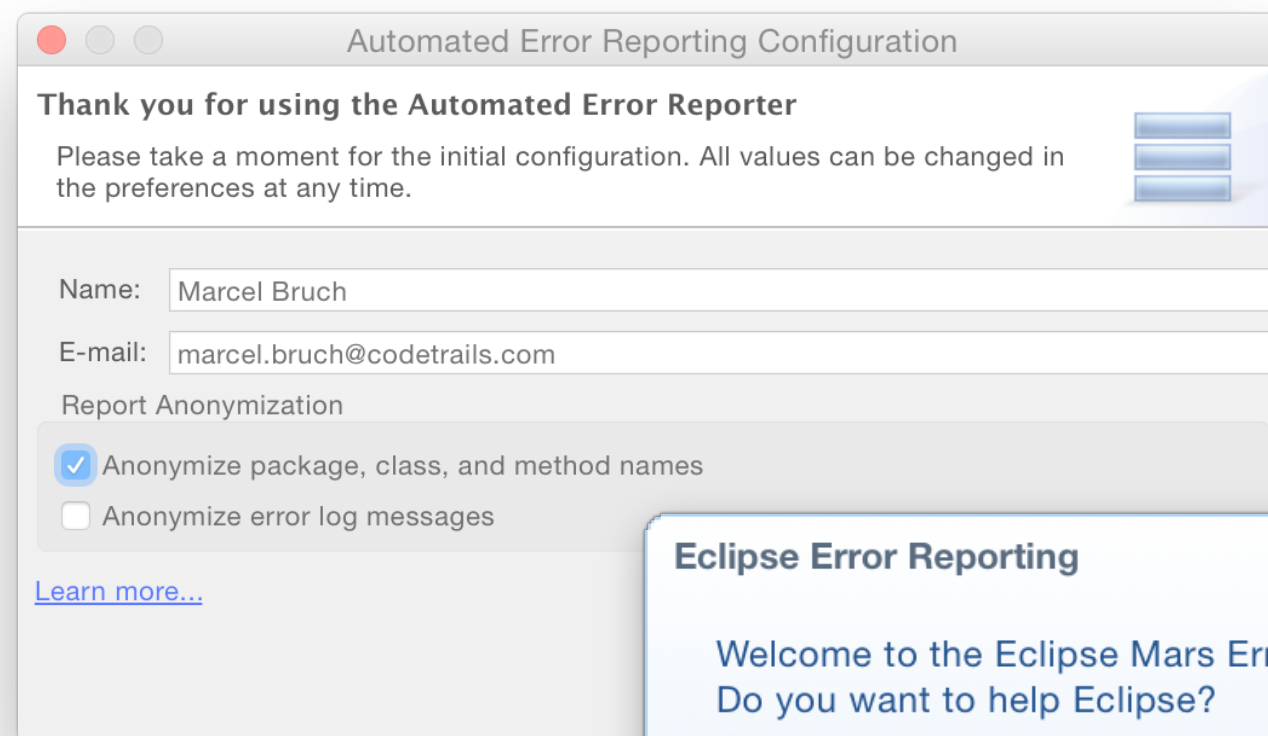


Because you can't fix what
you don't know is broken...



Automated Error Reporting Configuration

Thank you for using the Automated Error Reporter

Please take a moment for the initial configuration. All values can be changed in the preferences at any time.

Name:

E-mail:

Report Anonymization

☒ Anonymize package, class, and method names

☐ Anonymize error log messages

[Learn more...](#)

Eclipse Error Reporting

Welcome to the Eclipse Mars Error Reporting Service.
Do you want to help Eclipse?

With your permission Eclipse can inspect errors logged inside the IDE and inform project committers about the issues you experienced. Do you want to help and enable the error reporter?

[Enable](#) [Disable](#)

About me



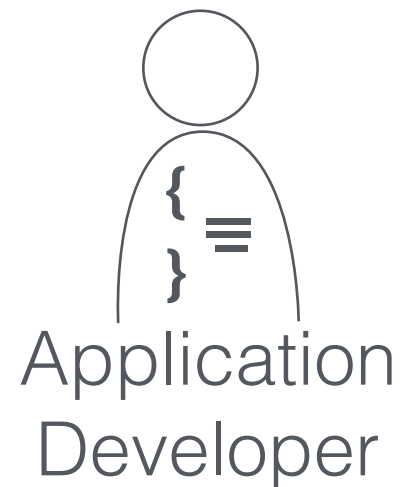
marcelbruch



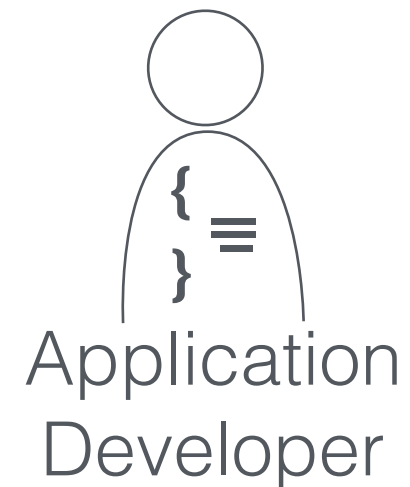
@marcelbruch

- Initiator of the Automated Error Reporting Initiative
 - Project Lead of Eclipse Code Recommenders
 - Eclipse Committer since 2010
 - Plug-in Developer for 10+ years (Eclipse 2.1)
 - Member of the Eclipse Architecture Council
 - Co-Lead of Java User Group Darmstadt
 - CEO of Codetrails
-
- **Passion to improve developers day-to-day work with intelligent and practical tools - mostly using Data Mining on Big (Software Engineering) Data.**

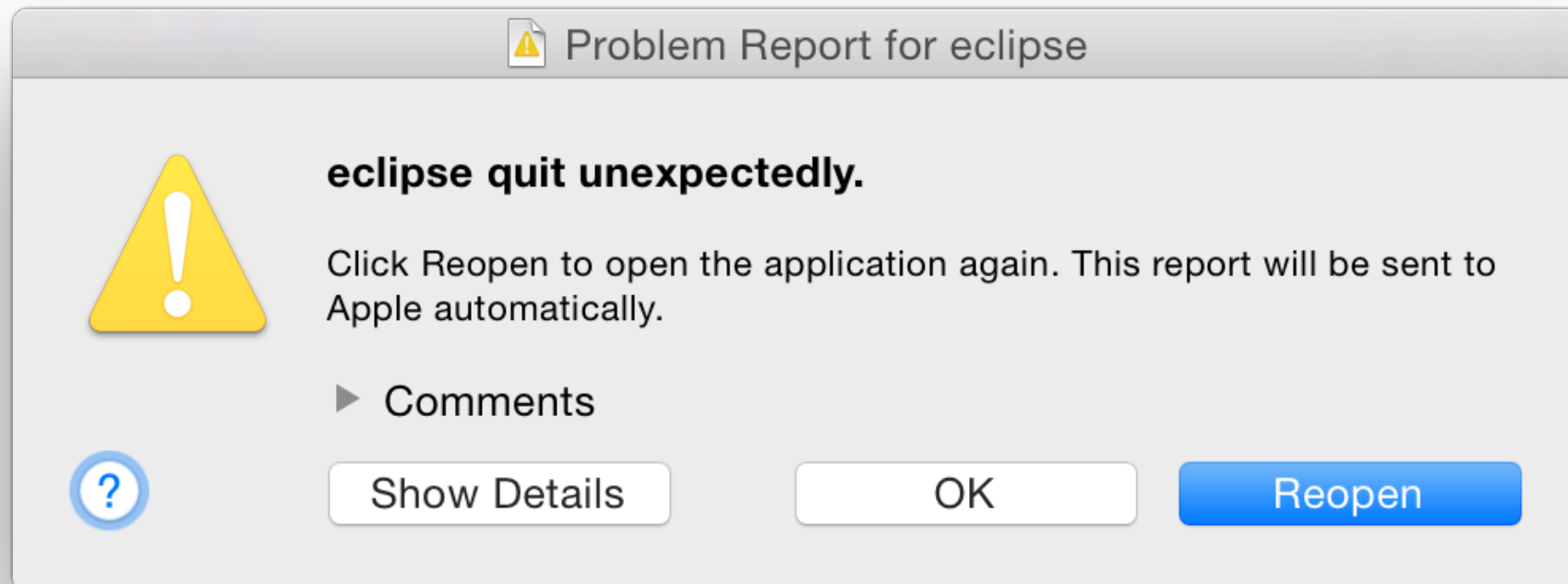
Adding a **new character** to the plot



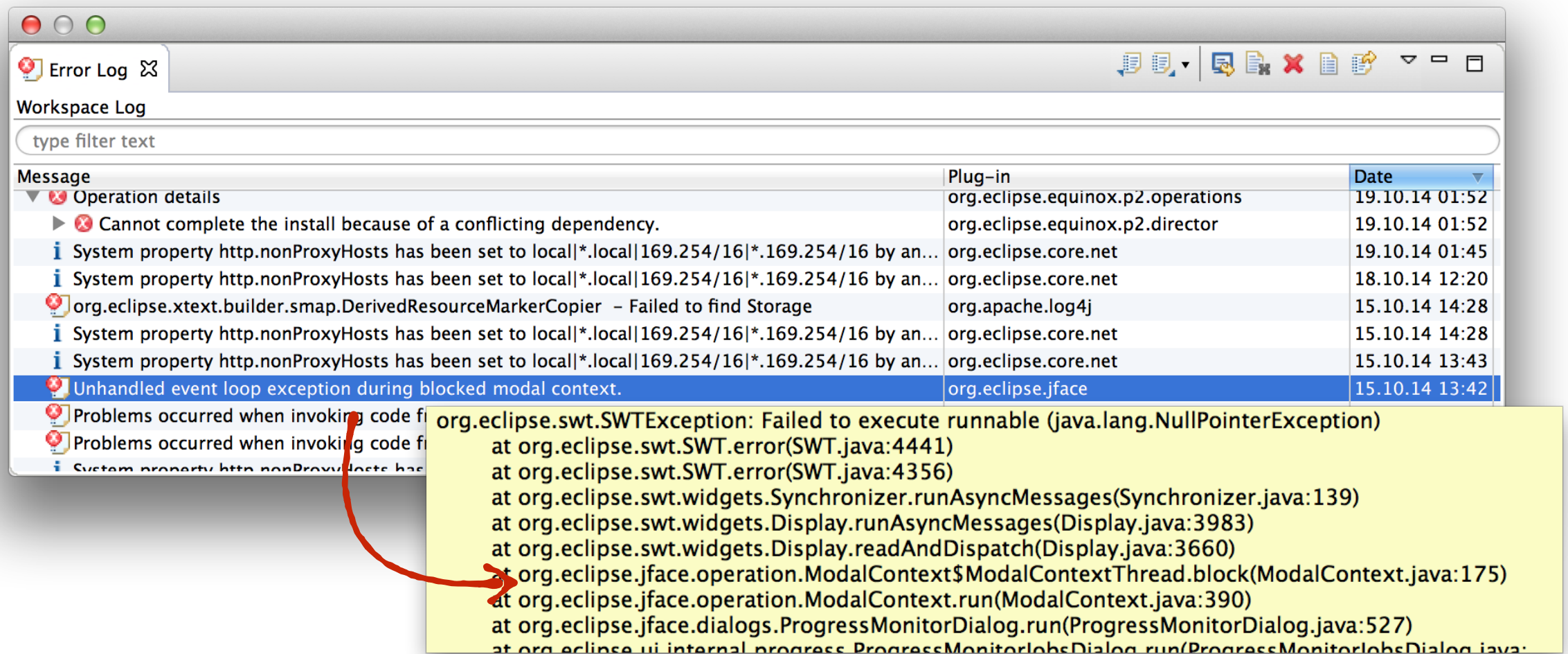
Imagine the following situation...



But when the user starts the app...



In the logs you'd find...

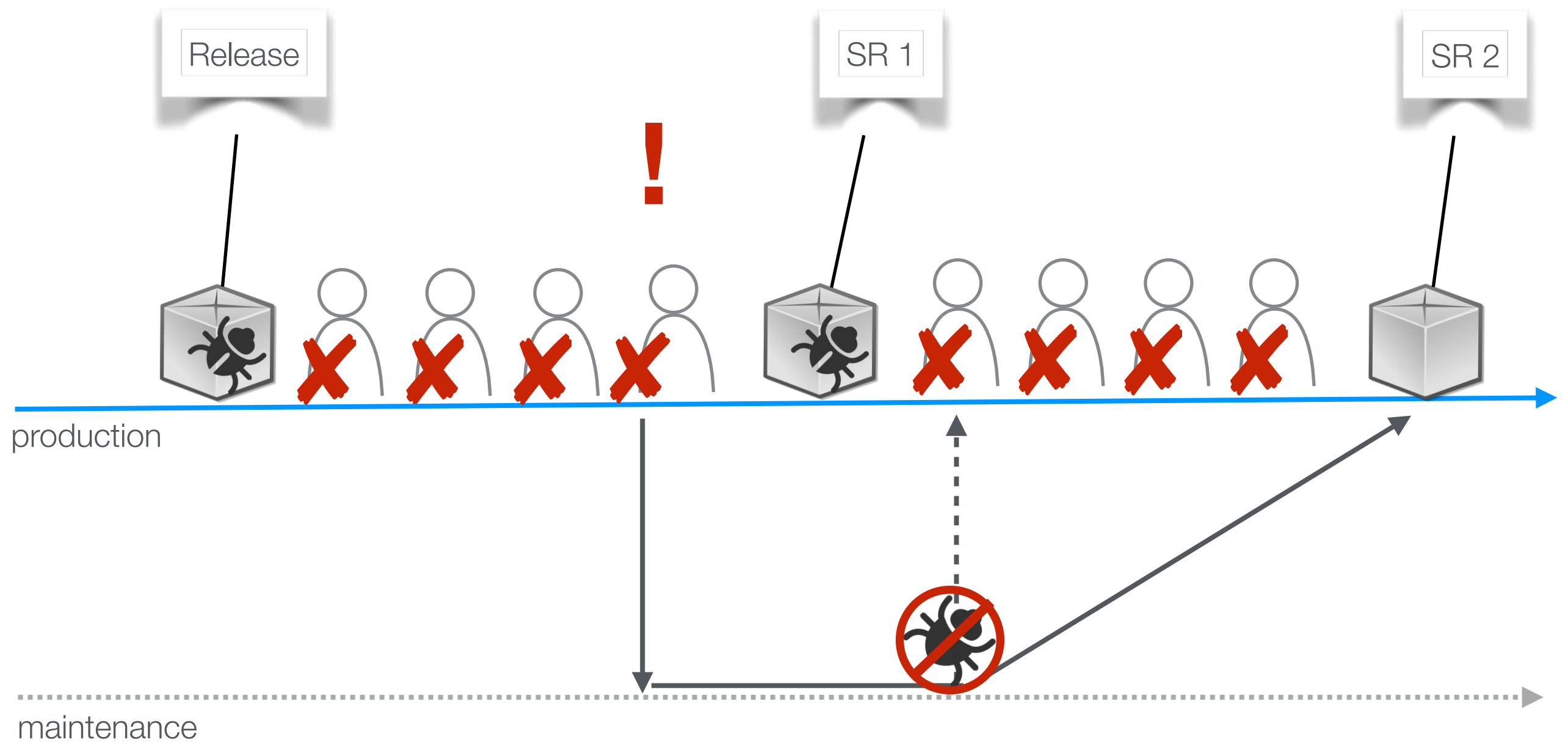


The screenshot shows the Eclipse IDE's 'Error Log' window. The 'Workspace Log' tab is active, displaying a list of messages. The message 'Unhandled event loop exception during blocked modal context.' is selected, and a red arrow points from it to a detailed stack trace in a yellow box.

