



Code

Blame



Raw



```
56     public class RestSearchAction extends BaseRestHandler {
57
58         public List<Route> routes() {
59
60             return List.of(
61                 new Route(GET, "/_search"),
62                 new Route(POST, "/_search"),
63                 new Route(GET, "{index}/_search"),
64                 new Route(POST, "{index}/_search")
65             );
66         }
67
68         @Override
69         public Set<String> supportedCapabilities() {
70             return SearchCapabilities.CAPABILITIES;
71         }
72
73         @Override
74         public RestChannelConsumer prepareRequest(final RestRequest request, final NodeClient client) throws IOException
75             if (client.threadPool() != null && client.threadPool().getThreadContext() != null) {
76                 client.threadPool().getThreadContext().setErrorTraceTransportHeader(request);
77             }
78
79             SearchRequest searchRequest = new SearchRequest();
80             // access the BwC param, but just drop it
```

# Test coverage

```
»
417 public IndexWriter(Directory d, IndexWriterConfig conf)
417     conf.setIndexWriter(this); // prevent reuse by other i
416     config = conf;
416     directory = d;
416     analyzer = config.getAnalyzer();
416     infoStream = config.getInfoStream();
416     mergeScheduler = config.getMergeScheduler();
416     codec = config.getCodec();

416     bufferedUpdatesStream = new BufferedUpdatesStream(info
416     poolReaders = config.getReaderPooling());

416     writeLock = directory.makeLock(WRITE_LOCK_NAME);

414     if (!writeLock.obtain(config.getWriteLockTimeout()) /
0     throw new LockObtainFailedException("Index locked fo

414     boolean success = false;
414     try {
414         OpenMode mode = config.getOpenMode();
414         boolean create;
414         if (mode == OpenMode.CREATE) {
963             create = true;
451         } else if (mode == OpenMode.APPEND) {
302             create = false;
         } else {
```

## Actions

All workflows

Comment on PR for .asciidoc chang...

Docs preview comment

Docs Preview Links

docs-build

docs-cleanup

updatecli-compose

**Validate Gradle Wrapper**

Management

 Caches

 Deployments ↗

 Attestations ↗



 Runners

 Usage metrics ↗

 Performance metrics ↗

Validate Gradle Wrapper #59459: Commit [65e2c3f](#) pushed by [davidkyle](#)



8.19

 2 weeks ago ...  
 27s

 **Remove index refresh block ITs (replaced by ITs i...**

Validate Gradle Wrapper #59458: Commit [650ce32](#) pushed by [benchaplin](#)



main

 2 weeks ago ...  
 27s

 **Mute org.elasticsearch.index.mapper.vectors.De...**

Validate Gradle Wrapper #59457: Commit [0b0f4f8](#) pushed by [elasticsearchmachine](#)



main

 2 weeks ago ...  
 24s

 **Mute org.elasticsearch.index.mapper.vectors.De...**

Validate Gradle Wrapper #59456: Commit [6af55c2](#) pushed by [elasticsearchmachine](#)



main

 2 weeks ago ...  
 1m 1s

 **[ES|QL] Implement new syntax for RERANK and ...**

Validate Gradle Wrapper #59455: Commit [d56a476](#) pushed by [afoucret](#)



main

 2 weeks ago ...  
 36s

 **Add test**

Validate Gradle Wrapper #59454: Commit [9e75c14](#) pushed by [felixbarny](#)



metrics\_prototype

 2 weeks ago ...  
 29s

 **Upgrade MinIO (& work around bug) (#132178)**

Validate Gradle Wrapper #59453: Commit [3a285cf](#) pushed by [elasticsearchmachine](#)

8.18

 2 weeks ago ...  
 28s





# Push code to production

June 4th 1996

Original footage from ESA

[https://www.esa.int/ESA\\_Multimedia/Videos/1996/06/Ariane\\_501\\_recording\\_launch\\_pad\\_before\\_and\\_at\\_launch](https://www.esa.int/ESA_Multimedia/Videos/1996/06/Ariane_501_recording_launch_pad_before_and_at_launch)

```
public static int generateInt(int min, int max) {  
    return ThreadLocalRandom.current().nextInt(min, max);  
}
```

```
@Test  
void testInteger() {  
    int input = generateInt(Integer.MIN_VALUE, Integer.MAX_VALUE);  
    int output = Math.abs(input);  
    assertThat(output).isGreaterThanOrEqualTo(0);  
}
```

