

Comme Alice,  
osez suivre le lapin  
blanc et plongez  
dans la JVM pour  
comprendre son  
fonctionnement



# Qui suis-je ?

- Antoine DESSAIGNE
  - architecte logiciel
- axway 
  - éditeur de logiciels français
  - environ 1500 employés

# Remerciements

- Aleksey Shipilëv
  - OpenJDK @ AWS
- Nicolai Parlog
  - Java Developer Advocate @ Oracle



# Qu'est-ce qui se passe ?

- **NullPointerException**
  - sur 1 benchmark sur 16
  - seulement 50% des exécutions
- **Aucun problème sur nos tests**
  - environ 11000 tests unitaires
  - environ 6000 tests d'intégration
- **Vu 15 jours après avoir migré de 17.0.8 à 21.0.1**

# Que fait ce benchmark ?

- Il mesure la vitesse de rattrapage
  - on simule 30 minutes de données aléatoires
  - on mesure le temps pour réabsorber ces 30 minutes
    - environ 1 minute 30
- Les données sont valides
  - elles ont déjà été traitées une fois
  - on arrive au même résultat final
- Avec les mêmes données, ça plante 50% du temps

# Et le code dans tout ça ?

```
final ReadableInterval validTime = value.getValidTime();
if (validTime.getStartMillis() < ...) {
    // No exception here
}
```

...

```
if (validTime.getStartMillis() < ...) {
    // NullPointerException
    // Cannot invoke "ReadableInterval.getStartMillis()"
    // because "validTime" is null
}
```

# Un mauvais souvenir de Kafka

```
public void waitObject(Object obj, ...) throws InterruptedException {  
    synchronized (obj) {  
        while (true) {  
            if (condition.get())  
                return;  
            long currentTimeMs = milliseconds();  
            if (currentTimeMs >= deadlineMs)  
                throw new TimeoutException();  
            obj.wait(deadlineMs - currentTimeMs);  
            // wait() throws IllegalMonitorStateException  
        }  
    }  
}
```

# Revenons à nos moutons

```
final ReadableInterval validTime = value.getValidTime();
if (validTime.getStartMillis() < ...) {
    // No exception here
}

...
if (validTime.getStartMillis() < ...) {
    // NullPointerException
    // Cannot invoke "ReadableInterval.getStartMillis()"
    // because "validTime" is null
}
```

Et je fais  
quoi  
maintenant  
?!?



# Comment je sais si ça marche ?

- Si ça plante c'est facile, mais si ça ne plante pas...
- Idée: 10 exécutions qui marchent alors c'est bon
  - probabilité de 1/1024 de se tromper, ~0,1%

Et je fais  
quoi  
maintenant  
?!?



# Idée n°1 - Le benchmark n'est pas bon

- Le benchmark utilise un agent Java
- Si ça se trouve, l'agent n'aime pas Java 21
- Ce n'est donc pas un problème de benchmark



Et je fais  
quoi  
maintenant  
?!?



# Idée n°2 - Un bug de JVM ?

- 17.0.8 ✓
- 21.0.1 ✗
- 21 ✗
- 17.0.9 ✓
- Adoptium 21 nightly ✗
- Latest (23) ✗
- Aleksey Shipilëv 21 builds
  - release ✗
  - fastdebug ✗
  - slowdebug ✗
- 19.0.2 ✓
- Rien sur le bug tracker

Et je fais  
quoi  
maintenant  
?!?



# Idée n°3 - Le GC libère trop tôt ?

- Si ca se trouve, le GC libère l'objet trop tôt ?
- Tests avec les différents GC
  - -XX:+UseParallelGC X
  - -XX:+UseG1GC X
  - -XX:+UseZGC X
  - -XX:+UseShenandoahGC X
  - -XX:+UseSerialGC X
- Ce n'est donc pas le GC



Et je fais  
quoi  
maintenant  
?!?



