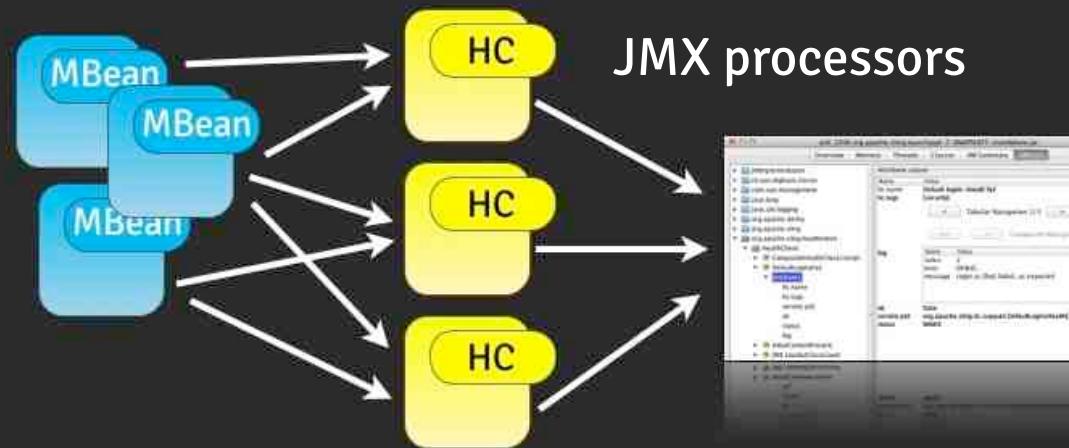


A light blue speech bubble with a black outline points from the bottom right towards the word "execute" in the code. Inside the bubble, the text "Execute
“quickly”, cache..." is written in white.





That's it - have fun!



JmxAttributeHealthCheck

ScriptableHealthCheck

CompositeHealthCheck

SlingRequestStatusHC

DefaultLoginsHealthCheck

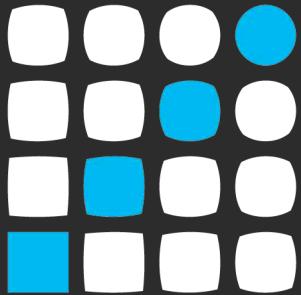
```
@Service(value=HealthCheck.class)
public class MyHealthCheck {
    ....generate a Result quickly
}
```

Docs at [sling.apache.org : bundles : health check](http://sling.apache.org/bundles/health-check).
Discuss on the Sling dev list.
I'm @bdelacretaz - thanks!



Webconsole

The screenshot shows the "Sling Health Check" configuration page. It includes fields for "Health Check tags (comma-separated)" (set to "-composite,security"), "Show DEBUG logs" (unchecked), "Show failed checks only" (checked), and "Execute selected health checks". Below this, a section titled "Default logins should fail" shows a result for "WARN Login as [admin] succeeded, was expecting it to fail" with "WARN Checked 2 logins, 1 failures". A summary at the bottom indicates "1 HealthCheck executed, 1 failures".



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APACHE SLING & FRIENDS TECH MEETUP

BERLIN, 23-25 SEPTEMBER 2013