Results Logging

fr.pilato.demo.testframework.IntegerTest:37 – AssertionError( Expected: a value equal to or greater than <0> but: <-2147483648> was less than <0>)

( Expected: a value equal to or greater than <0>  
but: <-2147483648> was less than <0>)

Ran 0 Tests - Failures Detected

```
int output = Math.abs(input);  
assertThat(output).isGreaterThanOrEqualTo(0);
```

# Le hasard fait bien les tests

**Randomized  
Testing**  
Gotta Catch 'em all!


























Breizh C@mp  
La conférence à l'Ouest

# FScrawler

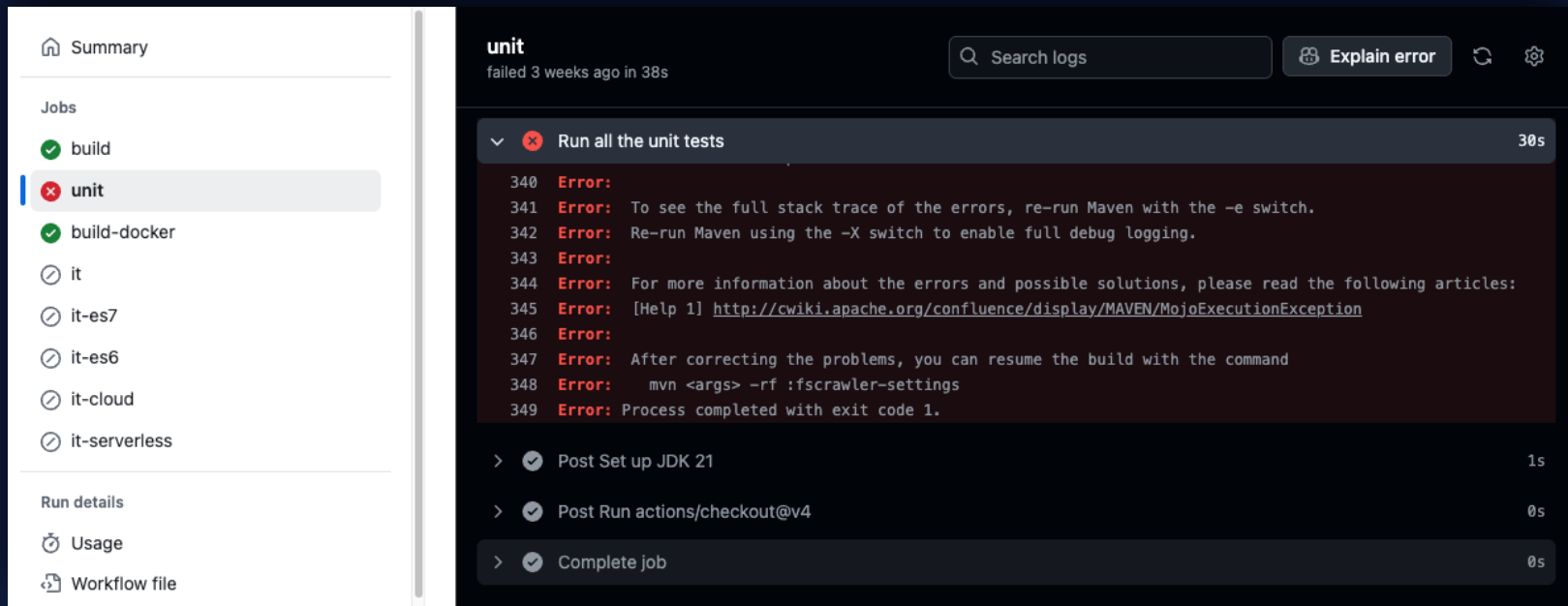
You know, for files!