# Idée n°4 – Parfois le JIT génère des bugs

- Comme ça plante vers la fin, ça peut venir du code compilé par le JIT
- Comme ça ne plante pas toujours, le code généré doit être faux 50% du temps
- Je n'ai qu'à comparer 2 exécutions

**FAUX !**

(mais je ne le sais pas encore)



# Comment récupérer le code généré ?

- `-XX:+UnlockDiagnosticVMOptions`
- `-XX:CompileCommand="print package.Class::method"`
- `-XX:PrintAssemblyOptions=intel`
- OpenJDK hsdis
  - disassembly plugin
  - dans le JDK ou en variable d'environnement
  - merci à Chris Newland pour sa compilation de la librairie

# Ca ressemble à quoi ?

```
0x0000709395ed0480:    mov    DWORD PTR [rsp-0x14000],eax
0x0000709395ed0487:    push   rbp
0x0000709395ed0488:    sub    rsp,0x130
0x0000709395ed048f:    nop
0x0000709395ed0490:    cmp    DWORD PTR [r15+0x20],0x0
0x0000709395ed0498:    je     0x0000709395ed049f
0x0000709395ed049a:    call   Stub::nmethod_entry_barrier ; {runtime_call StubRoutines (final stubs)}
0x0000709395ed049f:    mov    QWORD PTR [rsp+0x80],rsi
0x0000709395ed04a7:    mov    QWORD PTR [rsp+0x70],rdx
0x0000709395ed04ac:    mov    QWORD PTR [rsp+0x88],rcx
0x0000709395ed04b4:    mov    DWORD PTR [rsp+0x68],r8d
0x0000709395ed04b9:    mov    DWORD PTR [rsp+0x98],r9d
0x0000709395ed04c1:    mov    DWORD PTR [rsp+0x6c],edi
0x0000709395ed04c5:    movabs rbx,0x708f09311508
0x0000709395ed04cf:    mov    eax,DWORD PTR [rbx+0x8]
0x0000709395ed04d2:    add    eax,0x2
0x0000709395ed04d5:    mov    DWORD PTR [rbx+0x8],eax
0x0000709395ed04d8:    and    eax,0xffe
0x0000709395ed04dd:    test   eax,eax
0x0000709395ed04df:    je     0x0000709395ed1220
0x0000709395ed04e5:    mov    ebx,DWORD PTR [rdx+0x18]      ; implicit exception: dispatches to 0x0000709395ed1241
...
...
```

# Premières analyses

- Il y a beaucoup trop de lignes
- Les index à gauche ne correspondent pas
- Les pointeurs ne correspondent pas
- Impossible de comparer automatiquement

# Les en-têtes de l'assembleur

```
===== C1-compiled nmethod =====
----- Assembly -----
```

```
Compiled method (c1) 1107312 37562      2      package.Class::method (530 bytes)
total in heap [0x0000709395ecff90,0x0000709395ed2480] = 9456
```

...

[Disassembly]

...

[/Disassembly]

Ça passe !

# Les en-têtes de l'assembleur

```
===== C2-compiled nmethod =====
----- Assembly -----
```

```
Compiled method (c2) 1142813 38977      4      package.Class::method (530 bytes)
total in heap [0x000070939eece990,0x000070939eed88c8] = 40760
```

...

[Disassembly]

...

[/Disassembly]

Ça plante !

# Les en-têtes de l'assembleur

```
===== C2-compiled nmethod =====
----- Assembly -----
```

```
Compiled method (c2) 1142813 38977      4      package.Class::method (530 bytes)
total in heap [0x000070939eece990,0x000070939eed88c8] = 40760
```

...

[Disassembly]

...

[/Disassembly]

# 40ko !!!

(moi, je ne compare pas ça)

# Les différentes options du JIT

- Aucun JIT
  - -Xint ✓
  - 35 minutes au lieu de 1 minute 30
- C1
  - -XX:TieredStopAtLevel=1 ✓
  - -XX:TieredStopAtLevel=2 ✓
  - -XX:TieredStopAtLevel=3 ✓
- C2 X

Et je fais  
quoi  
maintenant  
?!?