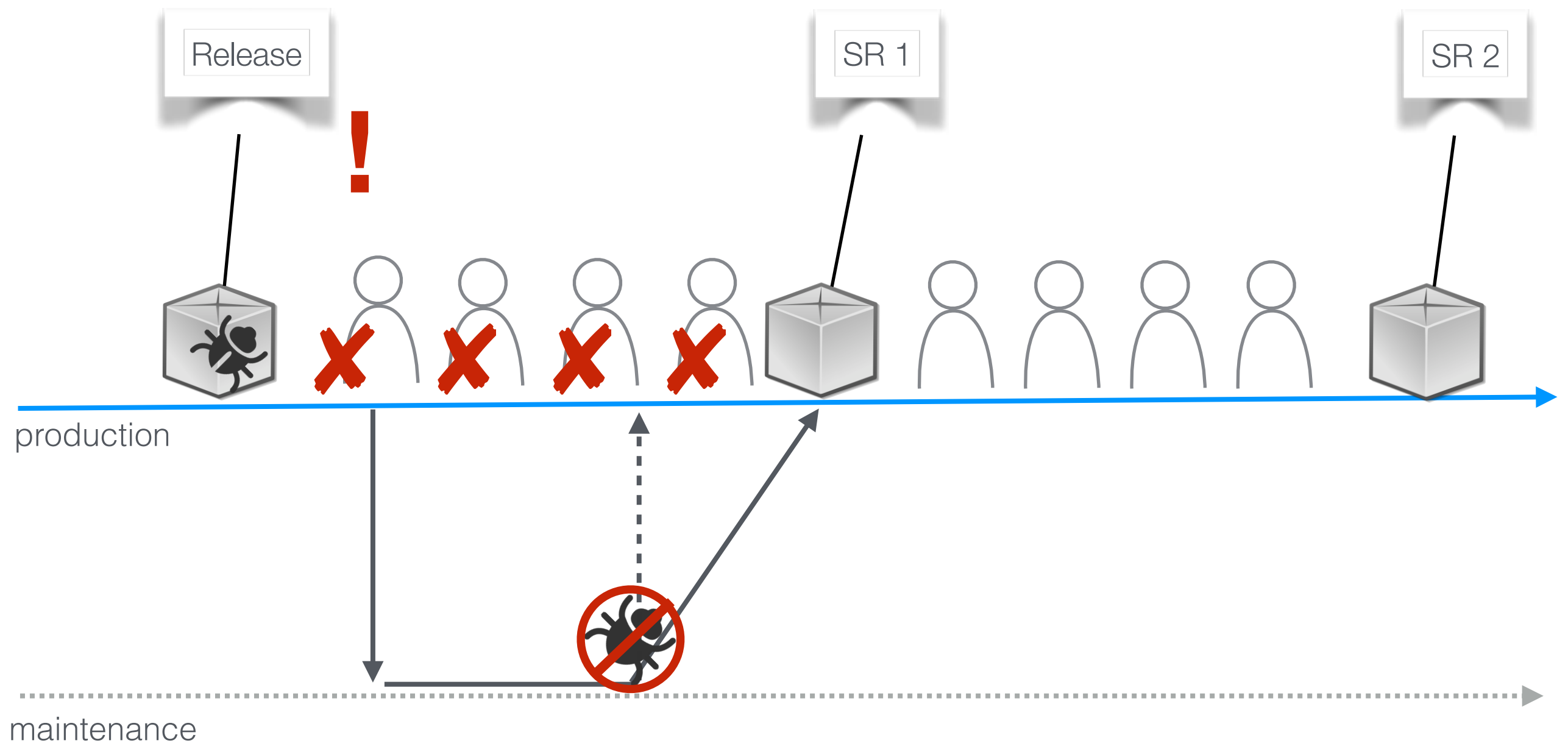
Message	Plug-in	Date
Operation details	org.eclipse.equinox.p2.operations	19.10.14 01:52
Cannot complete the install because of a conflicting dependency.	org.eclipse.equinox.p2.director	19.10.14 01:52
System property http.nonProxyHosts has been set to local *.local 169.254/16 *.169.254/16 by an...	org.eclipse.core.net	19.10.14 01:45
System property http.nonProxyHosts has been set to local *.local 169.254/16 *.169.254/16 by an...	org.eclipse.core.net	18.10.14 12:20
org.eclipse.xtext.builder.smap.DerivedResourceMarkerCopier - Failed to find Storage	org.apache.log4j	15.10.14 14:28
System property http.nonProxyHosts has been set to local *.local 169.254/16 *.169.254/16 by an...	org.eclipse.core.net	15.10.14 14:28
System property http.nonProxyHosts has been set to local *.local 169.254/16 *.169.254/16 by an...	org.eclipse.core.net	15.10.14 13:43
Unhandled event loop exception during blocked modal context.	org.eclipse.jface	15.10.14 13:42
Problems occurred when invoking code f		
Problems occurred when invoking code f		
System property http.nonProxyHosts has		

org.eclipse.swt.SWTException: Failed to execute runnable (java.lang.NullPointerException)
at org.eclipse.swt.SWT.error(SWT.java:4441)
at org.eclipse.swt.SWT.error(SWT.java:4356)
at org.eclipse.swt.widgets.Synchronizer.runAsyncMessages(Synchronizer.java:139)
at org.eclipse.swt.widgets.Display.runAsyncMessages(Display.java:3983)
at org.eclipse.swt.widgets.Display.readAndDispatch(Display.java:3660)
at org.eclipse.jface.operation.ModalContext\$ModalContextThread.block(ModalContext.java:175)
at org.eclipse.jface.operation.ModalContext.run(ModalContext.java:390)
at org.eclipse.jface.dialogs.ProgressMonitorDialog.run(ProgressMonitorDialog.java:527)
at org.eclipse.ui.internal.progress.ProgressMonitorDialog.run(ProgressMonitorDialog.java:100)

The tragedy of manual error reports

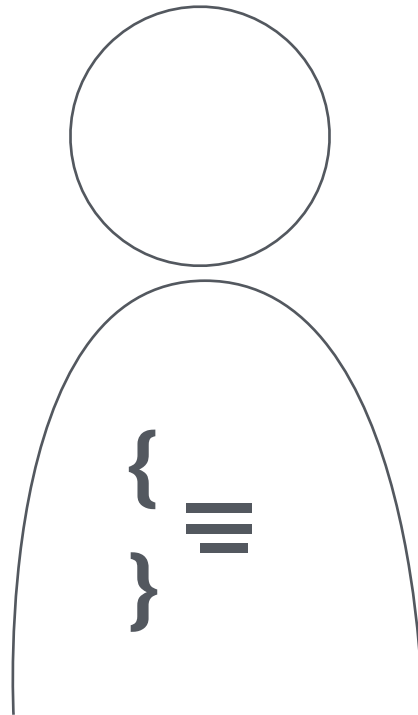


The tragedy of manual error reports



What can we do?

?



Application Developer

The Automated Error Reporting Initiative

Live Demo

Automated Error Reporting Configuration

Thank you for using the Automated Error Reporter

Please take a moment for the initial configuration. All values can be changed in the preferences at any time.

Name:

E-mail:

Report Anonymization

☒ Anonymize package, class, and method names

☐ Anonymize error log messages

[Learn more...](#) [Provide feedback...](#)

Eclipse Error Reporting

Welcome to the Eclipse Mars Error Reporting Service.
Do you want to help Eclipse?

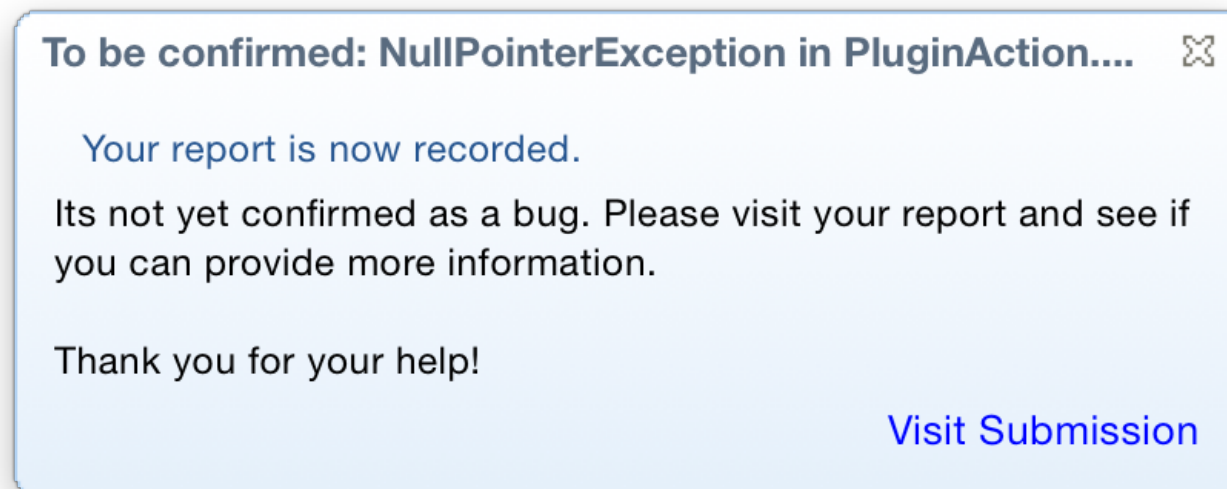
With your permission Eclipse can inspect errors logged inside the IDE and inform project committers about the issues you experienced. Do you want to help and enable the error reporter?

[Enable](#) [Disable](#)

„Keep users informed about your progress...”

About server responses,
Bugzilla, and immediate feedback

Not yet tracked problems...

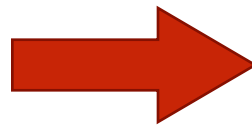


Committers needinfo...

Bug 442500 –

Status: NEW

Resolution: - - -



Your assistance is requested: NullPointerException in Plugin ✖

Your issue is known but further information is required.

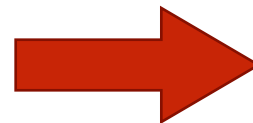
[Visit #460231](#) [Visit Submission](#)

Fixed...

Bug 442500 –

Status: RESOLVED

Resolution FIXED



Fixed: NullPointerException in PluginAction....



Your issue appears to be fixed.

Please visit the bug report for further details.

Thank you for your help!

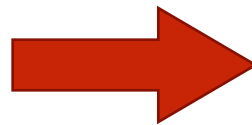
[Visit #460231](#) [Visit Submission](#)

Won't Fix...

Bug 442500 –

Status: CLOSED

Resolutio WONTFIX



Minor issue: NullPointerException in PluginAction....

Your report has been marked as a minor issue.

If you think your report is actually an error, please visit your report and leave a comment.

Thank you for your help!

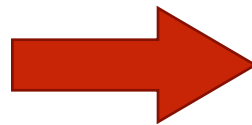
[Visit #460231](#) [Visit Submission](#)

Invalid (aka log messages)

Bug 442500 –

Status: CLOSED

Resolutio INVALID



Log message: NullPointerException in PluginAction....

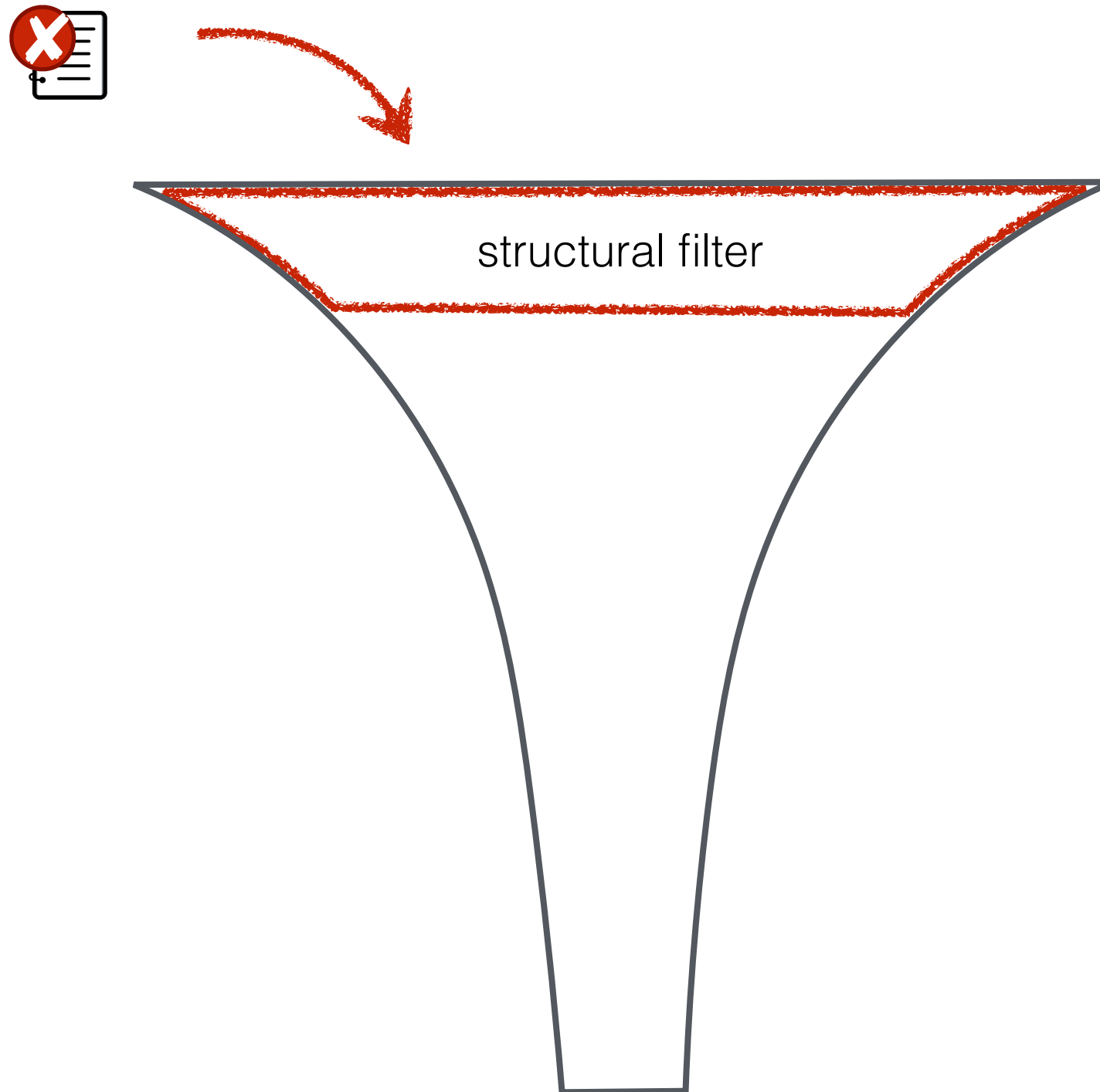
Your report has been marked as a log message.
If you think your report is actually an error, please visit your report and leave a comment.

Thank you for your help!

