

Activities Firefox Web Browser • Jan 21 11:47

4 - Defects - Google Slides Escucha Radioaktiva

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## Definition and Context

### Definition

A bug is an error or defect in a piece of software which makes the product differ from the expected result or according to the defined specifications. As a tool to provide feedback, **the earlier in the process they are captured, the better.**

### Relation with Test Cases

When the final result of a test case execution is FAIL, a **bug must be submitted in a bug tracking tool**. Ideally, you'll be able to link the bug to the test case that fails.

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Firefox, LibreOffice, Photos, Camera, App Store, R, Python, VS Code, Jupyter, S, Microsoft Word, Microsoft PowerPoint, Microsoft Excel



# Defects Management

A discrepancy between actual and expected results should be recorded as an Incident (incidents could be named as Defects, Bugs, Errors, Issues, etc)

An incident may be recorded at any point in the lifecycle:

- Review of requirements
  - Design Review
  - Implementation
  - Testing



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## Defects Management

- Incidents should be tracked from their discovery and classification to their correction and confirmation of the solution.
- Standard classification process should be defined to effectively manage all incidents.
- Bugs follow a defined life cycle during a project with a start and end point.
- Is closely related to the bug tracking tool used by the team. This workflow will define the transitions a bug can go through between the different states.
- A tester must always keep an eye on his assigned bug list.



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# Defects Management Tool

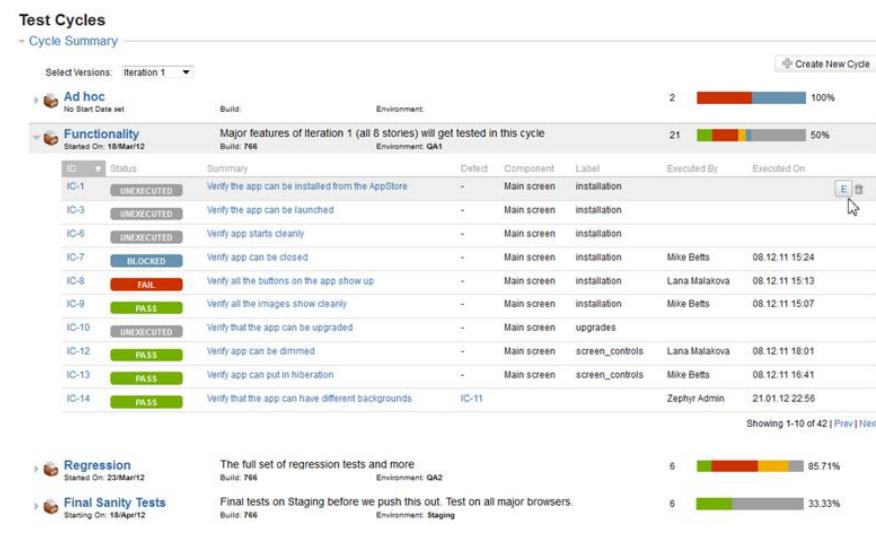
It's a tool that facilitates the recording and status tracking of defects and their changes

These tools usually have workflow-oriented facilities to track and control the allocation, correction and re-testing of defects and provide reporting facilities.

Jira Software Bug Life Cycle

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- Bug Tracking tools are generally used throughout the entire project helping the bug follow up and metrics generation.
  - Defect Management tools frequently include a mailing system to notify whenever a bug changes to those in the team who are involved with that bug.
  - These tools are usually integrated with others that help to document Test Plans or Test Cases Executions.



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## Defect Life Cycle

Defect life cycle is the workflow a defect goes through during its lifetime.

It starts when defect is found and ends when a defect is closed, after ensuring it can not be reproduced.

Defect Life Cycle

```
graph TD; NEW[NEW] --> ASSIGNED[ASSIGNED]; ASSIGNED --> OPEN[OPEN]; OPEN --> IN_PROGRESS[IN PROGRESS]; IN_PROGRESS --> FIXED[FIXED/RESOLVED]; FIXED --> VERIFIED[VERIFIED]; VERIFIED --> CLOSED[CLOSED]; REOPENED[REOPENED] --> OPEN; ASSIGNED --> DEFERRED[DEFERRED]; ASSIGNED --> REJECTED[REJECTED]; ASSIGNED --> DUPLICATE[DUPLICATE]
```