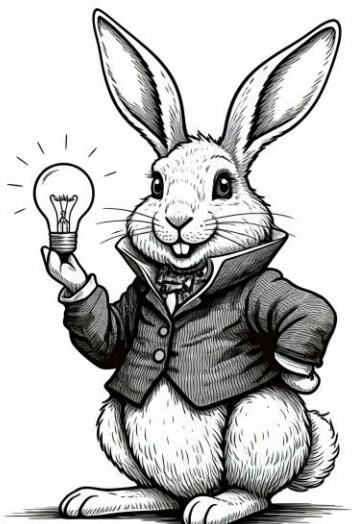


# Idée n°5 – Test trop court ?

- Et si le plantage n'était pas aléatoire ?
- Si le benchmark n'avait pas le temps de planter ?
- Au lieu de rejouer 30 minutes de données,  
je tente 2 heures

**Victoire !**

(enfin... ça plante à tous les coups)

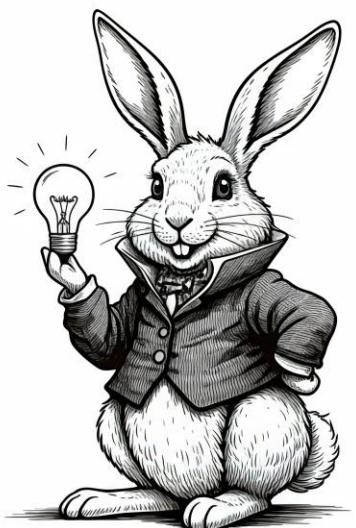


Et je fais  
quoi  
maintenant  
?!?



# Idée n°6 - Et si je trouvais le commit ?

- Je vais utiliser git bisect pour trouver le commit responsable de la régression
- Ah, mais comment on build Java ?



# Comment builder Java ?

```
$ git clone https://github.com/openjdk/jdk.git  
Cloning into 'jdk'...
```

```
$ cd jdk
```

```
$ git checkout jdk-21-ga  
Updating files: 100% (27123/27123), done.
```

# Comment builder Java ?

```
$ bash configure
```

...

Autoconf is not found on the PATH

You might be able to fix this by running 'sudo apt-get  
install autoconf'.

```
$ sudo apt-get install autoconf
```

# Comment builder Java ?

```
$ bash configure
```

```
Using autoconf at /usr/bin/autoconf
```

```
...
```

```
configure: error: Could not find required tool for FILE
```

```
$ sudo apt-get install file
```

# Comment builder Java ?

```
$ bash configure  
checking for file... /usr/bin/file  
...  
configure: error: Cannot find GNU make 3.81 or newer!  
Please put it in the path, or add e.g.  
MAKE=/opt/gmake3.81/make as argument to configure.
```

```
$ sudo apt-get install make  
$ sudo apt-get install unzip  
$ sudo apt-get install zip
```

# Comment builder Java ?

```
$ bash configure
```

```
...
```

```
configure: Could not find a valid Boot JDK. OpenJDK  
distributions are available at http://jdk.java.net/.
```

```
configure: This might be fixed by explicitly setting  
--with-boot-jdk
```

# Comment builder Java ?

```
$ bash configure --with-boot-jdk=/opt/jdk-20
```

...

```
configure: error: Could not find a C compiler. You might  
be able to fix this by running 'sudo apt-get install  
build-essential'.
```

```
$ sudo apt-get install build-essential
```

```
$ sudo apt-get install ...
```

# Comment builder Java ?

```
$ bash configure --with-boot-jdk=/opt/jdk-20
```

...

```
A new configuration has been successfully created in  
/home/user/jdk/build/linux-x86_64-server-release  
using configure arguments '--with-boot-jdk=/opt/jdk-20'.
```

Configuration summary:

- \* Name: linux-x86\_64-server-release
- \* Debug level: release

...

# Comment builder Java ?

```
$ make images
```

...

```
Finished building target 'images' in configuration 'linux-x86_64-server-release'
```

```
$ cd build/linux-x86_64-server-release/jdk/bin
```

```
$ ./java --version
```

```
openjdk 21-internal 2023-09-19
```

# Comment builder Java ?

- On installe tout ce dont il a besoin
  - outils, librairies X11, librairies son, ...
  - il fournit même les commandes à taper
- 5 minutes pour installer toutes les dépendances
- 5 minutes pour builder Java
- Facile de créer un environnement tout prêt

# A la recherche du commit

```
[jdk-21-ga] $ git bisect start
```

```
[jdk-21-ga] $ git bisect bad
```

```
status: waiting for good commit(s), bad commit known
```

```
[jdk-21-ga] $ git bisect good jdk-19-ga
```

```
Bisecting: 2441 revisions left to test after this (roughly  
11 steps)
```

```
[2ccdefc81c0ea2ea5c4380bb045aa82ad1eb8205] 8299470: ...
```