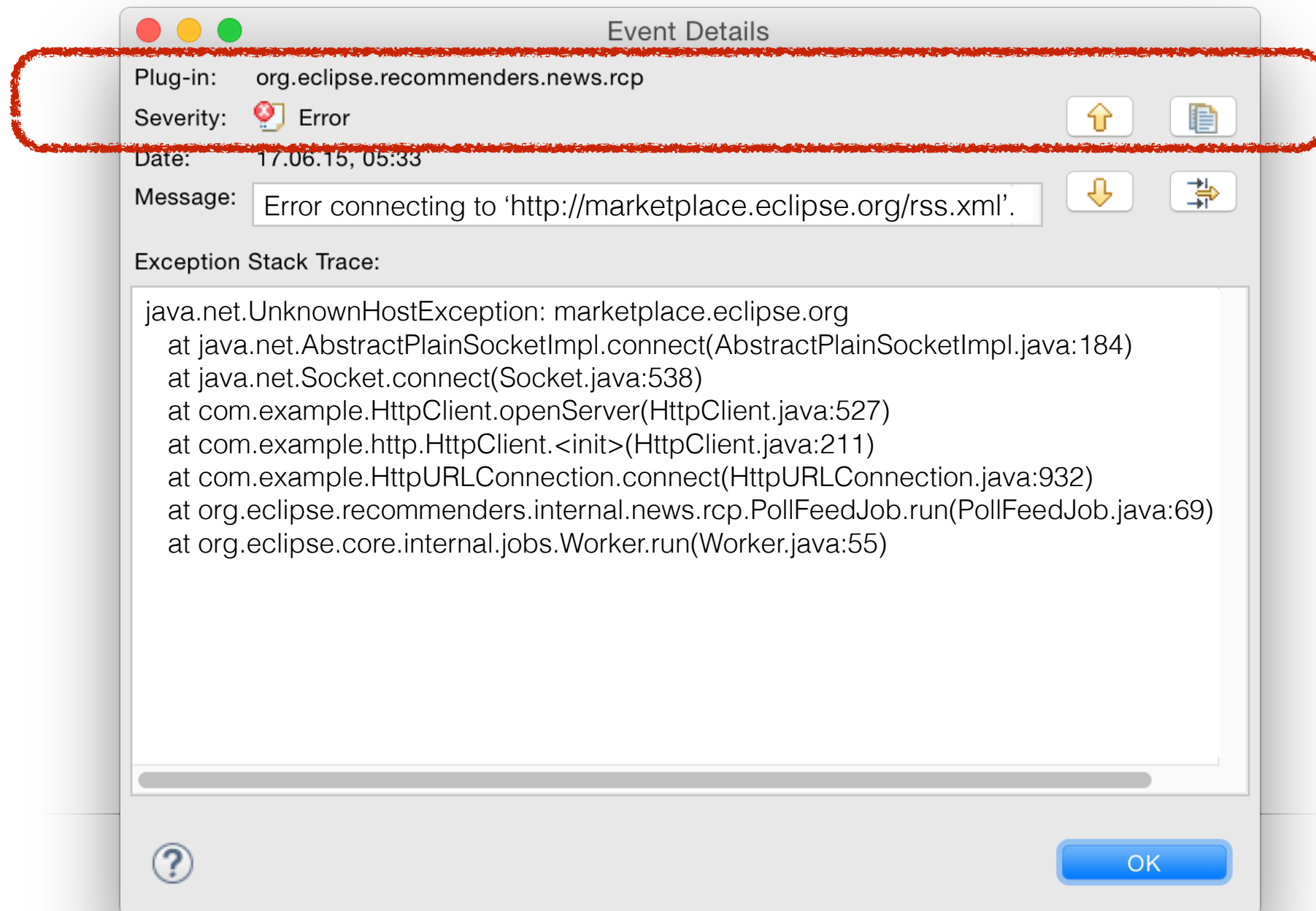
[Visit #460231](#) [Visit Submission](#)

really
Do we send **all errors** to Eclipse...?

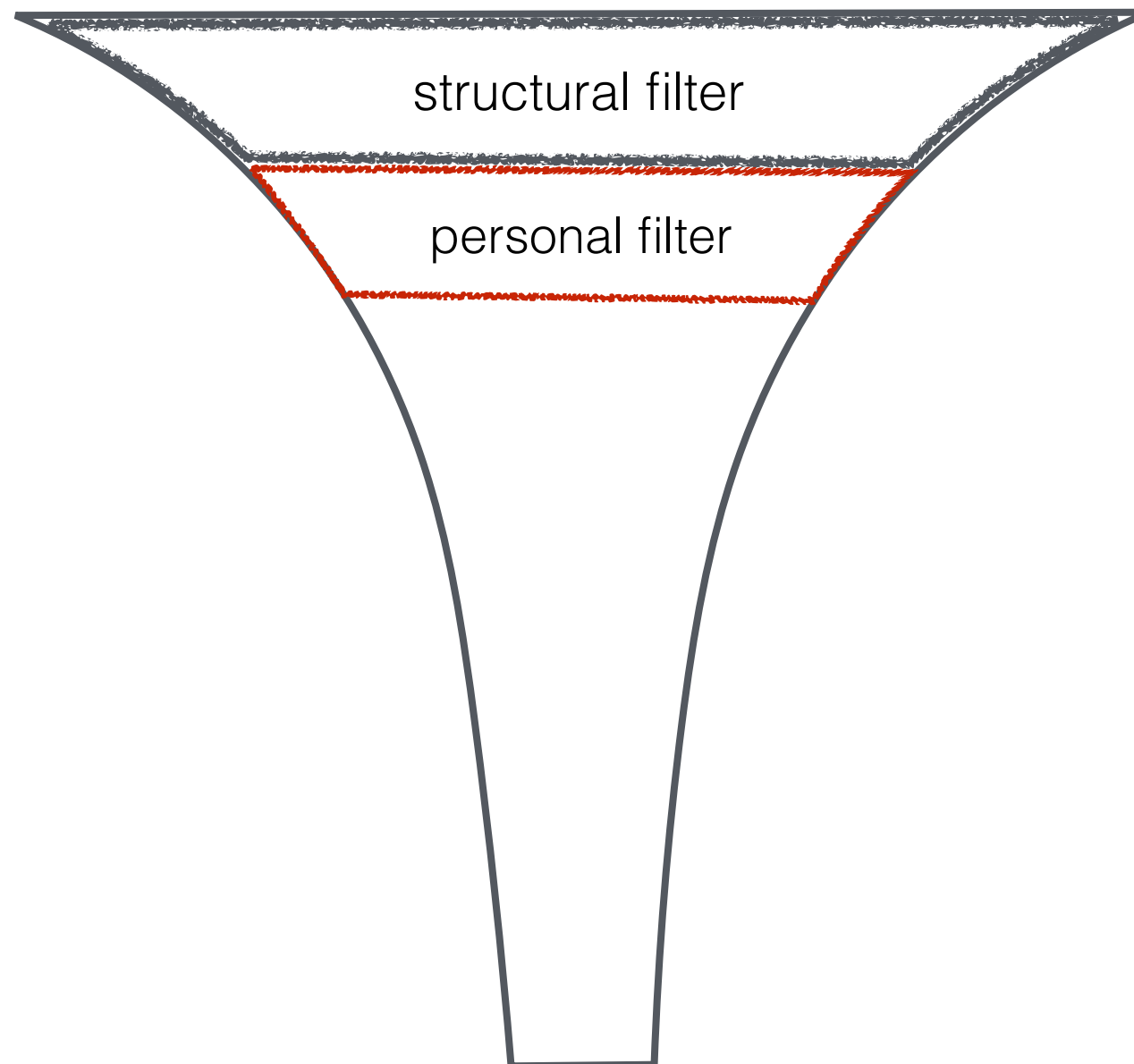
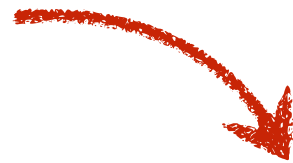
The error reporting funnel



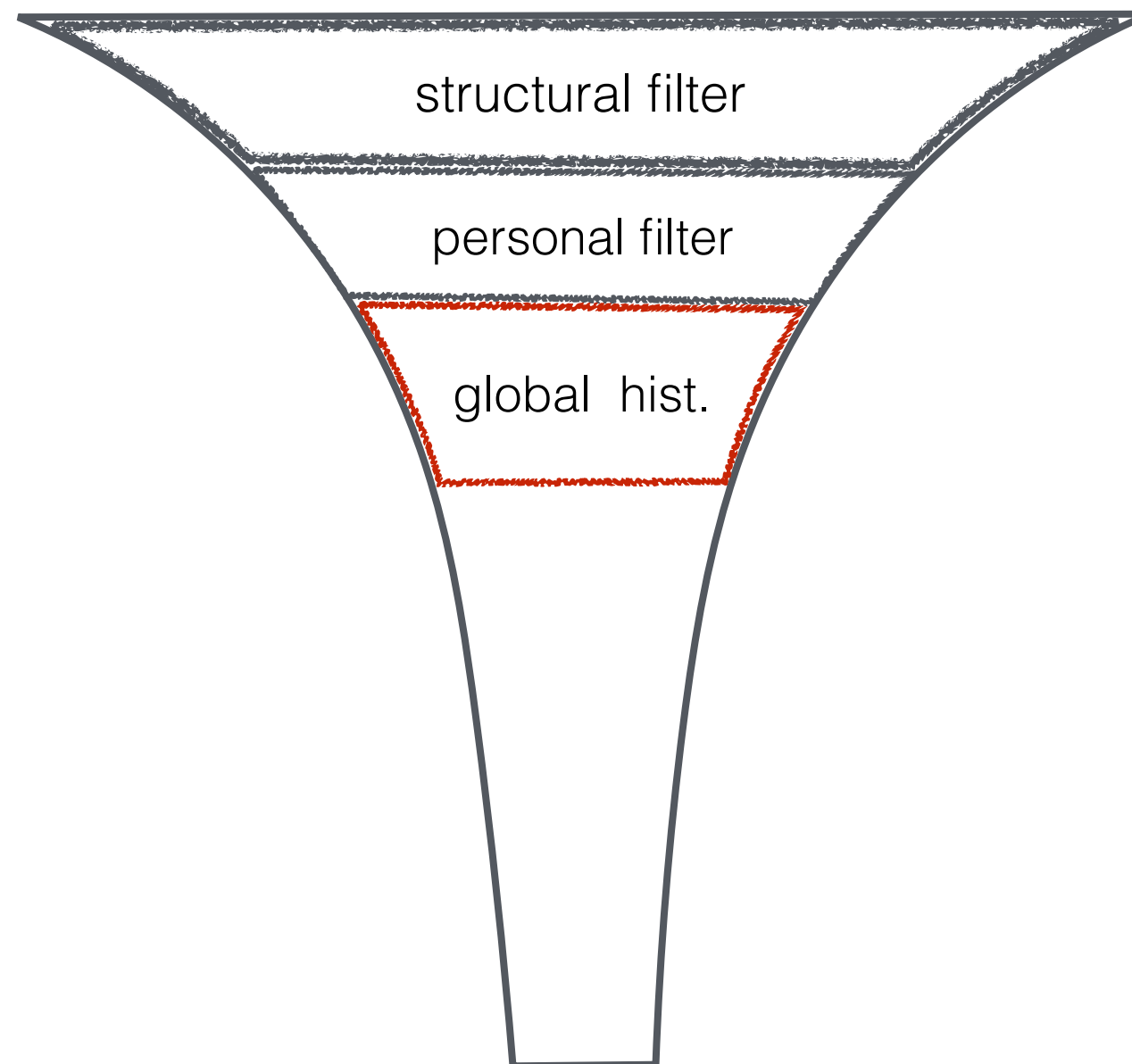
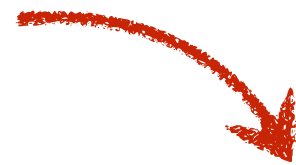
#1: Structural Filtering



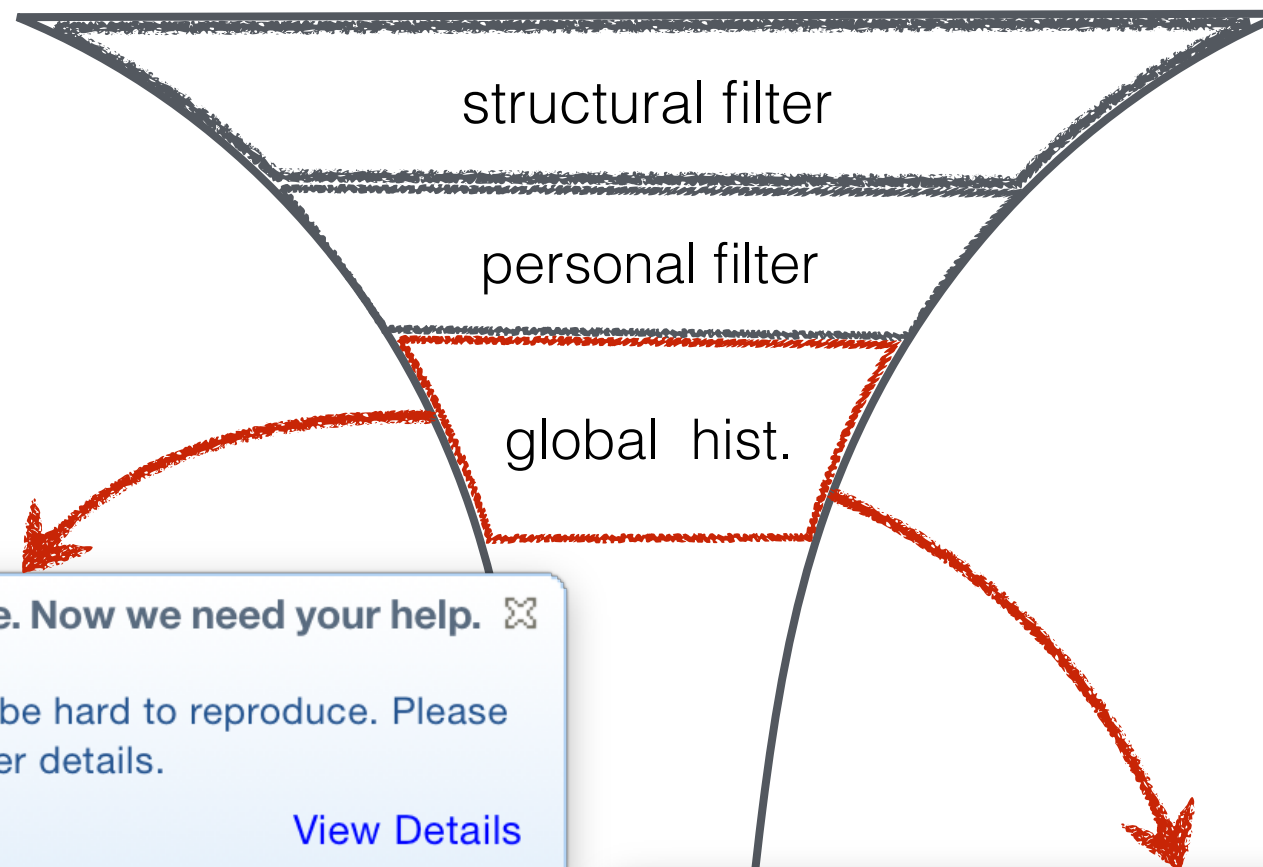
#2: Did I already sent this?



#3: Did anyone else sent this?



If you hit a **known issue**...



 **You hit a known issue in Eclipse. Now we need your help.** 

'some error message' appears to be hard to reproduce. Please help us fixing it by providing further details.