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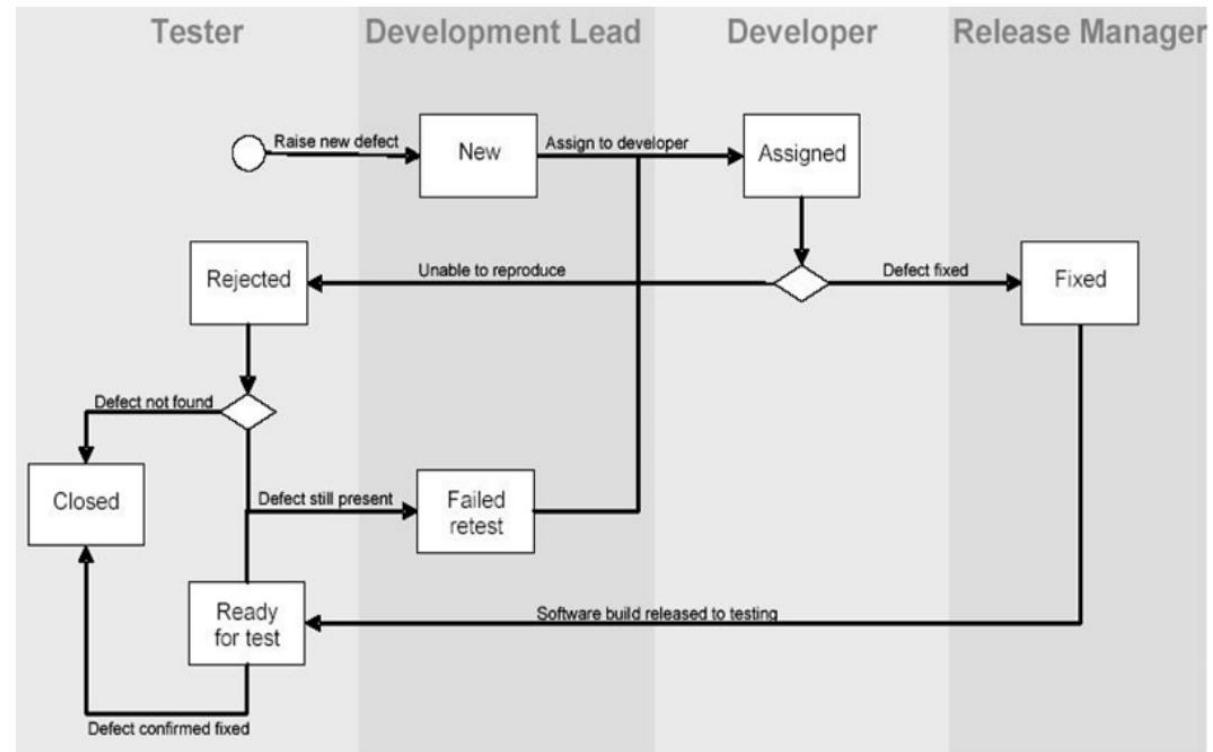


## Defect Life Cycle

This is a simplified example of a Defect life cycle.  
Each organization define their own cycle based on their needs and constraints.

In this example:

- Each grayed column represents a role that participates in the life cycle and owns the Bugs on specific States.
- The arrows represent actions taken on the Bug.
- Rectangles represent states of the bug.



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## Defect Life Cycle

The lifecycle may vary depending on the team needs and roles implied, but here's an example of a Bug workflow:

- The Flow begins when the "Tester" raises a Defect in the bug tracking tool and the Development Lead owns it in "New" status.
- Then the Development Lead assigns it to a developer to work on the bug, so the Bug status is "Assigned" and it's owned by the Developer on a fix or rejects the bug updating its status to "In Progress" or "Rejected" which implies the bug returns to the Tester to add more information or have it closed as invalid or duplicate.

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## Defect Life Cycle

- After the Tester adds more information, the bug returns to the Development Lead who will assign it to a developer as described above.
- When the Developer fixes the bug its status changes to “Fixed” and it gets assigned to the Release Manager.
- The Release Manager updates the bug status to “Ready for Test” once a new build has been deployed in the testing environment. The bug gets assigned back to the Tester.



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## Defect Life Cycle

- The Tester re-tests the bug and marks it as "Closed" if the defect isn't reproduced or "Reopened" if the problem is still there and the bug returns to the Development Lead as described above.
- If a "Closed" bug is found again in the system the Tester should reopen it instead of raising a new one to avoid duplicates.