[github.com/dadoonet/fscrawler/](https://github.com/dadoonet/fscrawler/)

 <b>Switch to AssertJ</b> CodeQL #1388: Pull request #2059 synchronize by dadoonet	<a href="#">assertj</a>	 3 months ago  5m 6s	
 <b>Switch to AssertJ</b> Build Pull Requests #1195: Pull request #2059 synchronize by dadoonet	<a href="#">assertj</a>	 3 months ago  3m 58s	
 <b>Switch to AssertJ</b> CodeQL #1387: Pull request #2059 synchronize by dadoonet	<a href="#">assertj</a>	 3 months ago  4m 53s	
 <b>Switch to AssertJ</b> Update Pull Requests files #524: Pull request #2059 synchronize by dadoonet	<a href="#">assertj</a>	 3 months ago  1m 12s	
 <b>Switch to AssertJ</b> Update Pull Requests files #523: Pull request #2059 synchronize by dadoonet	<a href="#">assertj</a>	 3 months ago  1m 10s	
 <b>Switch to AssertJ</b>	<a href="#">assertj</a>	 3 months ago	

https://github.com/dadoonet/fscrawler/actions/runs/14357866984/job/40251514398#step:4:296



**unit**  
failed 3 weeks ago in 38s

Search logs Explain error

Jobs

- build
- unit**
- build-docker
- it
- it-es7
- it-es6
- it-cloud
- it-serverless

Run details

- Usage
- Workflow file

Run all the unit tests 30s

```
340 Error:  
341 Error: To see the full stack trace of the errors, re-run Maven with the -e switch.  
342 Error: Re-run Maven using the -X switch to enable full debug logging.  
343 Error:  
344 Error: For more information about the errors and possible solutions, please read the following articles:  
345 Error: [Help 1] http://cwiki.apache.org/confluence/display/MAVEN/MojoExecutionException  
346 Error:  
347 Error: After correcting the problems, you can resume the build with the command  
348 Error: mvn <args> -rf :fscrawler-settings  
349 Error: Process completed with exit code 1.
```

Post Set up JDK 21 1s

Post Run actions/checkout@v4 0s

Complete job 0s

Throwable #1: `java.lang.NullPointerException`: Cannot invoke "`Elasticsearch.setIndex(String)`" because the return value of "`FsSettings.getElasticsearch()`" is `null`

Throwable #1: `java.lang.NullPointerException`: Cannot invoke "`Elasticsearch.setIndex(String)`" because the return value of "`FsSettings.getElasticsearch()`" is `null`

```
@Test
void settingsValidation() {
    FsSettings settings = FsSettingsLoader.load();
    settings.getElasticsearch().setIndex(getCurrentTestName());

    // ...
}
```

```
@Test
void settingsValidation() {
    FsSettings settings = FsSettingsLoader.load();
    settings.getElasticsearch().setIndex(getCurrentTestName());

    // ...
}
```



REPRODUCE WITH:

```
mvn integration-test -Dtests.locale=az
```

```
Throwable #1: java.lang.NullPointerException: Cannot invoke  
"Elasticsearch.setIndex(String)" because the return value of  
"FsSettings.getElasticsearch()" is null
```

**It depends!**





# It depends!

```
@Test
void settingsValidationFr() {
    Locale.setDefault(new Locale.Builder().setLanguageTag("fr").build());
    FsSettings settings = FsSettingsLoader.load();
    settings.getElasticsearch().setIndex(getCurrentTestName());
```

```
    // ...
}
```

```
@Test
void settingsValidationAz() {
    Locale.setDefault(new Locale.Builder().setLanguageTag("az").build());
    FsSettings settings = FsSettingsLoader.load();
    settings.getElasticsearch().setIndex(getCurrentTestName());
```

```
    // ...
}
```

```
@Test
void settingsValidationEn() {
    Locale.setDefault(new Locale.Builder().setLanguageTag("en").build());
    FsSettings settings = FsSettingsLoader.load();
    settings.getElasticsearch().setIndex(getCurrentTestName());
```

# Randomized Testing



# Installation (pom.xml - Java)

```
<dependency>  
  <groupId>com.carrotsearch.randomizedtesting</groupId>  
  <artifactId>randomizedtesting-jupiter</artifactId>  
  <version>0.2.0</version>  
  <scope>test</scope>  
</dependency>
```