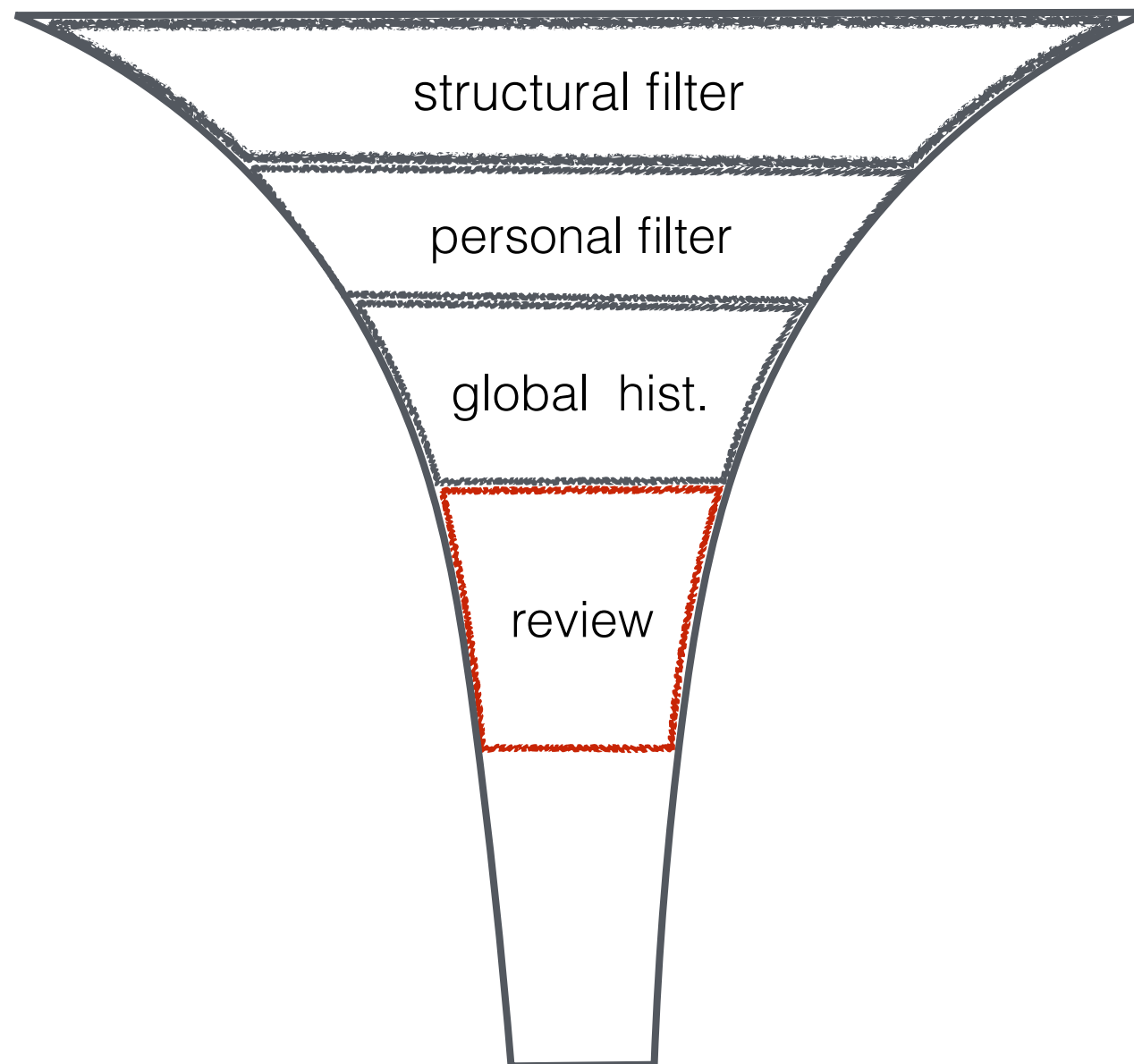
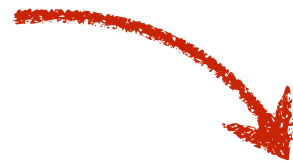
[View Details](#)

 **You hit an already fixed issue. Time to update?** 

'some error message' was marked as FIXED.
Please visit Eclipse Bugzilla for details.

[View Details](#) [Visit #452200](#)

#4: Review



#4: Review

An Error Was Logged



We noticed a new error event was logged. Such error events may reveal issues in the Eclipse codebase, and thus we kindly ask you to report them to eclipse.org.

▼ Comments

Which steps did cause this issue?

▼ Details

 Test Error wit...

Exception: java.lang.ClassNotFoundException: org.apache.comm
at org.eclipse.epp.internal.logging.aeri.ui.actions.Lo
at org.eclipse.epp.internal.logging.aeri.ui.actions.Lo
at org.eclipse.epp.internal.logging.aeri.ui.actions.Lo
at org.eclipse.core.internal.jobs.Worker.run(Worker.ja

REPORT

anonymousId	f8087d7b-9d38-4c73-aeb1-6991603c2a84
name	Marcel Bruch
email	marcel.bruch@codetrails.com
comment	Which steps did cause this issue?
eclipseBuildId	unit-tests

☐ Mark this event as 'not a bug'

☐ Skip similar errors in the future

☒ Remember my decision

permanently

✓ permanently

until restart

for 24 hours

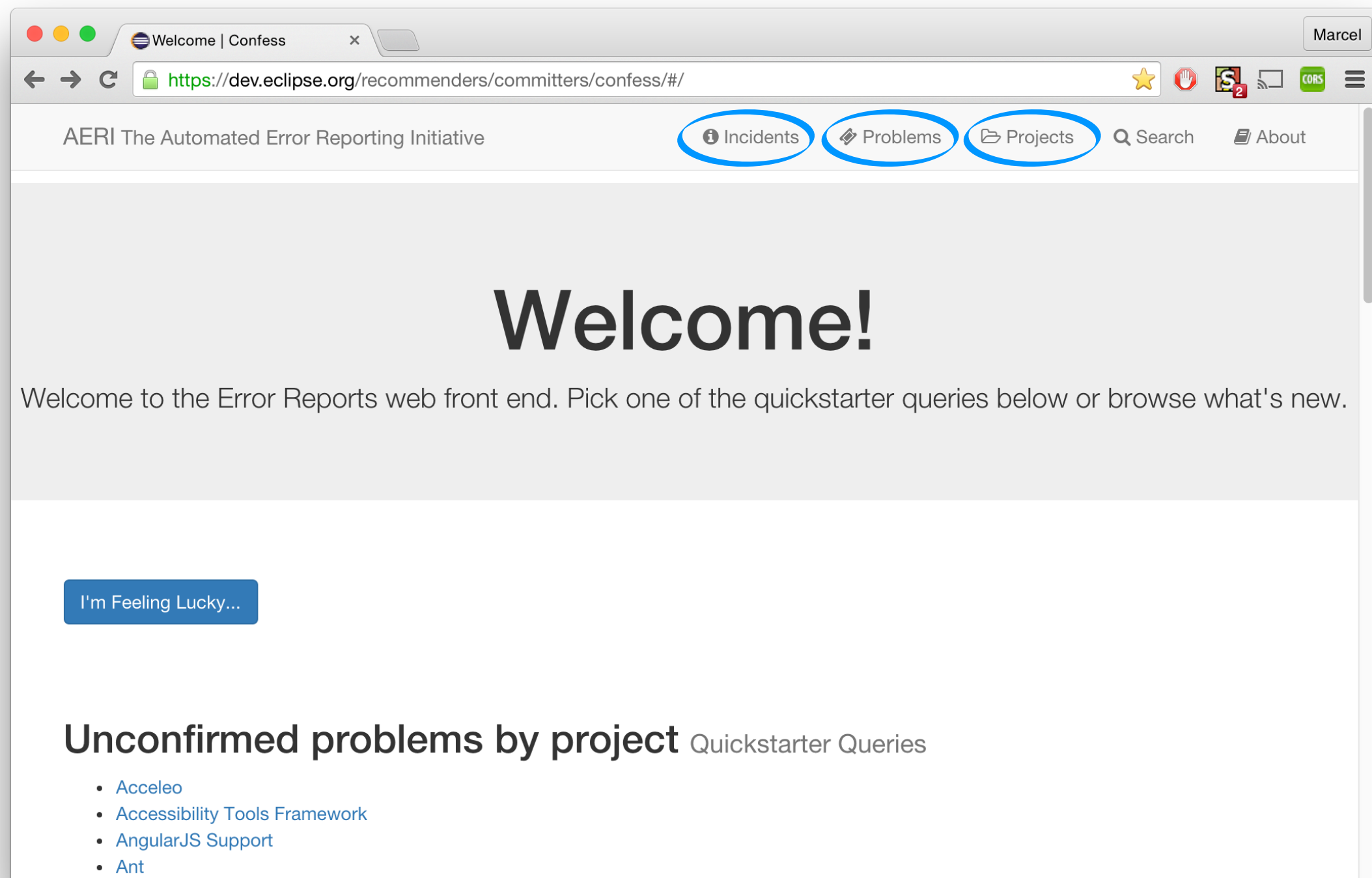
Don't Send

Send

Walkthrough through the committer front-end

The server side

The core concepts



The committer front-end

The screenshot shows a web browser window with the URL `https://dev.eclipse.org/recommenders/committers/confess/#/problems/?kinds=NORMAL&showMuted...`. The page title is "AERI The Automated Error Reporting Initiative". The main heading is "Problems". Below the heading is a table of problems.

Summary	Kind	Incidents	Reporters	Bugzilla	Created On	Modified On
[jst] NullPointerException in J2EEDeployableFactory.resourceChanged (297)	NORMAL	60	49	#468991 F	15-05-29	15-06-08
[jst,team] NullPointerException in J2EEDeployableFactory.resourceChanged (297)	NORMAL	26	24		15-06-01	15-06-08
[m2e] RuntimeException in DownloadSourcesJob.downloadAttachments (226)	NORMAL	206	61		14-09-29	15-06-08
[platform] IllegalArgumentException in GC.setBackground (4216)	NORMAL	21	13		14-12-17	15-06-08
[oomph] SWTException in UIUtil\$3.run (314)	NORMAL	141	53	#466272 F	15-02-03	15-06-08
[php] NullPointerException in Path.<init> (153)	NORMAL	2	2		15-03-30	15-06-08
[p2] IllegalStateException in SimpleProfileRegistry.lockProfile (850)	NORMAL	11	12		14-10-01	15-06-08
[wst,jst] FileNotFoundException in ManifestUtilities\$1.<init> (259)	NORMAL	240	52		14-10-11	15-06-08
[] Could not set the project description for 'ch.arenae.phoenix.generator' becau...	NORMAL	237	73		14-10-16	15-06-08
[m2e,wst] CoreException in ValidatorExtensionReader.process (86)	NORMAL	9	2		15-01-06	15-06-08

Results: 306 pages - 3057 elements

« < 1 2 3 4 5 6 7 8 9 10 ... > »

Creating bug reports

The screenshot shows the Eclipse bug report details page. The browser address bar displays the URL: <https://dev.eclipse.org/recommenders/committers/confess/#/problems/5589244be4b08735226aa9d4/details>. The page title is "New Bug Report | Confess". The user "Marcel" is logged in.

Problem Summary

- Problem Id:** 5589244be4b08735226aa9d4
- Summary:** NullPointerException in LauncherUtilsStatusHandler.selectWorkspaceField (74)
- Projects:** Plug-in Development Environment

Watchers: 1

Email	When
cedric.brun@obeo.fr	CC_LIST_ON_CREATION

Reporters: 1

Anonymous Id
8a78fb03-87cd-46ed-950c-327afddc93ce

Potential Duplicates: * [refresh](#)

Opening Incident All details as submitted by user 8a78fb03-87cd-46ed-950c-327afddc93ce.

Environment:	Id:	Eclipse:
	5589244be4b08735226aa9d3	org.eclipse.epp.package.modeling.product-0700
Created on:	15-06-23 11:18:03	OSGi: Windows7 6.1.0, x86_64, win32
Kind:	NORMAL	Java: 1.7.0_01-b08

Quick Actions

- Create bug report
- Close as log message
- Go to triage page

Creating bug reports

New Bug Report | Confess x

https://dev.eclipse.org/recommenders/committers/confess/#/problems/5589244be4b08735226aa9d4/details

Home Details Triage Configure Similar Incidents

Send to Bugzilla Create a bug report in Eclipse Bugzilla

Bugzilla Target:

PDE

UI

4.5

Bug Summary:

NullPointerException in LauncherUtilsStatusHandler.selectWorkspaceField (74)

The following incident was reported via the automated error reporting:

code: 0
plugin: org.eclipse.ui_3.107.0.v20150507-1945
message: Unhandled event loop exception
fingerprint: c43cfc79
exception class: org.eclipse.swt.SWTException
exception message: Failed to execute runnable (java.lang.NullPointerException)
number of children: 0

org.eclipse.swt.SWTException: Failed to execute runnable (java.lang.NullPointerException)
at org.eclipse.swt.SWT.error(SWT.java:4491)
at org.eclipse.swt.SWT.error(SWT.java:4406)
at org.eclipse.swt.widgets.Synchronizer.runAsyncMessages(Synchronizer.java:138)
at org.eclipse.swt.widgets.Display.runAsyncMessages(Display.java:4155)
at org.eclipse.swt.widgets.Display.readAndDispatch(Display.java:3772)
at org.eclipse.e4.ui.internal.workbench.swt.PartRenderingEngine\$4.run(PartRenderingEngine.java:1127)
at org.eclipse.core.databinding.observable.Realm.runWithDefault(Realm.java:337)
at org.eclipse.e4.ui.internal.workbench.swt.PartRenderingEngine.run(PartRenderingEngine.java:1018)

☒ Send notification emails to reporters

OK Cancel

Notifying committers

Project Alerts

Project Code Recommender x

https://dev.eclipse.org/recommenders/committers/confess/#/projects/54bbe780bee88...

AERI The Automated Error Reporting Initiative

Incidents Problems Projects Search About

Alerts

Configure how and when Confess informs you about new and updated problems.

Label: Weekly Normal Problems Digest for Recommenders

Conditions

Minimum numbers of distinct reporters: 1

Problem kind: NORMAL x OOME x SOE x

Actions - Automatically executed (once) when above conditions are met

- ☐ **Bugzilla** - Create Bugzilla bugs for every problem when above conditions are met
- ☒ **Weekly Digest Email** - Notify developers listed below by weekly emails.
- ☒ **Daily Digest Email** - Notify developers listed below by daily emails about every problem that met above conditions the first time

recommenders-dev@eclipse.org

Enter email address... Add

Weekly or daily email digests

Weekly Normal Problems Digest

Weekly Normal Problems Digest

Today 14:40

EE

Eclipse Error Reports Bot

To: Recommenders developer discussions

Weekly Normal Problems Digest

Hi,

this is the weekly digest for Code Recommenders. The status of all problems on this list is open. Items on this list may already be tracked in Bugzilla but were not closed yet. To **remove** a item from this list, you can either (i) set the status of its associated bug to resolved, verified, or closed or (ii) mark it as log message in the reporter's web ui.

If you have any questions about this report, please send an email to error-reports-inbox@eclipse.org

Top new problems (last 7 days):

Problem	Reporters	Bug
1. NullPointerException in BinaryTypeBinding.getMethods (1191)	2	469460 N
2. ArrayIndexOutOfBoundsException in AssistParser.popElement (1912)	1	469471 N
3. NullPointerException in BinaryTypeBinding.resolveType (160)	1	-
4. StandInException in PrivacySettingsService.store (147)	1	-

Top unresolved, active problems (last 7 days):

Problem	Reporters	Bug
1. OperationCanceledException in CompletionEngine.checkCancel (1683)	46	459172 U
2. ClassNotFoundException in BundleLoader.findClassInternal (423)	25	466885 N
3. ClassNotFoundException in BundleLoader.findClassInternal (432)	5	467950 N
4. LogTraceException in AbstractCompletionSessionProcessor.applied (191)	3	467798 N
5. LogTraceException in Repositories.getRepository (104)	2	469016 N

$e = mc^2 \rightarrow \text{errors} = (\text{more code})^2$

Some fun facts

Disclaimer

Don't draw preliminary conclusions!

Please consult your personal statistician...

How many Mars users?