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# Bug Life Cycle

Now, you can see:

## Bug Life Cycle

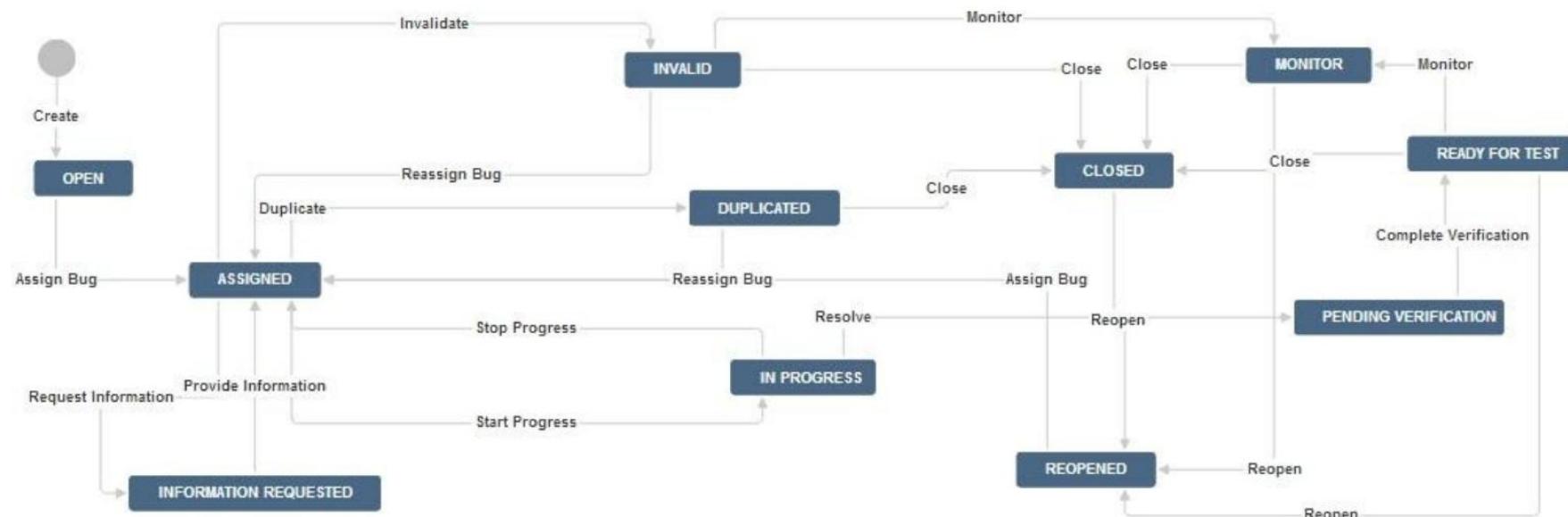
[Link a YouTube](#)

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## Defect Life Cycle - Globant Standard



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## Defect Life Cycle - Globant Standard

- **OPEN**: Issue is submitted.
- **ASSIGNED**: Issue is assigned to any team member.
- **IN PROGRESS**: The assignee starts working on the bug.
- **INFORMATION REQUESTED**: The bug description is not understandable, or the description is not completed.
- **INVALID**: The bug is not an error.
- **DUPLICATED**: The bug was submitted before.



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## Defect Life Cycle - Globant Standard

- PENDING VERIFICATION: The resolution is accepted. (After internal development review process, and released for test)
- MONITOR: The bug still occurs and a resolution is not available yet.
- READY FOR TEST: The bug is ready for test.
- CLOSED: The bug is fixed.
- REOPENED: The bug is found again on a different milestone.



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# Reporting a Bug

A well reported bug must include:

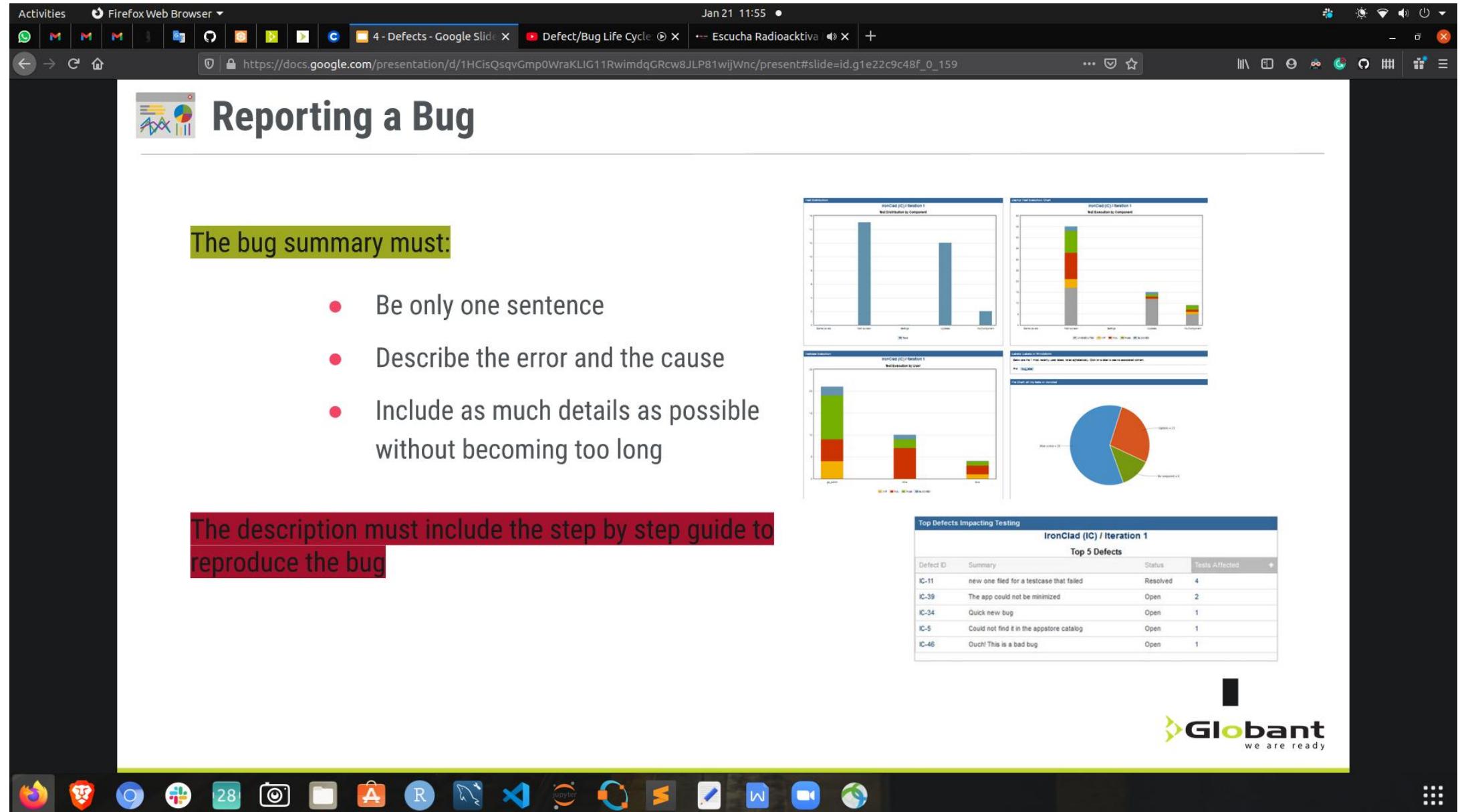
- The problem
- How to recreate the problem
- Problem related information

What do I need to report a bug?

- Make sure you can reproduce the bug at least 3 times
- Understand the conditions under which the bug occurs
- Try to find a root cause for the bug as it's always desirable to know why the bug occurs.
- Avoid duplicates! Search in the bug tracking tool for similar documented problems and report a new defect only and only if it wasn't found after searching with different related keywords.

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## Why write effective bug reports?

- Reduce the number of bugs returned from Development Team.
- Improve the credibility of test and the QC Team.
- Improve the speed of getting bug fixes, by helping Dev Team to understand the bug faster.
- Enhance teamwork between Development Team and QC Team.
- It should be treated as a communication tool.



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# Bad Bug reports are...

Too vague and just report the symptom:

- "I just clicked and it crashes"

Server Error in '/' Application.

*The resource cannot be found.*

**Description:** HTTP 404. The resource you are looking for (or one of its dependencies) could not be found.

**Requested URL:** /Users/asya...

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## Bad Bug reports are...

Those which describe facts using adjectives instead of numbers

- "System is really slow"

The diagram shows a horizontal line with a central white circle. To the left of the line is a blue tortoise icon with the word "slow" written below it in blue. To the right of the line is a red hare icon with the word "fast" written below it in red.

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## Bad Bug reports are...

Those with lack of legacy behavioral, baseline comparisons etc.

- "it used to work ..."
- "system is slower ( than???)"



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## Bad Bug reports are...

Those without a possible root cause and still include variables that may or not impact on the failure (or they aren't discarded in the description)

Example: Error when uploading a file. The error may be due to server failure, an invalid file, a network problem, javascript failing in IE, etc... but if not what should be investigating, reporting the bug does not help much.