# A la recherche du commit

```
[2ccdefc81c0] $ make images
```

```
[2ccdefc81c0] $ ~/bench/test.sh
```

```
[2ccdefc81c0] $ git bisect bad
```

```
Bisecting: 1219 revisions left to test after this (roughly  
10 steps)
```

```
[090cdfc7a2e280c620a0926512fb67f0ce7f3c21] 8294726: ...
```

# A la recherche du commit

```
[090cdfc7a2e] $ make images
```

```
[090cdfc7a2e] $ ~/bench/test.sh
```

```
[090cdfc7a2e] $ git bisect good
```

```
Bisecting: 609 revisions left to test after this (roughly  
9 steps)
```

```
[761a4f4852cbb40660b6fb9eda4d740464218f75] 8295788: ...
```

# A la recherche du commit

```
[761a4f4852c] $ make images
```

```
[761a4f4852c] $ ~/bench/test.sh
```

```
[761a4f4852c] $ git bisect good
```

```
Bisecting: 304 revisions left to test after this (roughly  
8 steps)
```

```
[27bbe7be2c43a22e8cf55aa403d8018346ae3e37] 8297976: ...
```

# A la recherche du commit

```
[27bbe7be2c4] $ make images
```

```
[27bbe7be2c4] $ ~/bench/test.sh
```

```
[27bbe7be2c4] $ git bisect good
```

```
Bisecting: 152 revisions left to test after this (roughly  
7 steps)
```

```
[f4caaca100d334b671eed56287dfe7a1009c47d7] 8298852: ...
```

# A la recherche du commit

```
[f4caaca100d] $ make images
```

```
[f4caaca100d] $ ~/bench/test.sh
```

```
[f4caaca100d] $ git bisect good
```

```
Bisecting: 73 revisions left to test after this (roughly 6  
steps)
```

```
[34cdda5b8359cce33c2d4f92a41a620aea4f96e7] Merge
```

# A la recherche du commit

```
[34cdda5b835] $ make images
```

```
[34cdda5b835] $ ~/bench/test.sh
```

```
[34cdda5b835] $ git bisect bad
```

```
Bisecting: 42 revisions left to test after this (roughly 5  
steps)
```

```
[e5edb10dc56d9edac8e050e0f8e6c116743975d6] 8299018: ...
```

# A la recherche du commit

```
[e5edb10dc56] $ make images
```

```
[e5edb10dc56] $ ~/bench/test.sh
```

```
[e5edb10dc56] $ git bisect bad
```

```
Bisecting: 17 revisions left to test after this (roughly 4  
steps)
```

```
[5e678f7500e514f04637c546959613d4688f989c] 8298824: ...
```

# A la recherche du commit

```
[5e678f7500e] $ make images
```

```
[5e678f7500e] $ ~/bench/test.sh
```

```
[5e678f7500e] $ git bisect bad
```

```
Bisecting: 8 revisions left to test after this (roughly 3  
steps)
```

```
[0ba473489151d74c8a15b75ff4964ac480fecb28] 8287699: ...
```

# A la recherche du commit

```
[0ba47348915] $ make images
```

```
[0ba47348915] $ ~/bench/test.sh
```

```
[0ba47348915] $ git bisect good
```

```
Bisecting: 4 revisions left to test after this (roughly 2  
steps)
```

```
[0eeaeb8e7ba40be5e93eb87c7e3dc94230062746] 8298808: ...
```

# A la recherche du commit

```
[0eeaeb8e7ba] $ make images
```

```
[0eeaeb8e7ba] $ ~/bench/test.sh
```

```
[0eeaeb8e7ba] $ git bisect bad
```

```
Bisecting: 1 revision left to test after this (roughly 1  
step)
```

```
[3696711efa566fb776d6923da86e17b0e1e22964] Merge
```

# A la recherche du commit

```
[3696711efa5] $ make images
```

```
[3696711efa5] $ ~/bench/test.sh
```

```
[3696711efa5] $ git bisect bad
```

```
Bisecting: 0 revisions left to test after this (roughly 0  
steps)
```

```
[f771c56e16a39724712ca0d8c2dd55b9ce260f4d] 8298797: ...
```