450 simrel committers



1200 eclipse committers

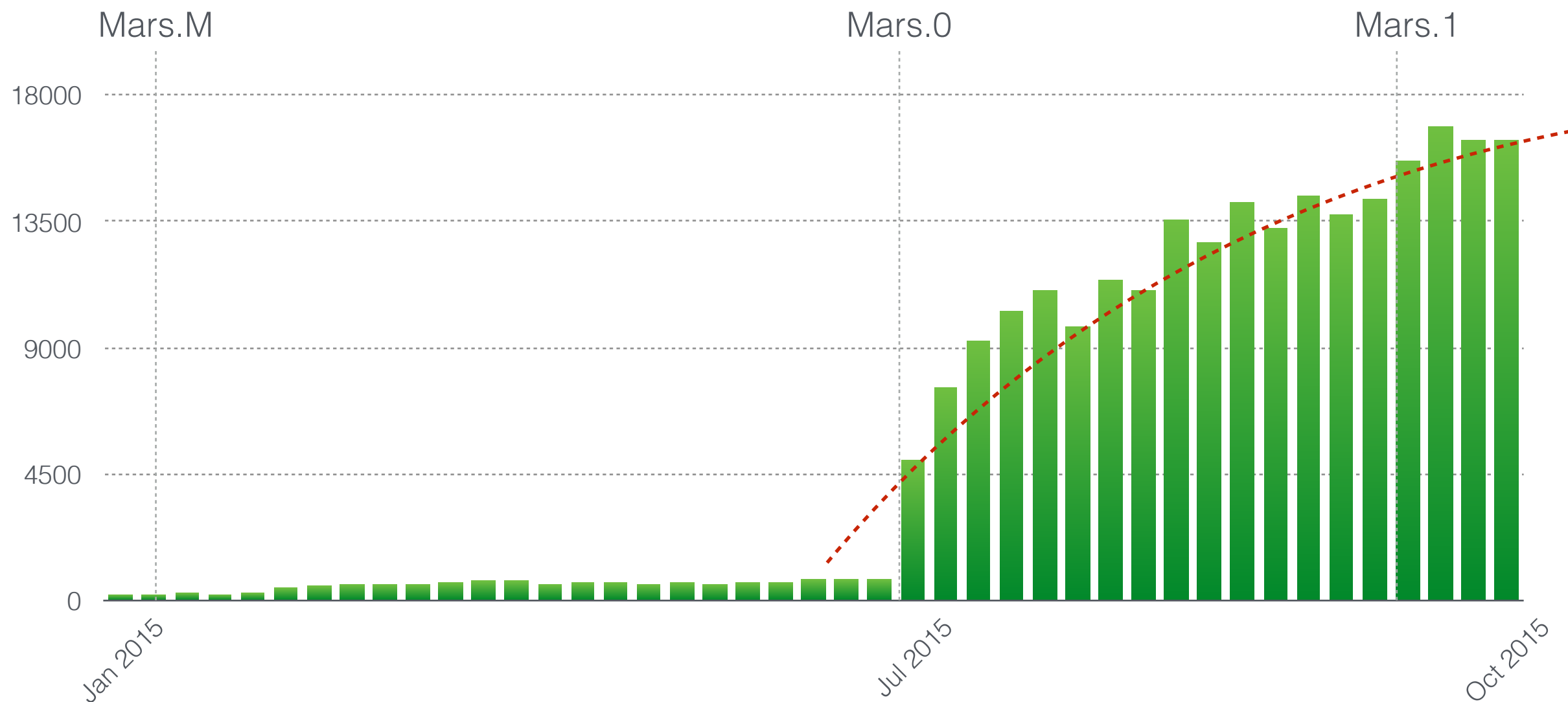


~150.000 error reporters

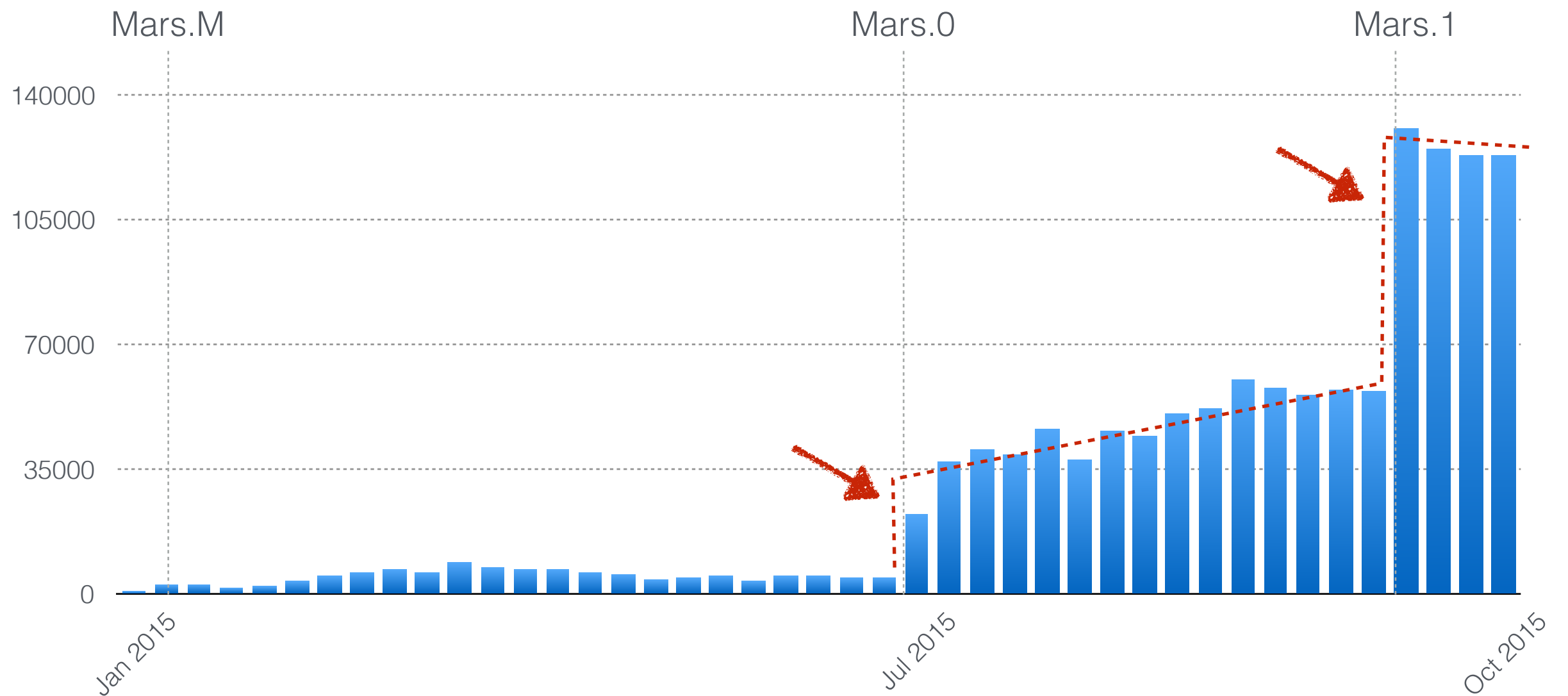


Mars Users?

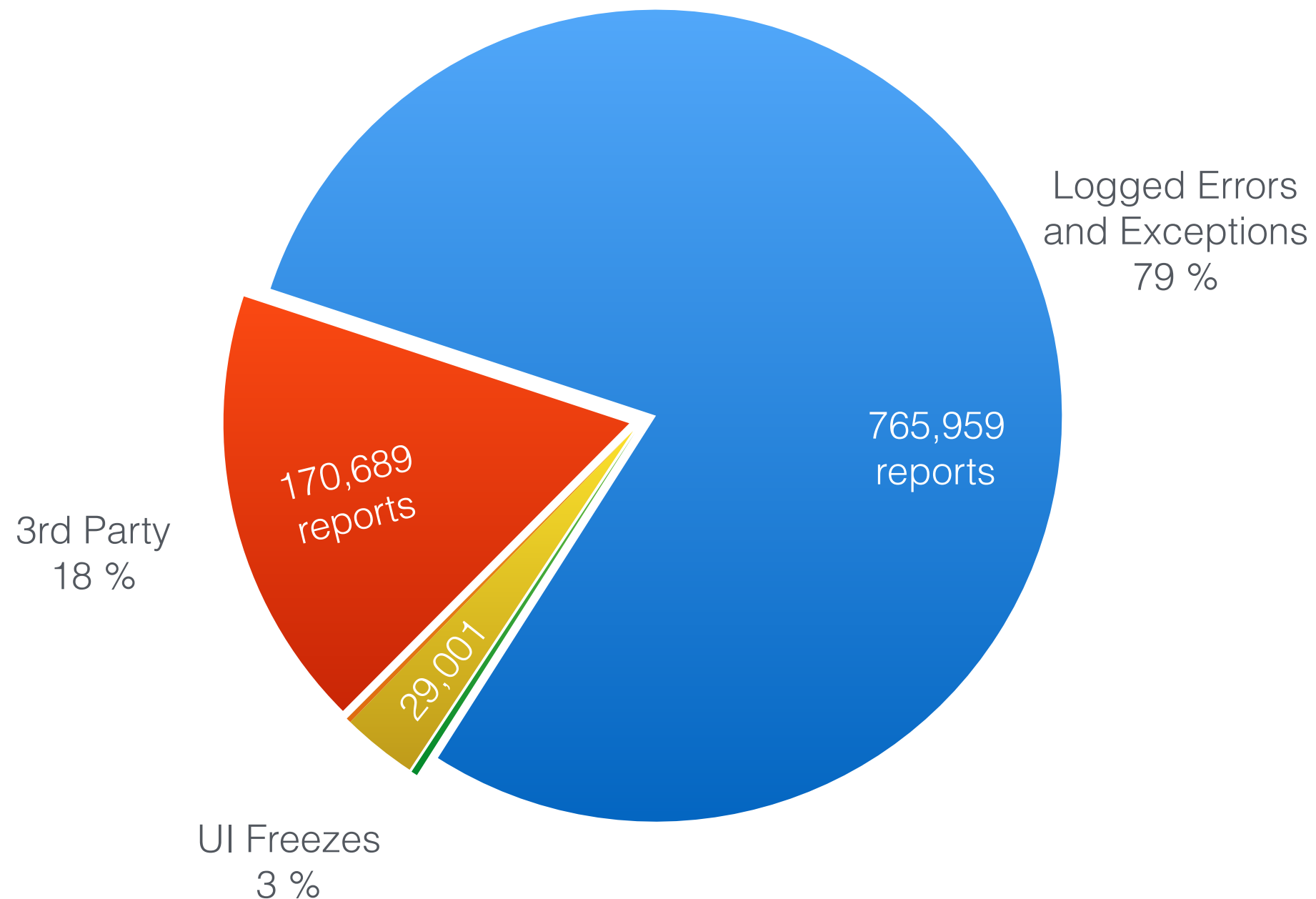
Error reporters per week



When do they report?



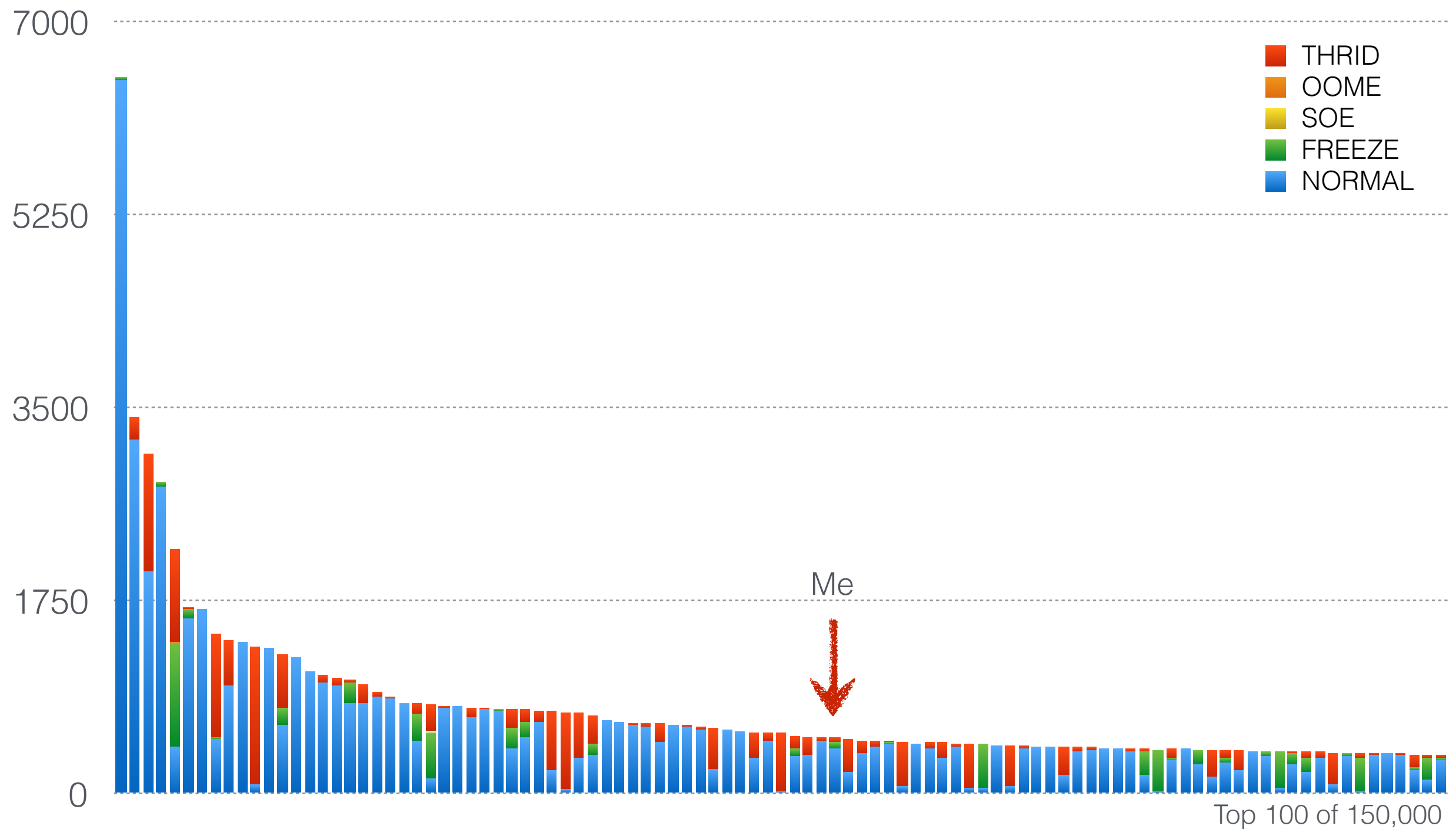
What kinds of errors do users report?



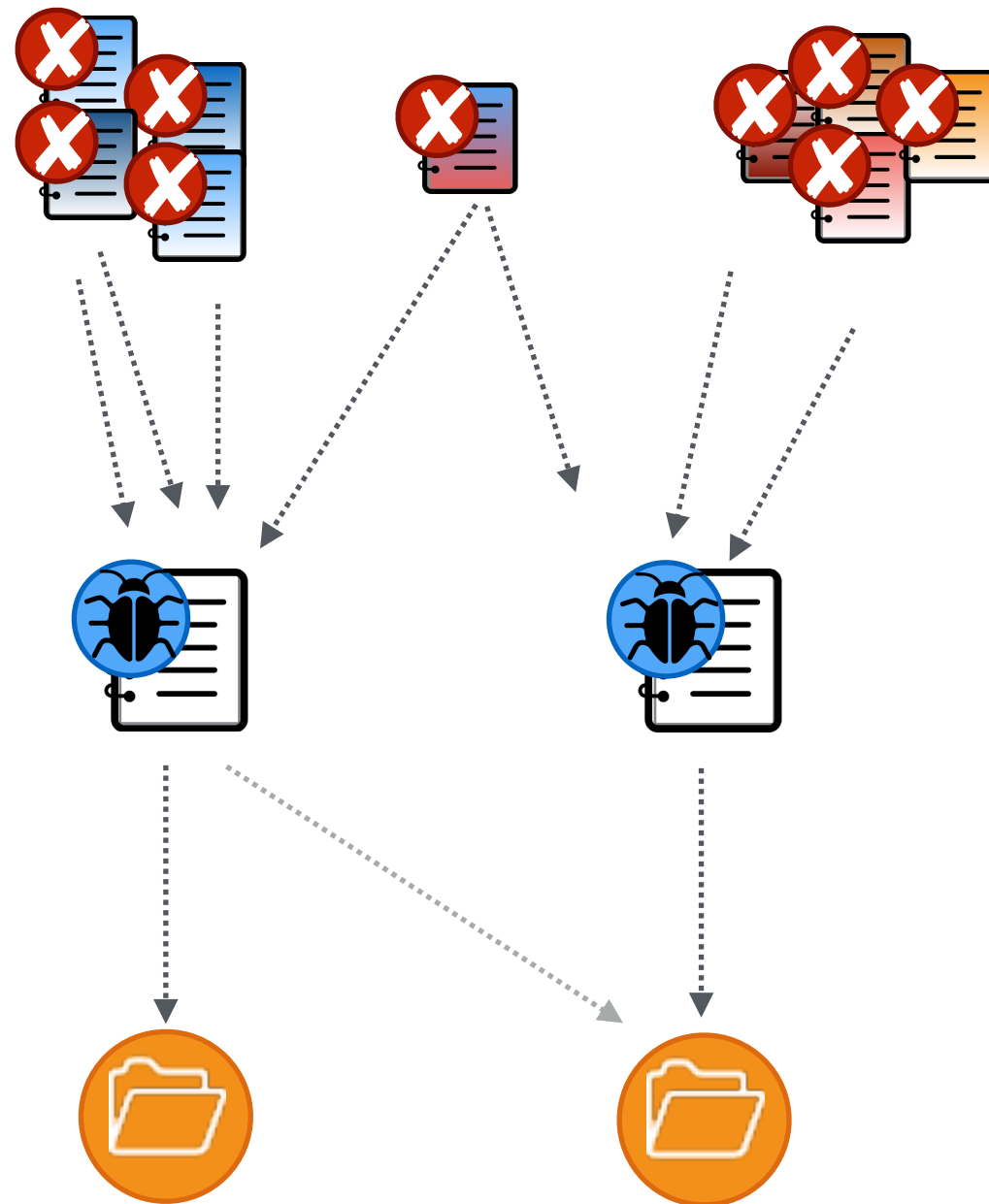
How hard do they suffer?