 **Upload Error**  
File could not be uploaded for some reason.  
Please [go back](#) and fix the problem(s)



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## Bad Bug reports are...

Bugs which do not mention the user impact, yes includes too techie bugs

- "we are using uninitialized variables here... here... and here..."



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# Bad Bug reports are...

Bugs with poor reproducibility information



- "happens sometimes"

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## Bad Bug reports are...

Bugs which just report the problems (and not the steps to reproduce or the manifestation/symptoms of the problems)

- "feature send mail is broken"



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## Bad Bug reports are...

The usual deficient in information ones e.g. with no logs, no customer data info, no platform info, etc.



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## How to report bugs effectively

- Explain how to reproduce the problem.
- Analyze the error so you can describe it in a minimum number of steps.
- Include all the steps.
- Make the report easy to understand.
- Keep your tone neutral and non-antagonistic.



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## How to report bugs effectively

- Keep it simple: one bug per report.
- Search for existing bug in defect management tool.
- If a sample test file is essential to reproducing a problem, reference it and attach the test file.
- To the extent that you have time, describe the dimensions of the bug and characterize it. Describe what events are and are not relevant to the bug. And what the results are (any characteristics of the failure) and how they varied across test.



Firefox 28 Camera A R VS Code Jupyter S W V M



# How to report bugs effectively

- **Language:** Each project defines during the planning phase which language will be used for documentation and communication. All bugs must be reported using that language.
  - **Communication:** The tester must be willing to provide all the information necessary so that the developer understands the bug
  - **Detailed:** The bug must be as detailed as possible. If something can be done in two different ways, the bug must clarify in which way it was done.
  - **Redaction:** Be careful not use words such as “the button”, “the window”, always use the correct name for each element of the application.
  - **Screen Shots:** A picture is worth a thousand words!!! Which does not mean a screen shot is enough information by itself!!!

# How to report bugs effectively

- Accurate
- Unambiguous
- Isolate
- Re-create
- Generalize
- Condense
- Precise
- Neutralize
- Impact



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## Key points for good bug report



Clear and succinct title

- Bad: Browser crashed
- Good: Error 404: Page not found when clicking the Export button



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## Key points for good bug report



### Is it Reproducible?

- Bad: Sometimes the application fails, random error when saving.
- Good: 3 out of 5, once only, every time, 100% repro-rate, etc.

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# Key points for good bug report



Description

- Summary: short overview
- What happened: step by step

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## Key points for good bug report



Supporting information?

- Bad: None.
- Good: "This error happens for all event records that are fees, but works for event records that are campaigns"

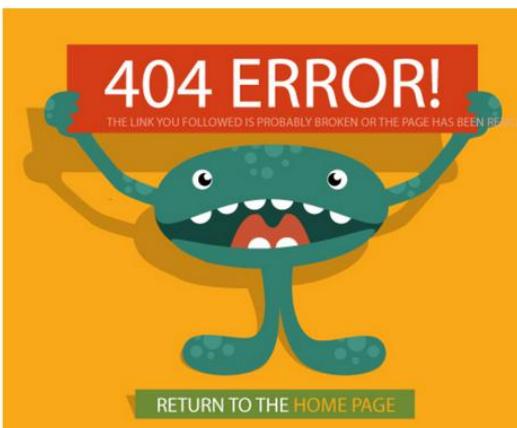
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## Key points for good bug report



### Actual results?

- Bad: "It did not work"
- Good: "Error 404: Access denied"

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## Key points for good bug report



Expected results?

- Bad: "I expected it to work"
- Good: "I expected to see a popup after clicking the Run button"

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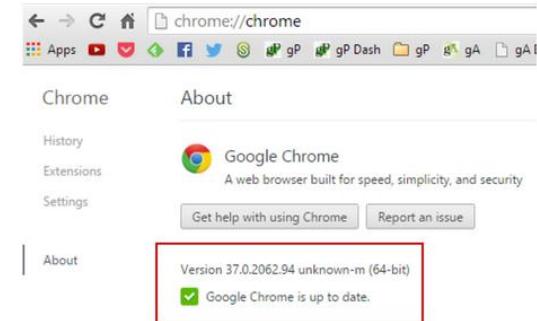


## Key points for good bug report



Platform

- Bad: windows
  - Good: "Windows 7, Google Chrome 20.0.1132.47m"



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## Key points for good bug report

Include the Screenshots/Attachments!!!

