

Code inspection



Figure 1: Politecnico di Milano

Version 1.0

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Introduction

Purpose

The purpose of this document is to show all the problems found during the inspection of a small amount of code of a specific version of glashfish. The process of inspecting source code has two main purposes. The first and most obvious one is to enhance the quality of the code and eventually identify remaining bugs. The second purpose is to improve the coding skills of the team. The inspectors improve themselves by analysing code made by others and eventually discovering coding methods that they did not know. The original authors of the code receive a list of eventual mistakes that they could have done, which of course help them improving themselves.

Each group of the project has different methods assigned of a specific version of glashfish. We have to analyze these methods by checking that they are in agreement with every point of a given checklist. We also have to find other problems, then we have to report the problems found in this document.

WRITE MORE

Scope

Glashfish is the official implementation of JEE. It is an open source project that uses svn as version system, in fact we used it to retrieve a specific version of glashfish: 64219 (of 16 Oct 2015 05:11).

This version is required by the assignment text since we have some methods of this version assigned to us to check.

Glashfish is a maven project, in fact we imported the pom file into IntelliJ IDEA and we used it and sonar to test some check of the checklist. **KEEP OR REMOVE?**

WRITE MORE

Definitions, acronyms, abbreviations

- JEE: Java enterprise edition
- SVN: apache subversion, it is a version controller system, the successor of CVS **OR VCS?**
- CVS: Concurrent versions system, the first version controller system
WRITE acronyms find in the code

Reference documents

- Assignment document: Code inspection.pdf

- Glashfish javadoc of this version: <http://glassfish.pompel.me/>
- Methods assigned to each group: <http://assignment.pompel.me/>

Document structure

- **Introduction:** this section introduces the inspection document. It contains a justification of his utility and indications on which parts are covered in this document.
- **Classes:** this section describes the classes and the methods assigned
- **Functional role:** this section describes the functional role of the class of the methods assigned. **TODO write role of each method?**
- **Issues list found by applying the checklist:** this section describes the issues found applying the checklist given.
- **Other problems:** this section describes other problems found that are not strictly related to the checklist.

Classes

All methods assigned to us belong to the same class.

StandardContext

Namespace: org.apache.catalina.core

Extends: ContainerBase

Implements: Context, ServletContext

Methods

Name:
 contextListenerStop()
Start Line:
 5457

Name:
 eventListenerStop()
Start Line:
 5509

Name:
 mergeParameters()
Start Line:
 5537

Name:
 resourcesStart()
Start Line:
 5564

Name:
 alternateResourcesStart()
Start Line:
 5597

Name:
 resourcesStop()
Start Line:
 5635

Name:
 alternateResourcesStop()
Start Line:
 5662

Name:
 loadOnStartup(Container children [])
Start Line:
 5708

WRITE IN A BETTER WAY? [Gilles : i think we have to explain the role of the methods (see in fonctionnal role) so maybe we can say the starting lines there and here just put alist of the methods]
[Claudio: the assignment document says we have only to show the fuctional role of the classes not of the methods]

Functional role

This class is the standard implementation of the *Context* interface. According to the javadoc it is:

A **Context** is a Container that represents a servlet context, and therefore an individual web application, in the Catalina servlet engine. It is therefore useful in almost every deployment of Catalina (even if a Connector attached to a web server (such as Apache) uses the web server's facilities to identify the appropriate Wrapper to handle this request. It also provides a convenient mechanism to use Interceptors that see every request processed by this particular web application. The parent Container attached to a Context is generally a Host, but may be some other implementation, or may be omitted if it is not necessary.

The child containers attached to a Context are generally implementations of Wrapper (representing individual servlet definitions).