The suffering top 100



Excursion on duplicate detection



Incoming
Error Reports

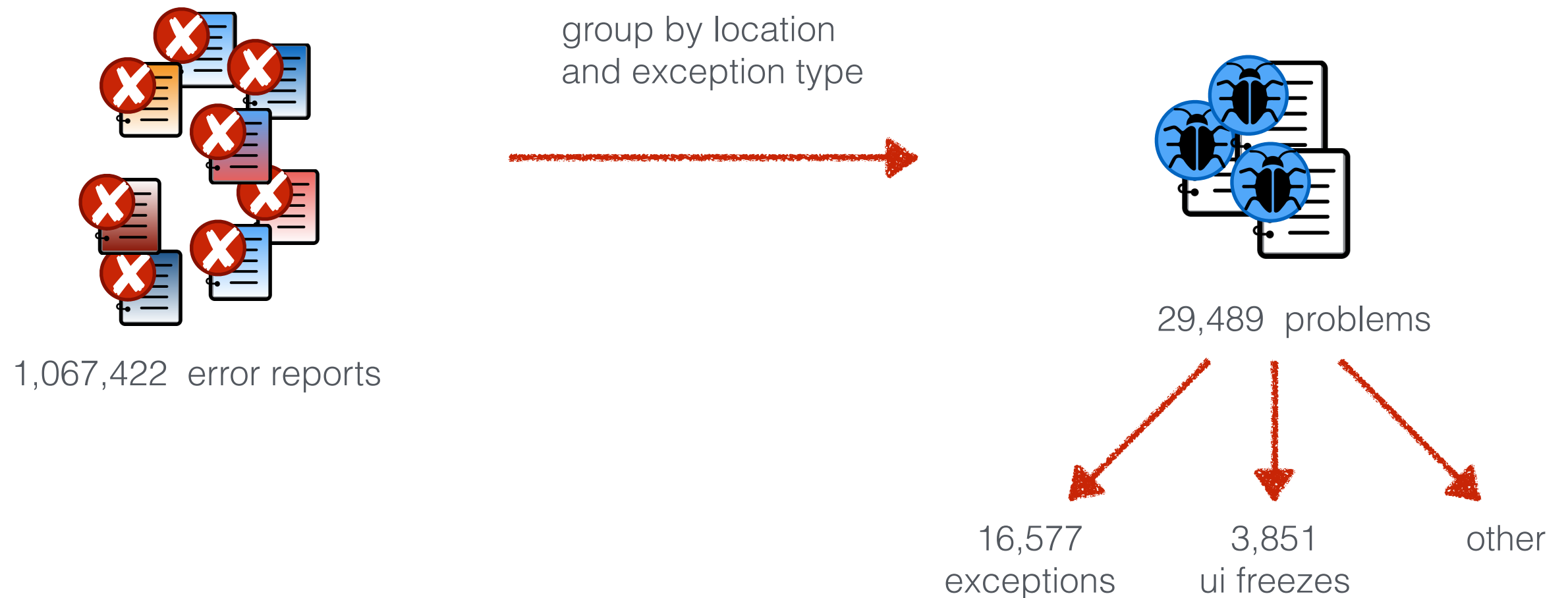
grouped into

Problems

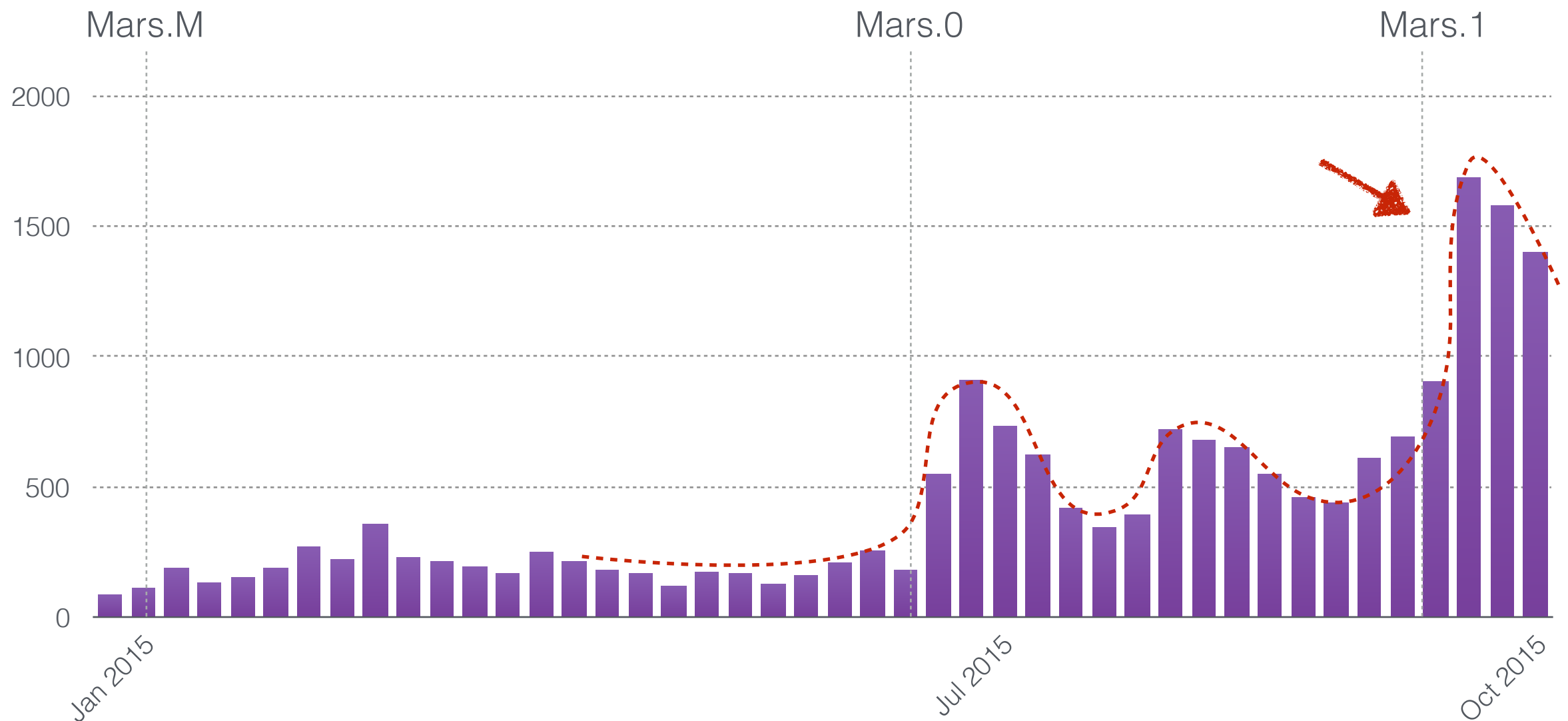
assigned to

Projects

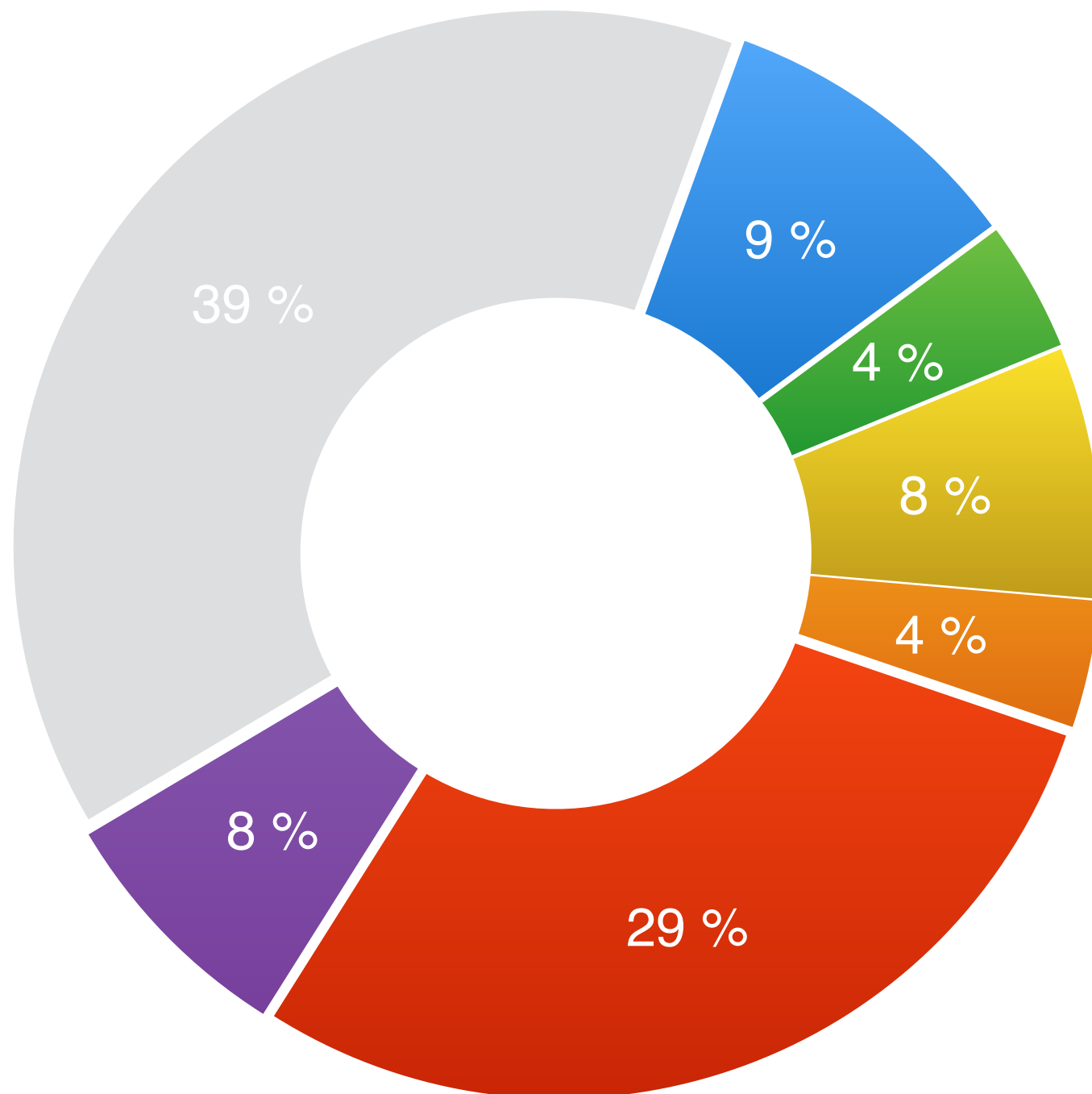
Effect of grouping errors by location



First-time appearance of a problem

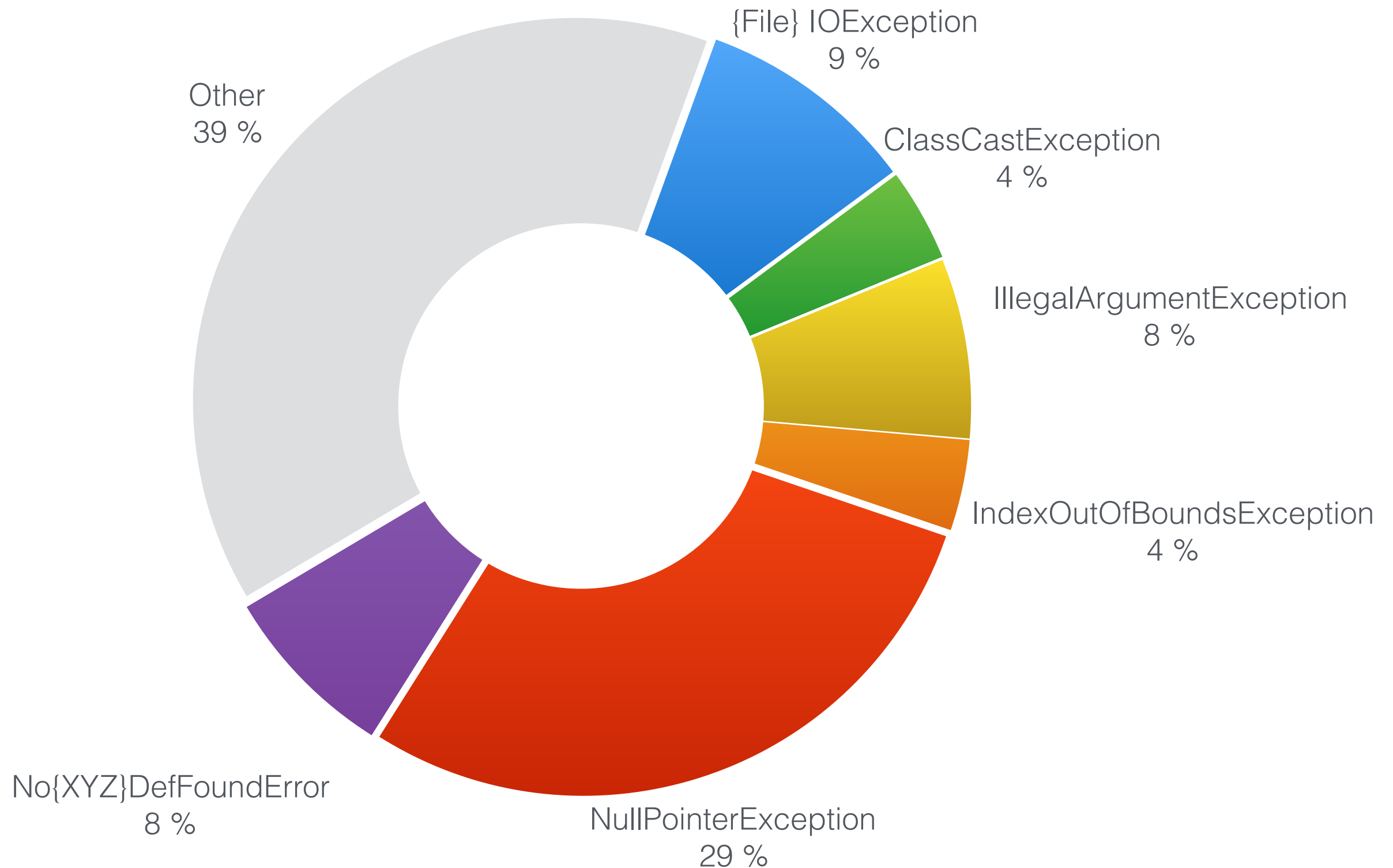


What are the most ,popular‘ exceptions?