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# Bug Report

Now, you can see:

## How to write a useful Bug Report

[Link a YouTube](#)

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## Severity vs. Priority



Severity	Priority
<ul style="list-style-type: none"><li>ISTQB Definition: "The degree of impact that a defect has on the development or operation of a component or system."</li><li>Categorization:<ul style="list-style-type: none"><li>Critical</li><li>High</li><li>Medium</li><li>Low</li></ul></li></ul>	<ul style="list-style-type: none"><li>ISTQB Definition: "The level of (business) importance assigned to an item, e.g. defect."</li><li>Categorization:<ul style="list-style-type: none"><li>Urgent / P1</li><li>High / P2</li><li>Medium / P3</li><li>Low / P4</li></ul></li></ul>

**Severity**

- ISTQB Definition:** "The degree of impact that a defect has on the development or operation of a component or system."
- Categorization:**
  - Critical
  - High
  - Medium
  - Low

**Priority**

- ISTQB Definition:** "The level of (business) importance assigned to an item, e.g. defect."
- Categorization:**
  - Urgent / P1
  - High / P2
  - Medium / P3
  - Low / P4

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## Severity vs. Priority



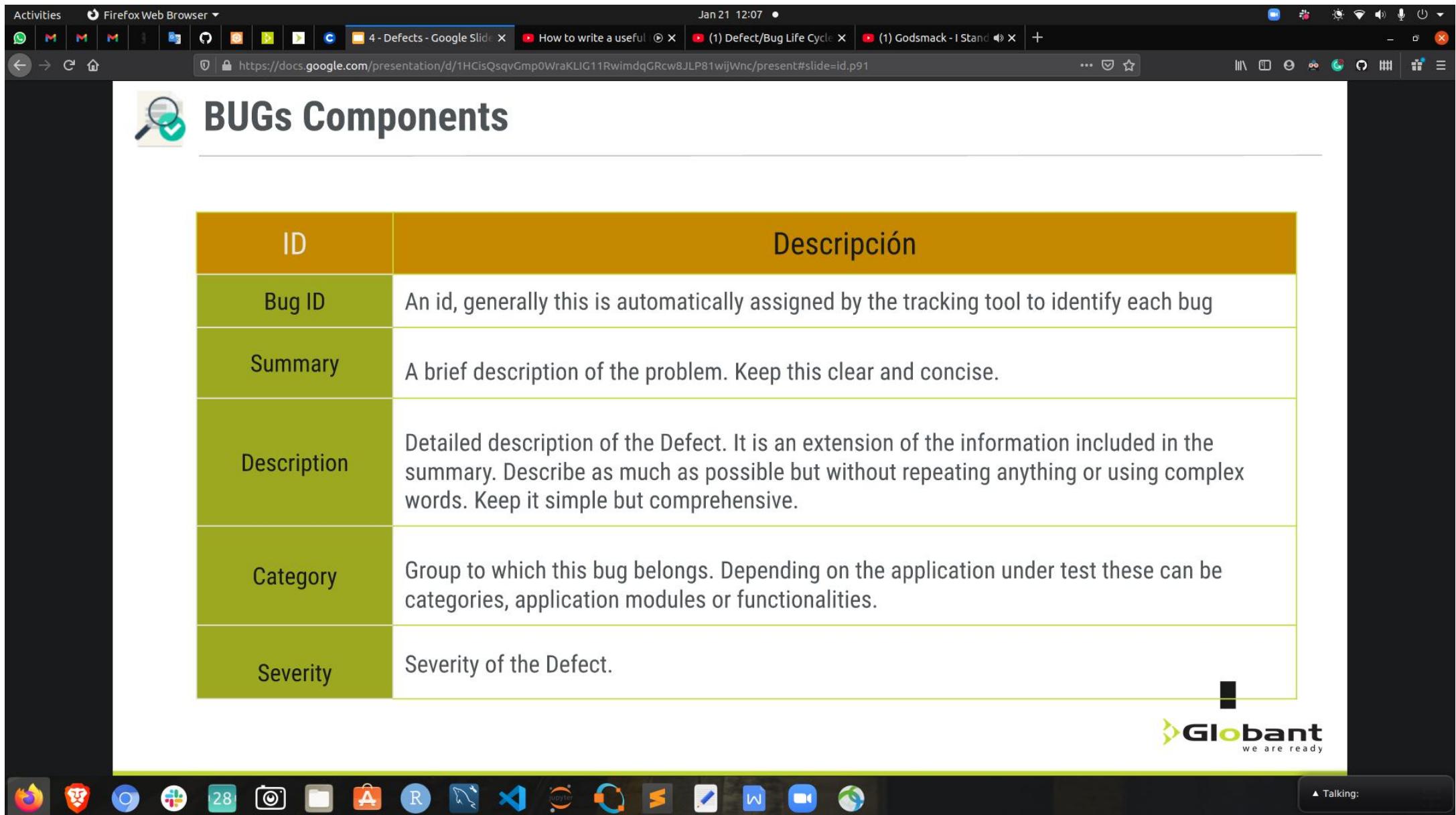
Which is the difference between Severity and Priority?