# A la recherche du commit

```
[f771c56e16a] $ make images
```

```
[f771c56e16a] $ ~/bench/test.sh
```

```
[f771c56e16a] $ git bisect good
```

```
3696711efa566fb776d6923da86e17b0e1e22964 is the first bad  
commit
```

```
Merge: f4caaca100d f771c56e16a
```

# A la recherche du commit

```
[3696711efa5] $ git log --oneline --graph
```

```
*   3696711efa5 (HEAD) Merge
```

```
| \
```

```
| * f771c56e16a 8298797: ...
```

```
| *
```

```
| * 323e574a505 8298371: ...
```

```
* | f4caaca100d 8298852: ...
```

```
* |
```

```
* | 10bc86cc260 Merge
```

```
| \ |
```

# A la recherche du commit

```
[3696711efa5] $ git bisect start
```

```
[3696711efa5] $ git bisect bad
```

```
status: waiting for good commit(s), bad commit known
```

```
[3696711efa5] $ git checkout 10bc86cc260
```

# A la recherche du commit

```
[10bc86cc260] $ make images
```

```
[10bc86cc260] $ ~/bench/test.sh
```

```
[10bc86cc260] $ git bisect good
```

```
Bisecting: 15 revisions left to test after this (roughly 4  
steps)
```

```
[e41686b4050d6b32fb451de8af39a78ec8bed0fd] 8298710: ...
```

# A la recherche du commit

```
[e41686b4050] $ make images
```

```
[e41686b4050] $ ~/bench/test.sh
```

```
[e41686b4050] $ git bisect bad
```

```
Bisecting: 7 revisions left to test after this (roughly 3  
steps)
```

```
[0ef353925e645dd519e17aeb7a83e927271f8b95] 8298416: ...
```

# A la recherche du commit

```
[0ef353925e6] $ make images
```

```
[0ef353925e6] $ ~/bench/test.sh
```

```
[0ef353925e6] $ git bisect good
```

```
Bisecting: 3 revisions left to test after this (roughly 2  
steps)
```

```
[3cdbd878e68dc1131093137a7357710ad303ae8c] 8298241: ...
```

# A la recherche du commit

```
[3cdbd878e68] $ make images
```

```
[3cdbd878e68] $ ~/bench/test.sh
```

```
[3cdbd878e68] $ git bisect bad
```

```
Bisecting: 1 revision left to test after this (roughly 1  
step)
```

```
[4b313b51b1787113961c289a41708e31fa19cacc] 8297798: ...
```

# A la recherche du commit

```
[4b313b51b17] $ make images
```

```
[4b313b51b17] $ ~/bench/test.sh
```

```
[4b313b51b17] $ git bisect good
```

```
Bisecting: 0 revisions left to test after this (roughly 0  
steps)
```

```
[10737e168c967a08e257927251861bf2c14795ab] 8298468: ...
```

# A la recherche du commit

```
[10737e168c9] $ make images
```

```
[10737e168c9] $ ~/bench/test.sh
```

```
[10737e168c9] $ git bisect bad
```

```
10737e168c967a08e257927251861bf2c14795ab is the first bad  
commit
```

# A la recherche du commit

**commit 10737e168c967a08e257927251861bf2c14795ab**

**Author:** xxx <xxx@openjdk.org>

**Date:** Thu Dec 15 19:54:25 2022 +0000

**8298468: Clean up class\_loader parameters**

**Reviewed-by:** yyy, zzz

# A la recherche du commit

```
src/hotspot/share/cds/cdsProtectionDomain.cpp |  3
src/hotspot/share/classfile/loaderConstraints.cpp | 70
src/hotspot/share/classfile/loaderConstraints.hpp | 13
src/hotspot/share/classfile/systemDictionary.cpp | 74
src/hotspot/share/classfile/systemDictionary.hpp |  8
5 files changed, 76 insertions(+), 92 deletions(-)
```