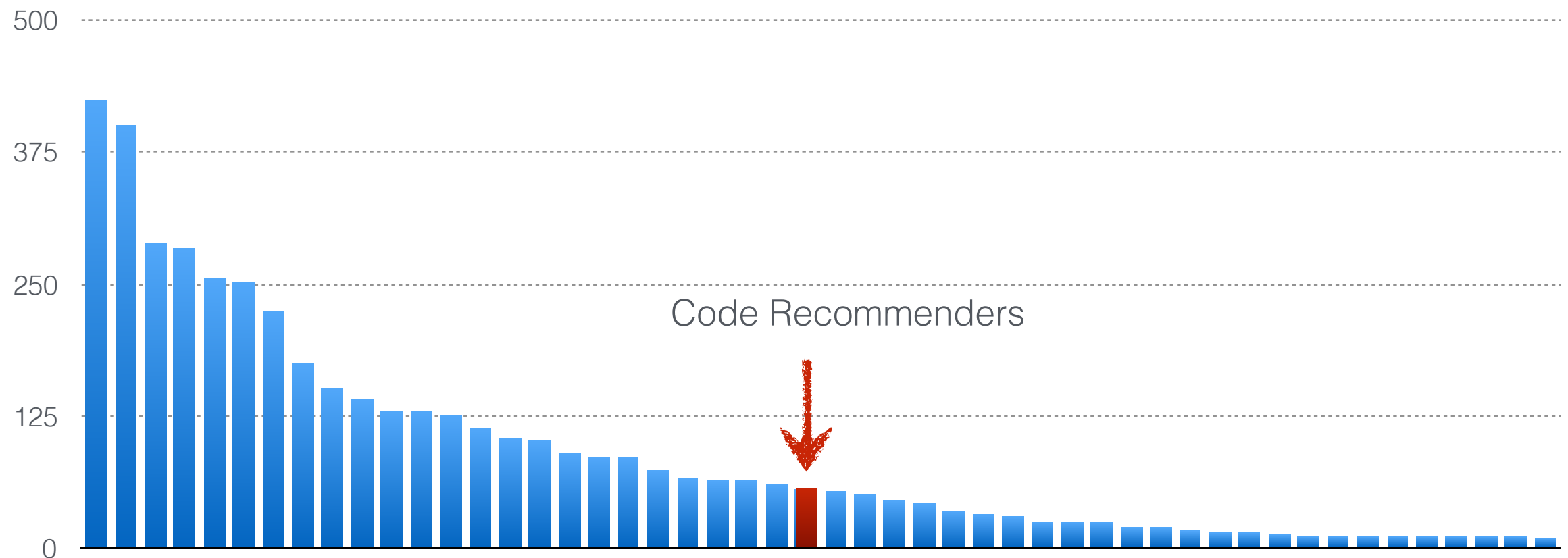
What are the **most ,popular‘** exceptions?

by unique location in source code



NullPointerExceptions by Projects

Statisticians, note: Projects **automatically** marked as „being responsible“ fixing these NullPointerExceptions but does not mean the NPE happened in their code.



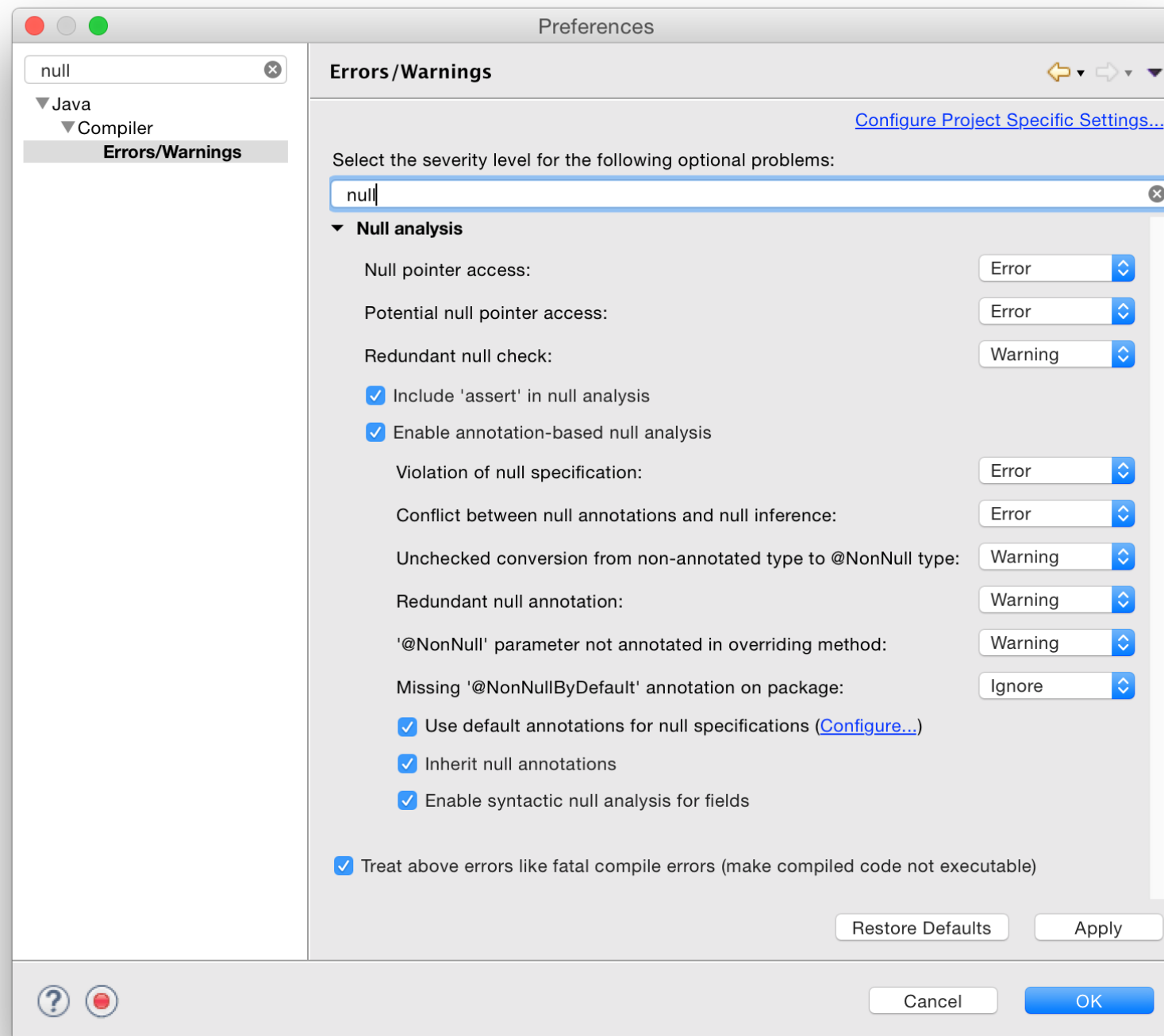
Tip: Enable **null** analysis

```
@Override  
protected void run(@Nullable List<Incident> slice)  
{  
  
    for (Incident incident : slice) {
```

 Potential null pointer access: The variable slice may be null at this location

Press 'F2' for focus

JDT offers a lot...



Tip: Never return `null`

Use `java.util.Optional` or `com.google.common.base.Optional` instead

```
@Override
public Optional<String> getReason() {
    return Optional.ofNullable(cause);
}
```

Oh Class, Were Art Thou?

Use proper **import** ranges and define **uses** on your exports to get rid of {Class | Method | Field} DefNotFoundErrors, LinkageErrors, and some ClassCastExceptions. OSGi needs that information to work properly...

Import-Package:

```
com.google.common.annotations;version="[15.0.0,16.0.0)",
```

Export-Package: org.eclipse.recommenders.utils;

```
uses:="org.osgi.framework,  
org.eclipse.core.runtime,  
com.google.common.base,  
com.google.common.collect"
```

Index out of **bounds**?



`-1` and `array.length` do not work. No matter how often you try...

There is no tool support for this. Just unit tests and code that tries to fail gracefully.

Tip: If error messages are not helpful...

10% of all logged errors do not contain stack traces.

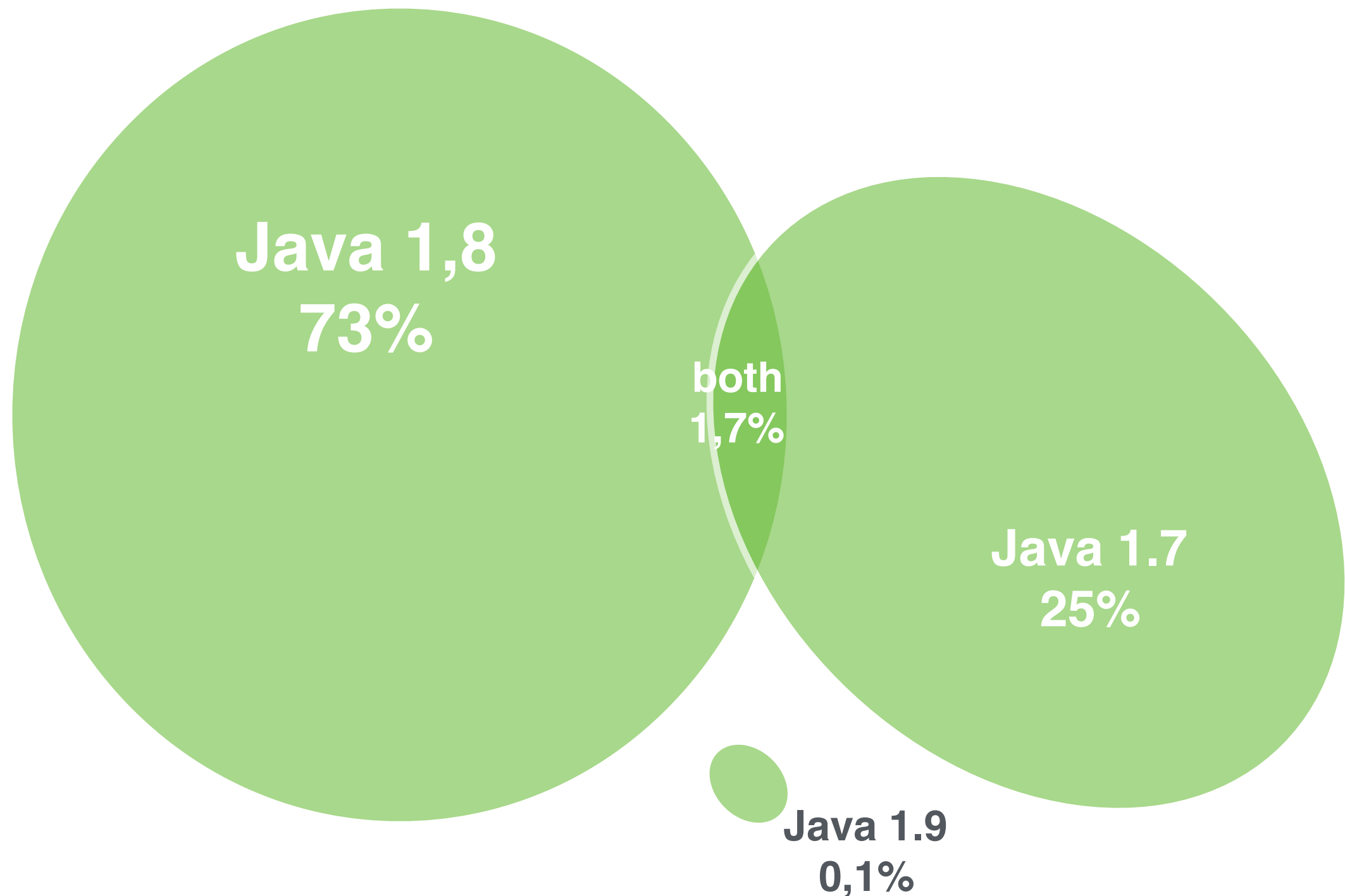
```
try {  
    // ...  
} catch (Exception e) {  
    log("An error occurred", e);  
}
```



```
try {  
    // ...  
} catch (Exception e) {  
    log("Invalid argument {}", value, e);  
}
```

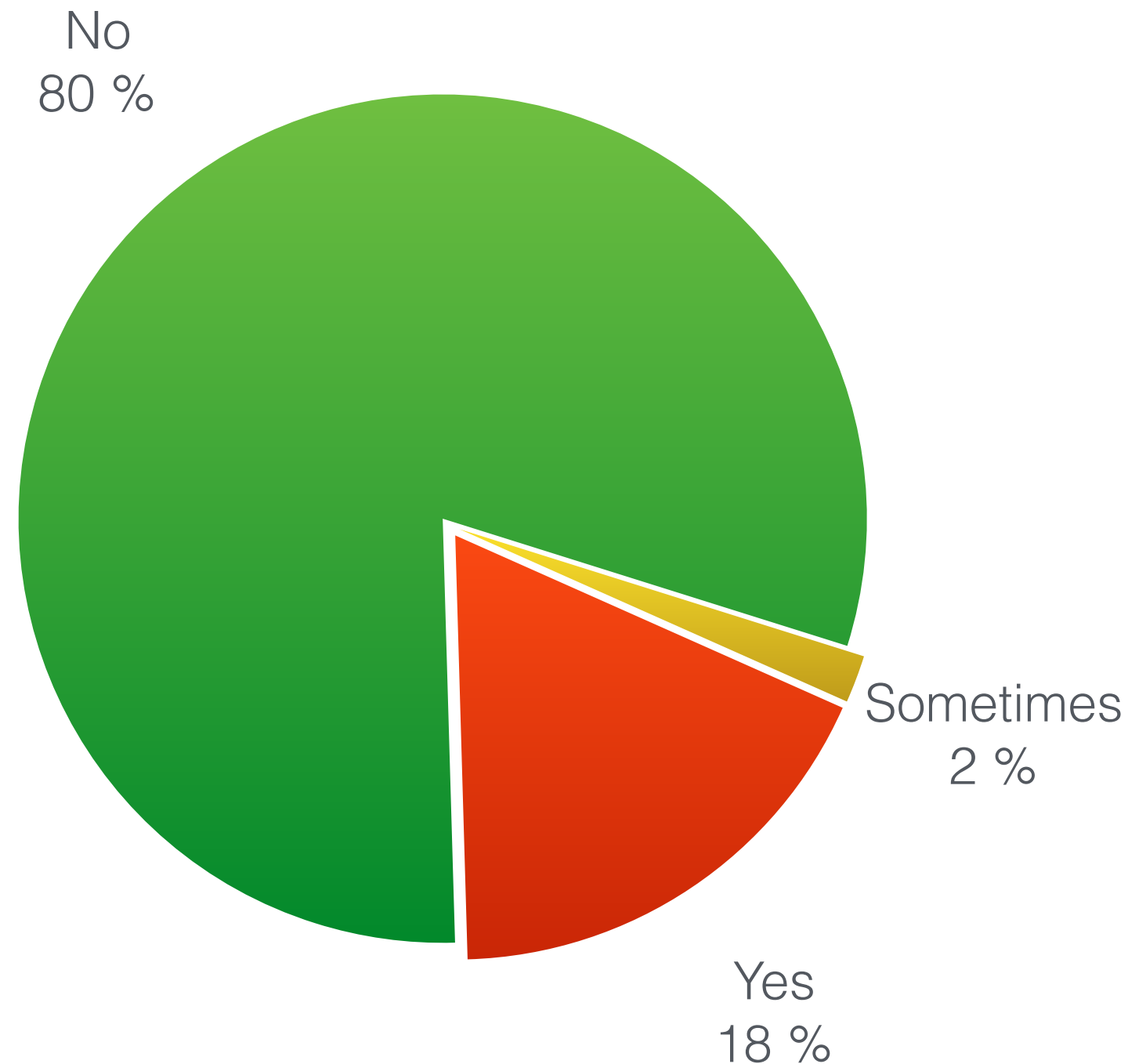
Are your users ready for Java 8?

Which VM do users run the Eclipse IDE with?



Do people anonymize their messages?