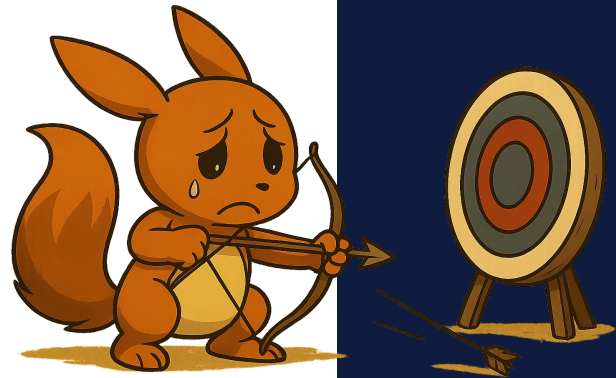
```
@Test
void testCreateClusterAndIndex(Random rnd) {
    int numberOfNodes = RandomizedTest.randomIntInRange(rnd, 1, 20);
    int numberOfShards = RandomizedTest.randomIntInRange(rnd, 1, 30);
    int numberOfReplicas = RandomizedTest.randomIntInRange(rnd,
        0, numberOfNodes - 1);
    String indexName = RandomizedTest.randomAsciiAlphanumOfLength(
        rnd, RandomizedTest.randomIntInRange(rnd, 5, 20)) ;

    // Create a cluster with the specified number of nodes
    startCluster(numberOfNodes) ;

    // Create an index with the specified number of shards and replicas
    createIndex(indexName, numberOfShards, numberOfReplicas);

    // Run tests here
    // ...
}
```

atLeast(Random, int): int  
atMost(Random, int): int  
frequently(Random): boolean  
iterations(Random, int, int): int  
multiplier(): double  
randomAsciiAlphanumOfLength(Random, int): String  
randomAsciiAlphanumOfLengthBetween(Random, int, int): String  
randomAsciiLettersOfLength(Random, int): String  
randomAsciiLettersOfLengthBetween(Random, int, int): String  
randomBoolean(Random): boolean  
randomByte(Random): byte  
randomBytesOfLength(Random, int): byte[]  
randomBytesOfLength(Random, int, int): byte[]  
randomDouble(Random): double  
randomFloat(Random): float  
randomFrom(Random, byte[]): byte  
randomFrom(Random, char[]): char  
randomFrom(Random, double[]): double  
randomFrom(Random, float[]): float  
randomFrom(Random, int[]): int



# Seed



# Seed

```
@Test
void testSeed() {
    Random generator = new Random();
    int num = generator.nextInt();
    assertThat(num).isEqualTo(1553932502);
}
```



# Seed

```
@Test
void testSeed() {
    Random generator = new Random(12345L);
    int num = generator.nextInt();
    assertThat(num).isEqualTo(1553932502);
}
```





REPRODUCE WITH:

```
mvn integration-test -Dtests.seed=489581FE40712E4A  
# -Dtests.locale=az -Dtests.timezone=Asia/Ashkhabad
```



REPRODUCE WITH:

```
mvn integration-test -Dtests.seed=489581FE40712E4A  
# -Dtests.locale=az -Dtests.timezone=Asia/Ashkhabad
```

```
@Test  
@FixSeed("489581FE40712E4A")  
void settingsValidationForLocaleAz() {  
    // ...  
}
```

# Try other locales

```
private static final Locale savedLocale = Locale.getDefault();

@BeforeAll
static void setLocale(Random rnd) {
    String testLocale = System.getProperty("tests.locale", "random");
    Locale locale = testLocale.equals("random") ? RandomizedTest.randomLocale(rnd) :
        new Locale.Builder().setLanguageTag(testLocale).build();
    Locale.setDefault(locale);
    LOGGER.info("🌐 Starting test suite with Locale [{}]",
        Locale.getDefault().toLanguageTag());
}

@AfterAll
static void resetLocale() {
    Locale.setDefault(savedLocale);
}
```

```
@Test
void withLocale() {
    DateTimeFormatter dateTimeFormatter =
        DateTimeFormatter.ofLocalizedDate(FormatStyle.FULL);
    String format = dateTimeFormatter.format(LocalDate.now());
    LOGGER.info(" ➡ Date is formatted as [{}]", format);
}
```

# RUN 1

(56 ) 🌐 Starting test suite with Locale [es-US]

(127) ➡ Date is formatted as [viernes, 24 de abril de 2026]

# RUN 2

(56 ) 🌐 Starting test suite with Locale [lb-LU]