# Commit trouvé !

src/hotspot/share/classfile/loaderConstraints.cpp

+31 -39

```
@@ -47,11 +47,11 @@ class LoaderConstraint : public CHeapObj<mtClass> {
47   47     // not class loaders.
48   48     GrowableArray<ClassLoaderData*>* _loaders;           // initiating loaders
49   49     public:
50 -  LoaderConstraint(InstanceKlass* klass, oop class_loader1, oop class_loader2) :
50 +  LoaderConstraint(InstanceKlass* klass, ClassLoaderData* loader1, ClassLoaderData* loader2) :
51   51       _klass(klass) {
52   52       _loaders = new (mtClass) GrowableArray<ClassLoaderData*>(10, mtClass);
53 -  add_loader(class_loader1);
54 -  add_loader(class_loader2);
53 +  add_loader_data(loader1);
54 +  add_loader_data(loader2);
55   55   }
56   56   LoaderConstraint(const LoaderConstraint& src) = delete;
57   57   LoaderConstraint& operator=(const LoaderConstraint&) = delete;
@@ -61,7 +61,7 @@ class LoaderConstraint : public CHeapObj<mtClass> {
61   61     InstanceKlass* klass() const { return _klass; }
62   62     void set_klass(InstanceKlass* k) { _klass = k; }
```

# Commit trouvé !

src/hotspot/share/classfile/loaderConstraints.cpp

+31 -39

```
164 157 // either add it to an existing entry in the table or make a new one.
165 - void LoaderConstraintTable::add_loader_constraint(Symbol* name, InstanceKlass* klass, oop class_loader1, oop class_loader2) {
158 + void LoaderConstraintTable::add_loader_constraint(Symbol* name, InstanceKlass* klass,
159 + ClassLoaderData* loader1, ClassLoaderData* loader2) {
166 160     assert_lock_strong(SystemDictionary_lock);
167 -     LoaderConstraint* constraint = new LoaderConstraint(klass, class_loader1, class_loader2);
168 162
169 163     // The klass may be null if it hasn't been loaded yet, for instance while checking
170 164     // a parameter name to a method call. We impose this constraint that the
171     ...
172     @@ -256,22 +250,22 @@ void LoaderConstraintTable::purge_loader_constraints() {
256 250 }
257 251
258 252     void log_ldr_constraint_msg(Symbol* class_name, const char* reason,
259 -             Handle class_loader1, Handle class_loader2) {
253 +             ClassLoaderData* loader1, ClassLoaderData* loader2) {
260 254     LogTarget(Info, class, loader, constraints) lt;
261 255     if (lt.is_enabled()) {
```

# Commit trouvé !

src/hotspot/share/classfile/loaderConstraints.cpp

```
+31 -39
```

265 259 class\_name->as\_C\_string(),  
266 - ClassLoaderData::class\_loader\_data(class\_loader1())->loader\_name\_and\_id(),  
267 - ClassLoaderData::class\_loader\_data(class\_loader2())->loader\_name\_and\_id(),  
260 + loader1->loader\_name\_and\_id(),  
261 + loader2->loader\_name\_and\_id(),  
262 reason);  
263 }  
264 }  
265  
266 bool LoaderConstraintTable::add\_entry(Symbol\* class\_name,  
267 - InstanceKlass\* klass1, Handle class\_loader1,  
268 - InstanceKlass\* klass2, Handle class\_loader2) {  
267 + InstanceKlass\* klass1, ClassLoaderData\* loader1,  
268 + InstanceKlass\* klass2, ClassLoaderData\* loader2) {  
269  
270 LogTarget<Info> lt;  
271 if (klass1 != NULL && klass2 != NULL) {  
@@ -282,35 +276,35 @@ bool LoaderConstraintTable::add\_entry(Symbol\* class\_name,

# Le ticket associé



JDK / JDK-8298468

## Clean up class\_loader parameters

Resolved ▾

Export ▾

### Details

Type:	Enhancement	Resolution:	Fixed
Priority:	P4	Fix Version/s:	21
Affects Version/s:	21		
Component/s:	hotspot		
Labels:	classloading		

### Description

The LoaderConstraintTable stores ClassLoaderData, but passes class\_loader objects. There's a lot of unnecessary conversion back and forth that can be cleaned up.

### Issue Links

links to

Et je fais  
quoi  
maintenant  
?!?



# Appeler à l'aide

- Commit author
- Aleksey Shipilëv
- Nicolai Parlog
- Rémi Forax
- Mailing list java



Et je fais  
quoi  
maintenant  
?!?