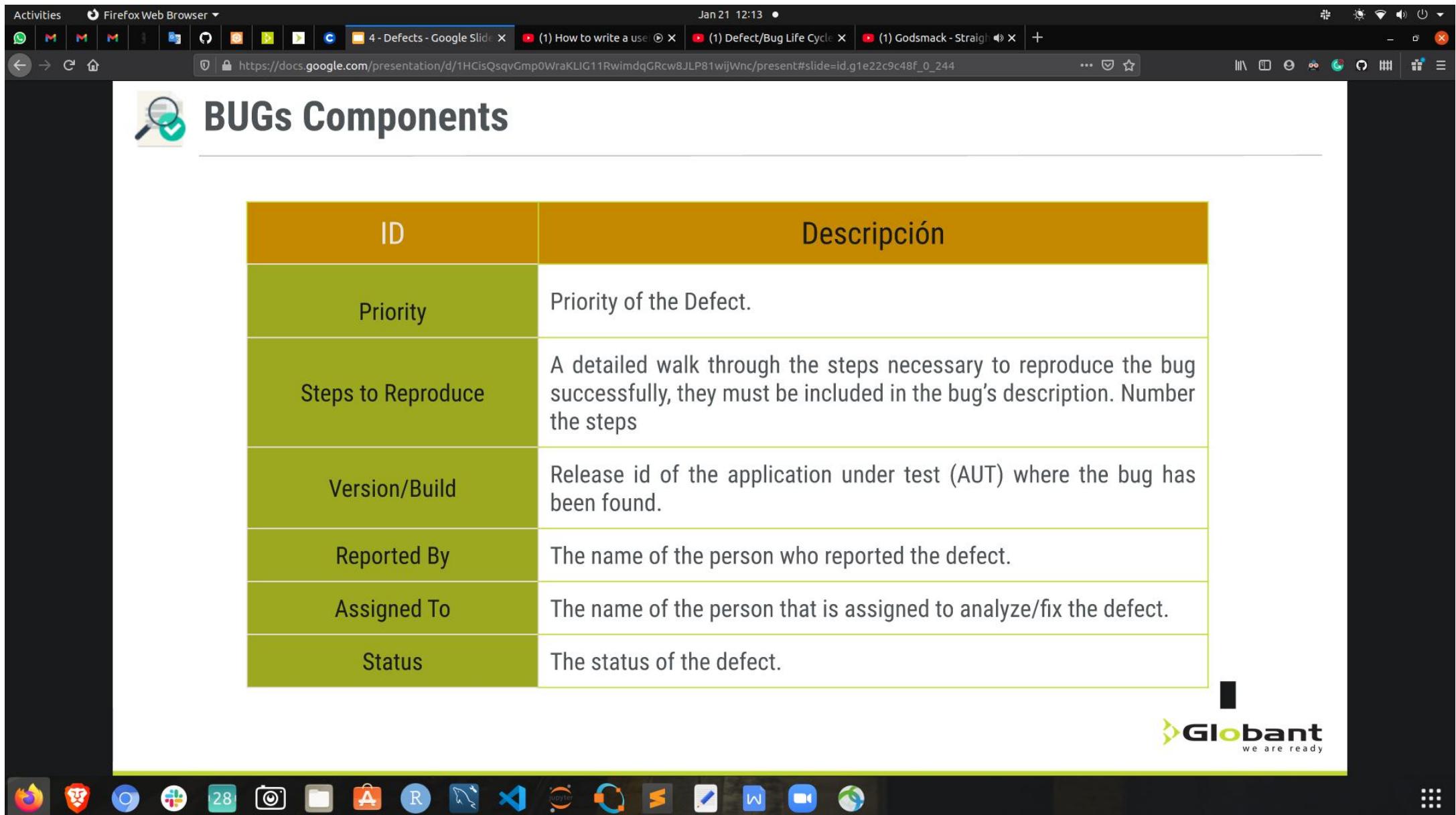
- Severity by definition is assigned by the tester that finds it, based on an agreed categorization.
- Priority has to do with Business Impact, thus it's usually set by the Project Manager / Product Owner