(127) ➡ Date is formatted as [Freideg, 24. Abrëll 2026]

```
mvn test -Dtests.locale=fr-FR
```

```
# RUN 1
```

```
(56 ) 🌐 Starting test suite with Locale [fr-FR]
```

```
(127) ➡ Date is formatted as [vendredi 24 avril 2026]
```

```
# RUN 2
```

```
(56 ) 🌐 Starting test suite with Locale [fr-FR]
```

```
(127) ➡ Date is formatted as [vendredi 24 avril 2026]
```

# Random execution order

junit

In `src/test/resources/junit-platform.properties`

```
junit.jupiter.testclass.order.default=org.junit.jupiter.api.ClassOrderer$Random
junit.jupiter.testmethod.order.default=org.junit.jupiter.api.MethodOrderer$Random
```

✓ <default package>	4 sec 628 ms
✓ ElasticsearchTest	4 sec 550 ms
✓ testCreateClusterAndIndex(Random)	16 ms
✓ longRunningTest(Random)	4 sec 516 ms
✓ sometimes(Random)	18 ms
✓ RandomTest	78 ms
✓ randomWithSeed01()	21 ms
> ✓ randomIntegerWithRange04(Random)	4 ms
✓ random00()	
✓ ignoreOnWindows21()	1 ms
✓ randomInteger02(Random)	
> ✓ repeatMe05(Random)	
> ✓ repeatMe(Random)	44 ms
✓ stopOrIdentifyYourThreads30()	1 ms
✓ ignoreOnWindows22()	1 ms
✓ randomLocale10()	2 ms
✓ randomIntegerWithSeed03(Random)	1 ms

✓ <default package>	53 sec 630 ms
✓ RandomTest	100 ms
✓ stopOrIdentifyYourThreads30()	33 ms
✓ randomInteger02(Random)	2 ms
✓ ignoreOnWindows21()	
✓ randomIntegerWithSeed03(Random)	1 ms
✓ ignoreOnWindows22()	
> ✓ repeatMe(Random)	54 ms
✓ random00()	
> ✓ randomIntegerWithRange04(Random)	4 ms
✓ randomWithSeed01()	
✓ randomLocale10()	4 ms
> ✓ repeatMe05(Random)	
✓ ElasticsearchTest	53 sec 530 ms
✓ testCreateClusterAndIndex(Random)	1 ms
✓ sometimes(Random)	3 ms
✓ longRunningTest(Random)	53 sec 526 ms

# ZOMBIE THREADS

```
@DetectThreadLeaks
```

```
@Randomized
```

```
class RandomTest {  
    @Test  
    void stopYourThreads() {  
        new Thread(() -> {  
            public void run() {  
                while (true) {  
                    try { Thread.sleep(1000L); } catch (InterruptedException e) { } }  
                } }, "zombie").start();  
        }  
    }  
}
```



# ZOMBIE THREADS

```
@DetectThreadLeaks
```

```
@Randomized
```

```
class RandomTest {  
    @Test  
    void stopYourThreads() {  
        new Thread(() -> {  
            public void run() {  
                while (true) {  
                    try { Thread.sleep(1000L); } catch (InterruptedException e) { } }  
                } }, "zombie").start();  
        }  
    }  
}
```

**1 thread(s) leaked** from suite [RandomTest]:

```
1) Thread[id=39, name=zombie, state=TIMED_WAITING, group=main]  
   at java.base@25/java.lang.Thread.sleepNanos(Native Method)  
   at java.base@25/java.lang.Thread.sleepNanos(Thread.java:509)  
   at java.base@25/java.lang.Thread.sleep(Thread.java:540)  
   at app//RandomTest.lambda$stopYourThreads$0(RandomTest.java:163)
```



# ZOMBIE THREADS

```
@DetectThreadLeaks
@ExcludeThreads(FriendlyZombieFilter.class)
@Randomized
class RandomTest {
    @Test
    void identifyYourThreads() {
        new Thread(() -> {
            public void run() {
                while (true) {
                    try { Thread.sleep(1000L); } catch (InterruptedException e) { } }
                } }, "friendly-zombie").start();
    }
}

public static class FriendlyZombieFilter implements Predicate<Thread> {
    public boolean test(Thread t) {
        return "friendly-zombie".equals(t.getName());
    }
}
```