# Selecture du commit

```
src/hotspot/share/classfile/loaderConstraints.cpp  ⌂ ⌄ +31 -39 33/33 ...  
348 340 } else if (pp1 == NULL) {  
349 - pp2->extend_loader_constraint(class_name, class_loader1, klass);  
341 + pp2->extend_loader_constraint(class_name, loader1, klass);  
350 342 } else if (pp2 == NULL) {  
351 - pp1->extend_loader_constraint(class_name, class_loader2, klass);  
343 + pp1->extend_loader_constraint(class_name, loader1, klass);  
352 344 } else {  
353 345     merge_loader_constraints(class_name, pp1, pp2, klass);  
354 346 }  
@@ -359,7 +351,7 @@ bool LoaderConstraintTable::add_entry(Symbol* class_name,  
359 351 // return true if the constraint was updated, false if the constraint is  
360 352 // violated  
361 353     bool LoaderConstraintTable::check_or_update(InstanceKlass* k,  
362 -                                         Handle loader,  
354 +                                         ClassLoaderData* loader,  
363 355                                         Symbol* name) {  
364 356     LogTarget<Info> lt(class, loader, constraints);  
365 357     LoaderConstraint* p = find_loader_constraint(name, loader);
```

# Relecture du commit

- Ça ressemble à une typo
- Si je mets loader2, est-ce que ça marche ?

**Victoire !**

(reste plus qu'à l'intégrer)

# Création de la pull request

- Signer le Oracle Contributor Agreement
  - partage de la propriété intellectuelle avec Oracle
- Il faut créer un bug sur le tracker d'abord
- J'ai demandé à Aleksey Shipilëv de le faire
  - JDK-8322282

# Création du bug



JDK / JDK-8322282

## Incorrect LoaderConstraintTable::add\_entry after JDK-8298468

Closed ▾

### Details

Type:	<input checked="" type="radio"/> Bug	Resolution:	Fixed
Priority:	<input checked="" type="radio"/> P2	Fix Version/s:	23
Affects Version/s:	21, 22, 23		
Component/s:	hotspot		

### Description

As reported here by Antoine Dessaigne:

<https://mail.openjdk.org/pipermail/hotspot-compiler-dev/2023-December/071086.html>

There is a regression introduced by [JDK-8298468](#):

<https://github.com/openjdk/jdk/commit/10737e168c967a08e257927251861bf2c14795ab#diff-49d18b7f77db80ff67872c7db1e4c87e98a126e63fff5f63353e4406db332b19R343>

...which looks like a typo.

# Création de la pull request

The screenshot shows a GitHub pull request interface with a diff view for the file `src/hotspot/share/classfile/loaderConstraints.cpp`. The diff highlights changes made between two versions of the code. Red highlights indicate removed code, and green highlights indicate added code.

```
@@ -1,5 +1,5 @@
 1   1   /*
 2 - * Copyright (c) 2003, 2023, Oracle and/or its affiliates. All rights reserved.
 2 + * Copyright (c) 2003, 2024, Oracle and/or its affiliates. All rights reserved.
 3   3   * DO NOT ALTER OR REMOVE COPYRIGHT NOTICES OR THIS FILE HEADER.
 4   4   *
 5   5   * This code is free software; you can redistribute it and/or modify it
@@ -387,7 +387,7 @@ bool LoaderConstraintTable::add_entry(Symbol* class_name,
387   387     } else if (pp1 == nullptr) {
388   388       pp2->extend_loader_constraint(class_name, loader1, klass);
389   389     } else if (pp2 == nullptr) {
390 -     pp1->extend_loader_constraint(class_name, loader1, klass);
390 +     pp1->extend_loader_constraint(class_name, loader2, klass);
391   391   } else {
392   392     merge_loader_constraints(class_name, pp1, pp2, klass);
393   393   }
```

Corrigé  
en 21.0.3



# Bilan

- J'étais perdu mais en fait c'était simple
- C'est très facile de compiler Java
  - Je m'en suis servi une seconde fois
- J'ai appris plein de choses au passage
  - les différents niveaux de JIT
  - comment voir l'assembleur généré
- Attention aux commits de refactor
  - même s'il y a une code review...

Merci pour  
votre écoute



Antoine DESSAIGNE



Slides