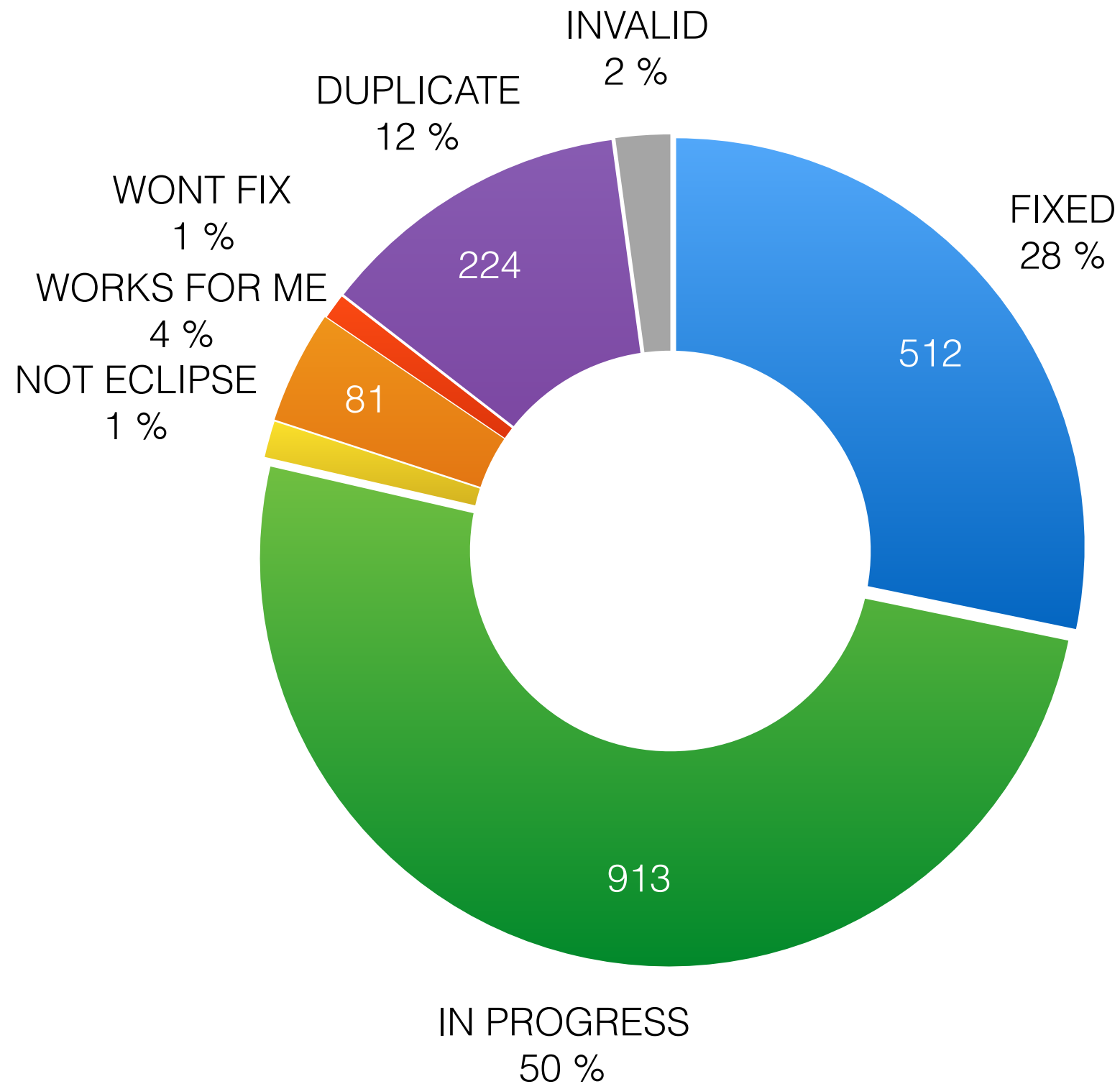
Are you concerned that your exception message may reveal sensitive data?



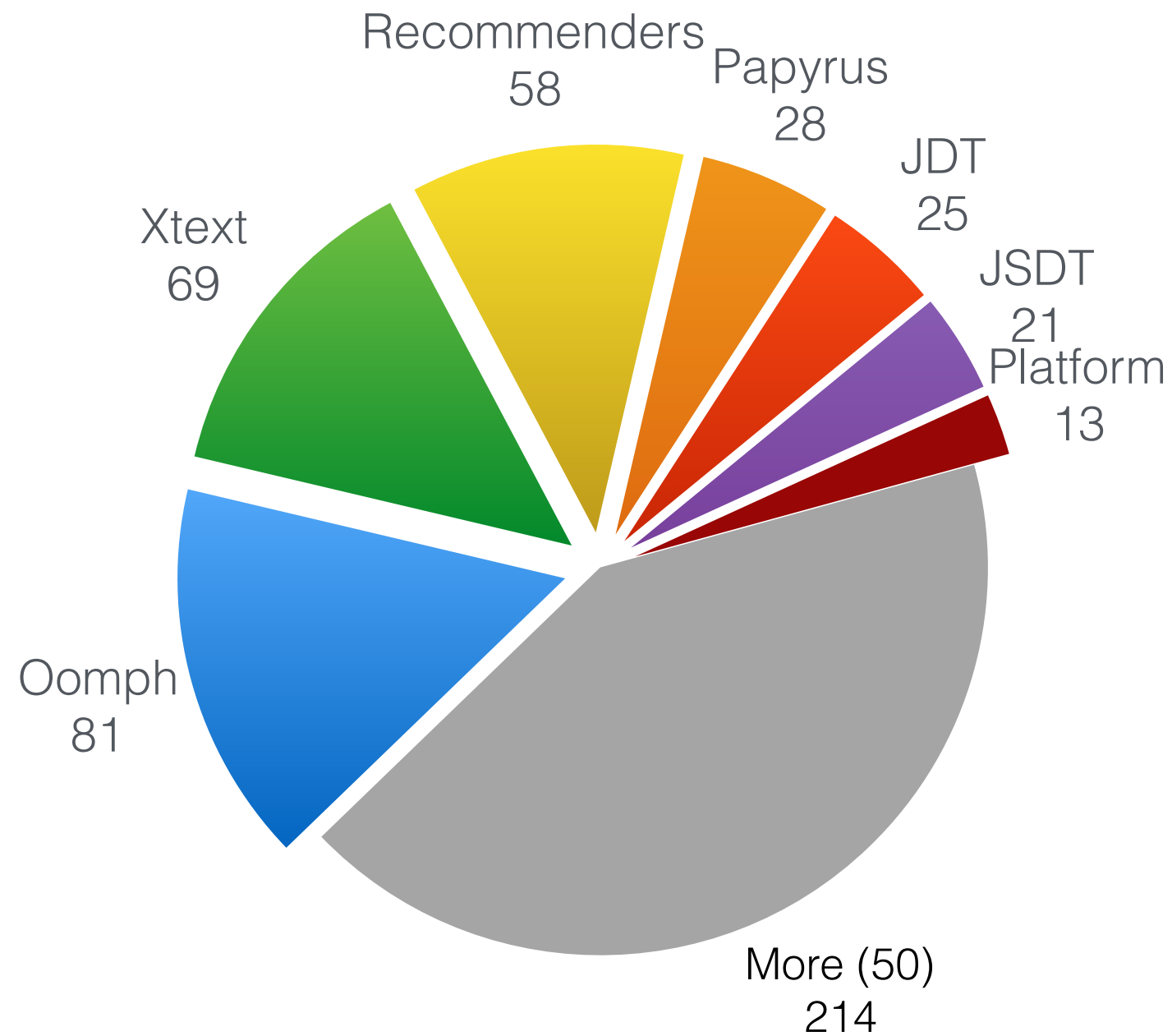
Speak plain: Does it work?

Bugfixing Rates

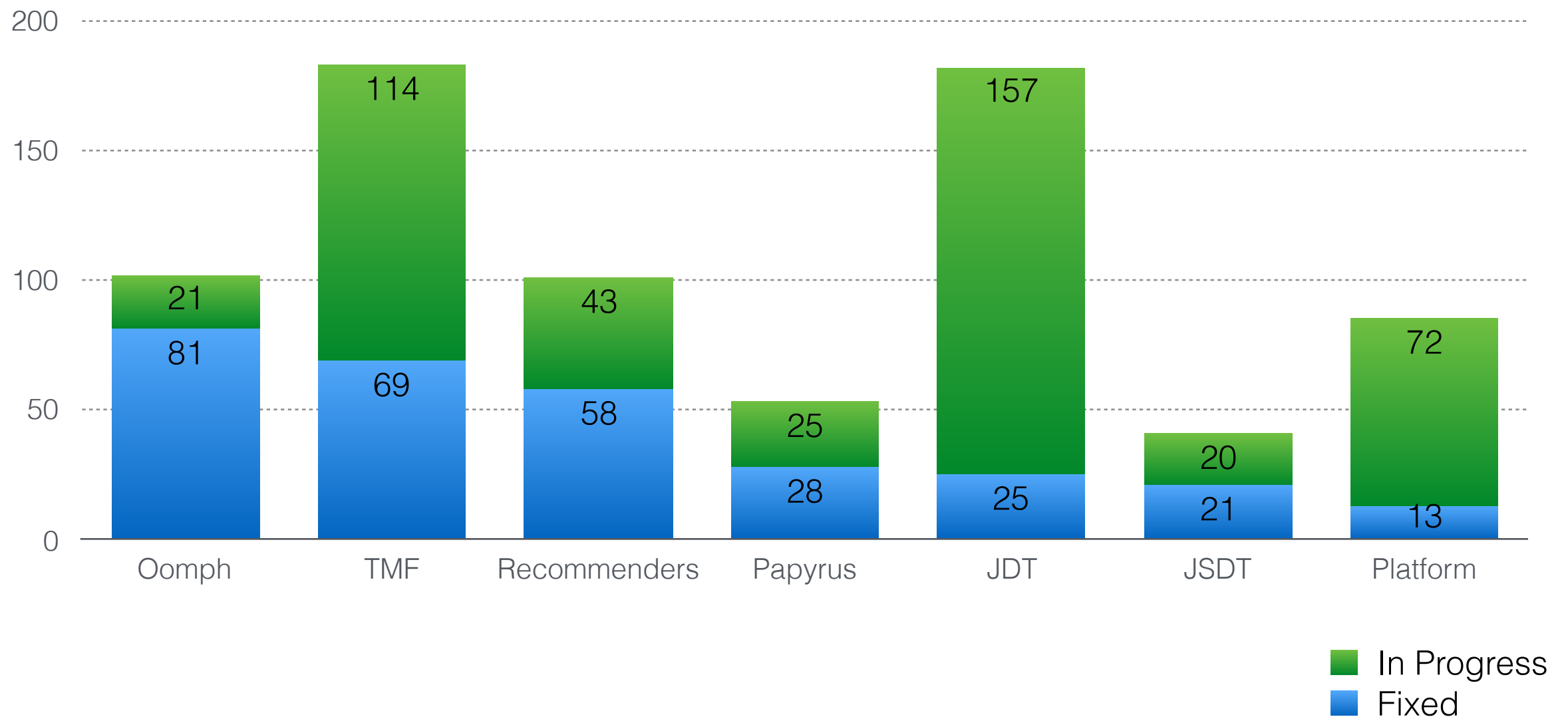
Overall Bugzilla Statistic



Fixed bugs by projects



In progress & fixed bugs



TL;DR

Since January 2015 **149,115** users
reported **1,067,422** logged errors
with **526,942** unique stack traces
which dupe detection grouped into **16,577** problems in Eclipse code
and **3,851** ui freezes
of which committers created **1,913** Bugzilla bugs
and fixed **512** to date.

But we are not quite done yet...

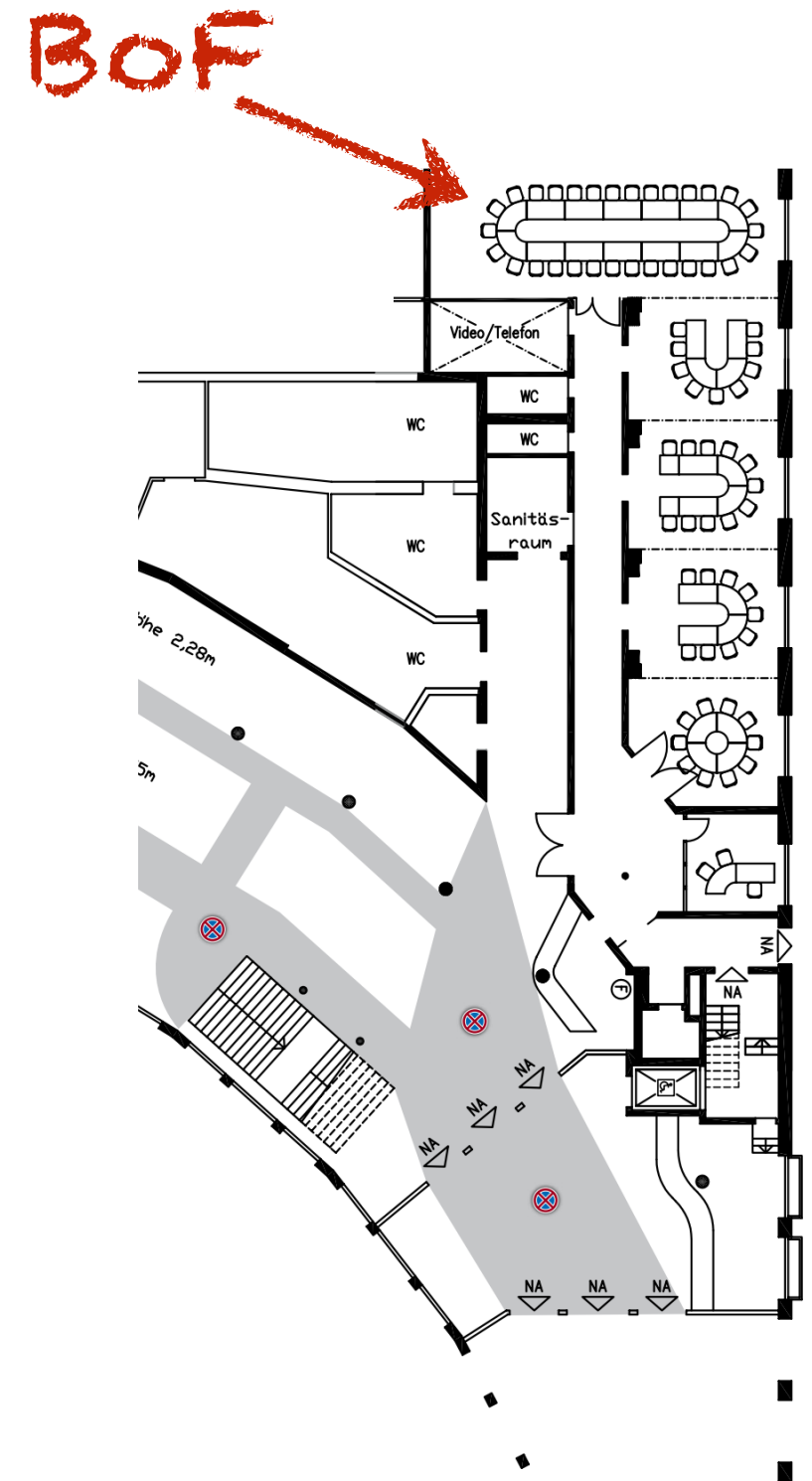
Future Work?

To be decided tonight.

Join the **AERI BoF tonight at 20:00 in Seminarraum 5, Ground Floor.**

The BoF session will have a walk-through through the committer UI.

Committer discussions how error reporting should evolve for Neon.





eclipsecon Europe

Ludwigsburg, Germany, 3 - 5 November 2015

Evaluate the sessions at www.eclipsecon.org



+1 0 -1

How to reach EPP Logging

- **Code:** Check out the **EPP Logging** Oomph profile
- **Wiki:** <https://wiki.eclipse.org/EPP/Logging>
- **Manual:** <https://dev.eclipse.org/recommenders/community/confess/#/about>
- **Forum:** <https://www.eclipse.org/forums/index.php/f/69/>
- **Bugzilla:** <https://bugs.eclipse.org/bugs/buglist.cgi?component=logging&product=EPP>
- **Mail:** error-reports-inbox@eclipse.org

Credits

- Daniel Haftstein, Codetrails – Eclipse client conception and implementation
- Marcel Bruch, Codetrails – Server-side conception and implementation
- Webmasters, Eclipse Foundation – Eclipse server infrastructure & integration
- **Thanks to many early adopters and committers providing feedback**

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