# Back to the bug

```
@Test
void settingsValidation() {
    FsSettings settings = FsSettingsLoader.load();
    settings.getElasticsearch().setIndex(getCurrentTestName());

    // ...
}
```



```
@Test
void testLocaleFr() throws Exception {
    Locale.setDefault(new Locale.Builder().setLanguageTag("fr").build());
    Gestalt gestalt = new GestaltBuilder()
        .addSource(MapConfigSourceBuilder.builder()
            .addCustomConfig("elasticsearch.index", "foo")
            .build())
        .build();
    gestalt.loadConfigs();
    assertThat(gestalt.getConfigOptional("elasticsearch", Elasticsearch.class)).isPresent();
}
```



```
@Test
void testLocaleAz() throws Exception {
    Locale.setDefault(new Locale.Builder().setLanguageTag("az").build());
    Gestalt gestalt = new GestaltBuilder()
        .addSource(MapConfigSourceBuilder.builder()
            .addCustomConfig("elasticsearch.index", "foo")
            .build())
        .build();
    gestalt.loadConfigs();
    assertThat(gestalt.getConfigOptional("elasticsearch", Elasticsearch.class)).isPresent();
}
```





credmond-git on Apr 11 · edited by credmond-git

Edits ▾ Collaborator ⋮

I found the root cause of the issue.

Gestalt uses the following pattern to tokenize a path.

```
pattern: ^((?<name>[\w .,+=-;:"'`~!@#%&*()\<>]+)(?<array>\[[(?<index>\d*)\])?)$
```

When presented with the word: 'flushinterval'

the following doesn't find a match in the PathLexer: `Matcher matcher = pathPattern.matcher(word);`

It seems to work in every other Locale, but Az?

I need to look into why this is happening, and how to fix it.



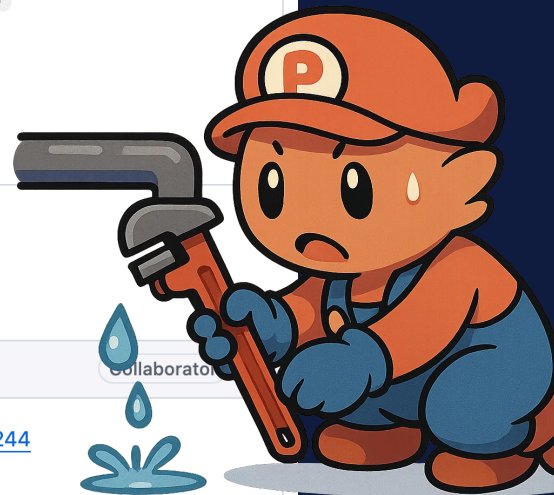
credmond-git mentioned this on Apr 11

[fix: specify the root locale when using toLower. #243](#)




credmond-git on Apr 11

I also made a fix so we can support different languages Unicode characters for object field names. [#244](#)



```
@Test
@FixSeed("489581FE40712E4A")
void testGestalt242() throws Exception {
    FsSettings settings = FsSettingsLoader.load();
    // This is supposed to fail because of:
    // https://github.com/gestalt-config/gestalt/issues/242
    assertThatNullPointerException()
        .isThrownBy(() -> settings.getElasticsearch().setIndex("foo"));
}
```

```
@Test
@FixSeed("489581FE40712E4A")
void testGestalt242() throws Exception {
    FsSettings settings = FsSettingsLoader.load();
    // This is supposed to fail because of:
    // https://github.com/gestalt-config/gestalt/issues/242
    assertThatNullPointerException()
        .isThrownBy(() -> settings.getElasticsearch().setIndex("foo"));
}
```

(70 )  Starting test [testGestalt242()] with seed [489581FE40712E4A]

java.lang.AssertionError:  
Expecting code to raise a throwable.

at \_\_randomizedtesting.SeedChain.seed([489581FE40712E4A])  
at RandomTest.testGestalt242(RandomTest.java:177)







# David Pilato



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 [@dadoonet](https://twitter.com/dadoonet)

 <https://david.pilato.fr/>

# Le hasard fait bien les tests

## Randomized Testing Gotta Catch 'em all!

Slides



Breizh C@mp  
La conférence à l'Ouest

<https://david.pilato.fr/breizhcamp26>