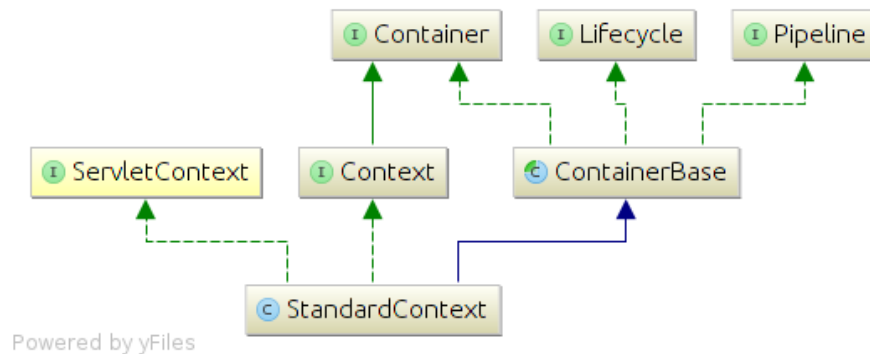


Figure 2: inheritance diagram

It extends *ContainerBase* that is **TODO**

And implements *ServletContext* that is a competitive interface....

TODO class diagram automatically generated? **TODO** write also our interpretation? **TODO** write role of each method? **TODO** remember that the class implements *ServletContext* that is compiled and extends *ContainerBase*

Issues list found by applying the checklist

NamingConventions

- from class `RestrictedServletContextListener`
 - method `contextInitialized` should start with a verb (hint: `onContextInitialized`)
 - method `contextDestroyed` should start with a verb (hint: `onContextDestroyed`)
- method `backgroundProcess` should start with a verb (hint: `runBackgroundProcess`)
- field `count` is not meaningful (hint: `backgroundProcessCounter`)
- method `contextListenerStart` should start with a verb (hint: `notifyContextStarted`)
- method `contextListenerStop` should start with a verb (hint: `stopContextListening`)
- return value of method `contextListenerStop` is never used (hint: change to `void`)
- method `create` is not clear and it looks like a simple alias of the `init` method
- method `create` is not used (hint: delete it)
- method `engineBase` should start with a verb (hint: `getEngineBase`)
- method `eventListenerStop` should start with a verb (hint: `stopEventListening`)
- method `eventListenerStop` always return true (hint: change to `void`)
- method `filterStart` should start with a verb (hint: `startFilters`)
- method `filterStop` should start with a verb (hint: `stopFilters`)
- method `managerStart` should start with a verb (hint: `startManager`)
- method `managerStop` should start with a verb (hint: `stopManager`)
- method `resourcesStart` should start with a verb (hint: `allocateResources`)
- method `resourcesStop` should start with a verb (hint: `freeResources`)
- method `restrictedSetPipeline` should start with a verb (hint: `setPipeline`)
- method `restrictedSetPipeline` should be made accessible only to certain packages (hint: declare it as `protected` and give a `friendly` accessor from the child class)
- method `sessionCreatedEvent` should start with a verb (hint: `onSessionCreatedEvent`)
- method `sessionDestroyedEvent` should start with a verb (hint: `onSessionDestroyedEvent`)
- method `sessionRejectedEvent` should start with a verb (hint: `onSessionRejectedEvent`)

- method `sessionExpiredEvent` should start with a verb (hint: `onSessionExpiredEvent`)
- method `sessionPersistedStartEvent` should start with a verb (hint: `onSessionPersistedStartEvent`)
- method `sessionPersistedEndEvent` should start with a verb (hint: `onSessionPersistedEndEvent`)
- method `sessionActivatedStartEvent` should start with a verb (hint: `onSessionActivatedStartEvent`)
- method `sessionActivatedEndEvent` should start with a verb (hint: `onSessionActivatedEndEvent`)
- method `sessionPassivatedStartEvent` should start with a verb (hint: `onSessionPassivatedStartEvent`)
- method `sessionPassivatedEndEvent` should start with a verb (hint: `onSessionPassivatedEndEvent`)
- method `sessionListenerStop` should start with a verb (hint: `stopSessionListening`)

Indentation

- line 5479 start with a mismatching number of spaces
- line 5482 start with a mismatching number of spaces
- line 5486 start with a mismatching number of spaces
- line 5488 start with a mismatching number of spaces
- line 5625 start with a mismatching number of spaces

Braces

- single statement `if` without braces at line 5546

N.B. K&R style is used

File Organization

- line 5487 can be easily rewritten to not exceed 80 columns.
- line 5574 can be easily rewritten to not exceed 80 columns.
- line 5576 can be easily rewritten to not exceed 80 columns.
- line 5582 can be easily rewritten to not exceed 80 columns.
- line 5613 can be easily rewritten to not exceed 80 columns.
- line 5618 can be easily rewritten to not exceed 80 columns.
- line 5621 can be easily rewritten to not exceed 80 columns.
- line 5624 can be easily rewritten to not exceed 80 columns.