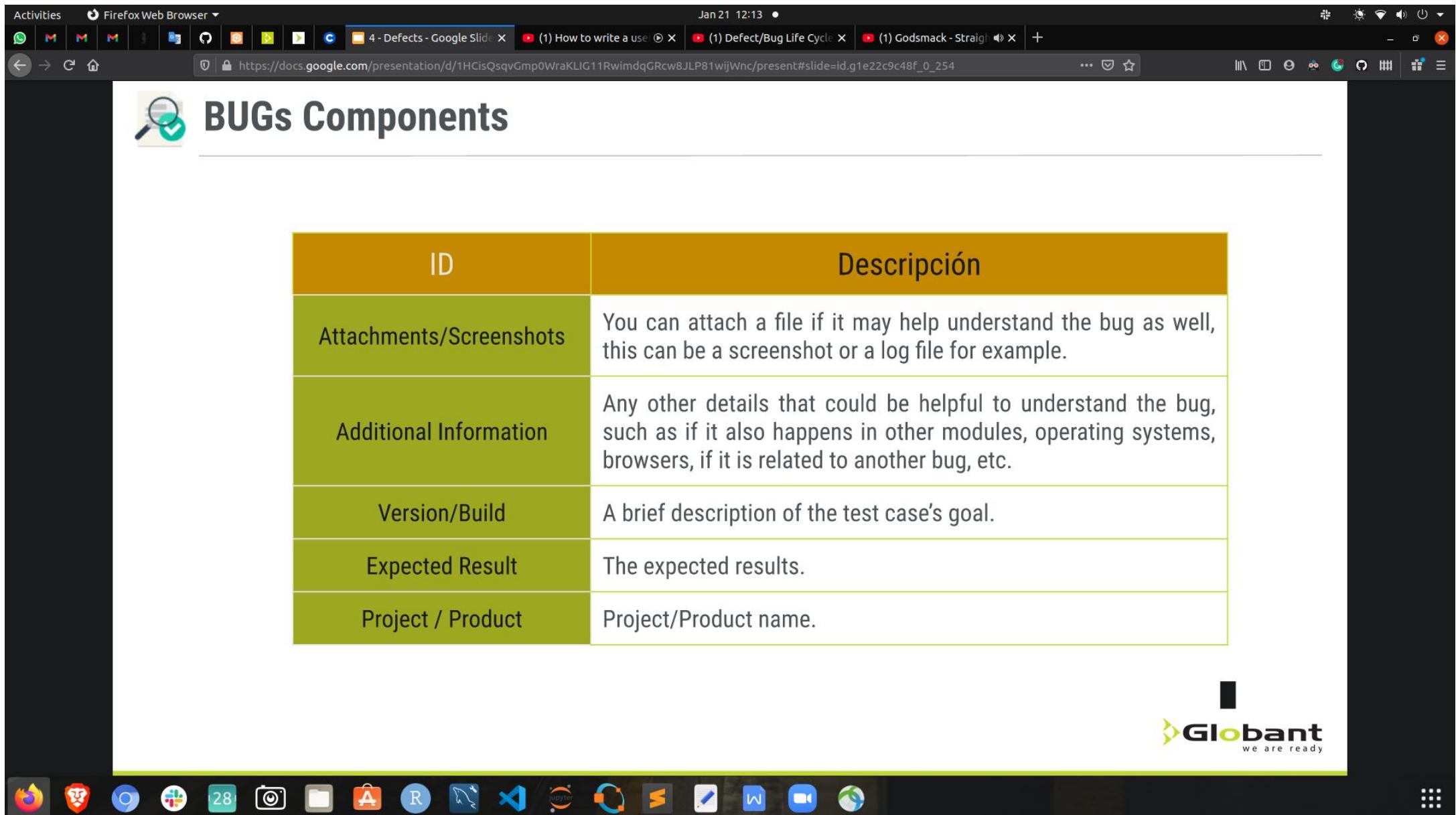
		Severity				
		Cosmetic	Minor	Moderate	Major	Critical
Priority	Low					
	Medium					
	High					



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# Which metrics should I take?



Limit your metrics to those that provide value to either you or your customer.

Some example of metrics:

- Bugs by severity & component/functionality
- Bugs by priority & component/functionality
- Bugs by phase
- Bugs found in production



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