- line 5680 can be easily rewritten to not exceed 80 columns.
- line 5734 can be easily rewritten to not exceed 80 columns.
- line 5735 can be easily rewritten to not exceed 80 columns.

Wrapping Lines

Everything ok

Comments

- commented code without any reason from line 5704 to 5706

Java Source Files

Everything ok

Package and Import Statements

Everything ok

Class and Interface Declarations

Everything ok

Initialization and Declarations

- can be private at line 5564
- can be private at line 5597
- can be private at line 5635
- can be private at line 5662
- can be private at line 5708
- **event** not declared at beginning of the block at line 5465
- **len** not declared at beginning of the block at line 5467
- **msg** not declared at beginning of the block at line 5487
- **iter** not declared at beginning of the block at line 5514
- **sc** not declared at beginning of the block at line 5553
- **env** not declared at beginning of the block at line 5603
- **alternateWebappResources** not declared at beginning of the block at line 5680

- `key` not declared at beginning of the block at line 5719
- `list` not declared at beginning of the block at line 5720

Method Calls

TODO

Arrays

Everything ok

Object Comparison

Everything ok

Output Format

Everything ok

Computation, Comparisons and Assignments

TODO

Exceptions

- Exception 5619 is not logged

Flow of Control

Everything ok (there are no switches)

Files

Everything ok, no files

Other problems

- `eventListenerStop`: while can be replaced with `foreach`.
- `alternateResourcesStart`: unnecessary array for `vararg` 5625
- `loadOnStartup`: parameter “children” declared in C-style array 5708
- `contextListenerStop`: it’s more readable to use an iterator or to build a new list and reverse it.
- `addEnvironment`: never used
- `addResource`: never used
- `addResourceLink`: never used
- `getStartupTime`: never used
- `getTldScanTime`: never used
- `setTldScanTime`: never used
- redundant assignment at line 7498
- redundant assignment at line 7545
- redundant assignment at line 7559
- `getState`: should return an enum or a class
- field `tldScanTime` is not used
- `setCompilerClasspath`: never used
- `getOriginalDocBase`: never used
- `isReplaceWelcomeFiles`: never used
- `setUnloadDelay`: never used
- `setUnpackWAR`: never used
- `getCharsetMapperClass`: never used
- `setCharsetMapperClass`: never used
- `addResourceParams`: never used
- `addServletMapping(ServletMap)`: never used
- `findMappingObject`: never used
- `findMessageDestination`: never used
- `findMessageDestinations`: never used
- `findMessageDestinationRef`: never used
- `findMessageDestinationRefs`: never used
- `removeMessageDestination`: never used
- `removeMessageDestinationRef`: never used
- `managerStart`: never used
- `managerStop`: never used
- `getDefaultConfigFile`: never used
- `getResourceNames`: never used
- `getResourceLinks`: never used
- `addEnvironment`: never used
- `addResource`: never used
- `addResourceLink`: never used

- getStaticResources: never used
- startRecursive: never used
- getStartTimeMillis: never used
- isEventProvider: never used
- isStatisticsProvider: never used
- setCachingAllowed: never used
- setCaseSensitive: never used
- setCaseSensitiveMapping: never used
- setCacheTTL: never used
- setCacheMaxSize: never used
- getAntiJARLocking: never used
- setAntiJARLocking: never used
- MessageFormat is often called with an Object array instead of using vararg.
- some 'if' have a space before '(', but other not, the same thing for other construct like 'catch'
- } catch(Throwable t) { **TODO explain**
 - 5619
 - 5648
 - 5483
 - 5580
 - 5675
 - 5685
- two occurrences of new Object[], this is not a good way **KEEP OR REMOVE?**

Used tools

- intellij IDEA: JAVA EE IDE
- sonar: useful tools to analyze code from style point of view
- Github: for version controller
- Gedit and ReText: to write Markdown with spell check

Hours of work

Claudio Cardinale

Gilles Dejaegere

Massimo Dragano