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# Beta Milestone

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# Build Submissions

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## Installer

- If the build is not already pushed to the server it must be now
  - Should have an installer in the “Milestone builds” folder
- We aren’t working on user stories now
- We aren’t integrating the builds now
  - Use what we have in the master branch right now

# Sprint Self Review

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## Previous sprint review

- Finalize Trello board
  - All user stories in final categories
  - Hours spent on all tasks entered
- Discuss work problems if there were any
  - If a user story estimate was off why was it off?

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# Quality Assurance

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# QA's goal

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To make a bag for game

Common misconception

# QA's goal

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Get the product into an acceptable level of error

- This is changes depending on the product being developed
- This is primarily influenced by the product's goals

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# QA process

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# QA process

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Quality assurance is an iterative process

- Test
  - QA department finds bugs
  - Bug passes scrutiny
  - Passed to developers as tasks that need to be done (change requests)
- Fix
  - Developers fix the bugs
- Confirm
  - QA department confirm fixes
  - Return unfixed bugs back to developers
- Repeat until the game is sufficiently bug reduced



# Why do we want dedicated testers?

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It is very hard to look at your own game unbiased

- You want people who don't know what they are doing to test the game
- Allows the development staff to focus on implementing and fixing
  - Good for maintain momentum
  - Good for the company bottom line
    - Programmer salary \$72,000-\$140,000 per year
    - Designer salary \$55,000- \$105,000 per year
    - Tester salary \$16,000- \$35,000 per year

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# Bugs

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# What ARE bugs

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- The game did not behave according to the DEVELOPER intentions
- The game did not behave according to the PLAYERS intentions
- Incorrect information
- Failure to adhere to certification criteria (TRC)

# What COULD be bugs

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- The player cannot figure out how to do something
  - “Wait for a soul with a red crystal ondebora cliff.”= Equip the red crystal and kneel next to the cliff for 5 seconds for wind to move you to the other side
- The player can exploit mechanics to break game balance
- The game is too challenging or not challenging enough
- These all need to be taken into consideration in a case by case basis
  - These need an objective viewpoint (producer approval)

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# Reporting Bugs

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# Reporting bugs

There is a lot of information that needs to be conveyed when reporting bug

Player can not walk through door on second room of level 2

[in list](#) [Open](#)

☐ Recurring

Add #tags ▼

Spent / Estimate ▼

Labels

Found By

Category

C - Minor +

[John OLeske](#)

[Design/Placement](#)

Build Found

[Round 1](#)

Description [Edit](#)

Steps to reproduce:

- Select new game
- Continue to level two (Office space)
- Attempt to walk into the door in the second room

What was seen:

- Player collides with the door and wall but the door does not animate or allow the player to walk through.

What Was Expected:

Tour

Add

Members

Labels

☒ Checklist

☐ Due Date

☐ Attachment

Power-Ups

Custom Fields

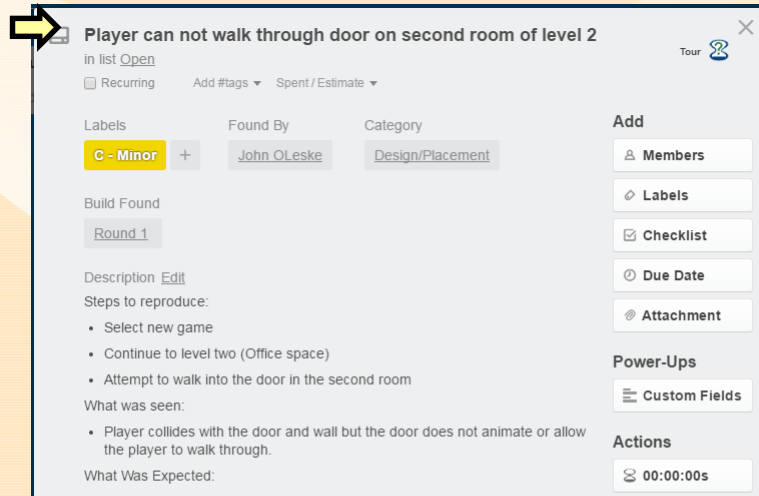
Actions

00:00:00s

# Reporting bugs

## Summary of the issue

- Short clear description of the bug



The screenshot shows a bug report form with the following fields and sections:

- Title:** Player can not walk through door on second room of level 2
- Status:** in list [Open](#)
- Recurring:** ☐ Recurring
- Found By:** [John OLeske](#)
- Category:** [Design/Placement](#)
- Labels:** [C - Minor](#)
- Build Found:** [Round 1](#)
- Description:** [Edit](#)
- Steps to reproduce:**
  - Select new game
  - Continue to level two (Office space)
  - Attempt to walk into the door in the second room
- What was seen:**
  - Player collides with the door and wall but the door does not animate or allow the player to walk through.
- What Was Expected:**
- Right sidebar:**
  - Add:** [Members](#), [Labels](#), ☒ [Checklist](#), [Due Date](#), [Attachment](#)
  - Power-Ups:** [Custom Fields](#)
  - Actions:** [00:00:00s](#)

# Reporting bugs

## Summary of the issue

### Bad

- “It crashed”
- “Doesn’t make sense”



### Good

- “Crashes selecting new game after exiting game”
- “Player doesn’t have enough information to solve the puzzle on level 5”



Player can not walk through door on second room of level 2

[in list](#) [Open](#)

☐ Recurring 

Add #tags ▼ Spent / Estimate ▼

Labels

C - Minor

+

Found By

John OLeske

Category

Design/Placement

Build Found

Round 1

Description [Edit](#)

Steps to reproduce:

- Select new game
- Continue to level two (Office space)
- Attempt to walk into the door in the second room

What was seen:

Members

Labels

Checklist

Due Date

Attachment

Power-Ups

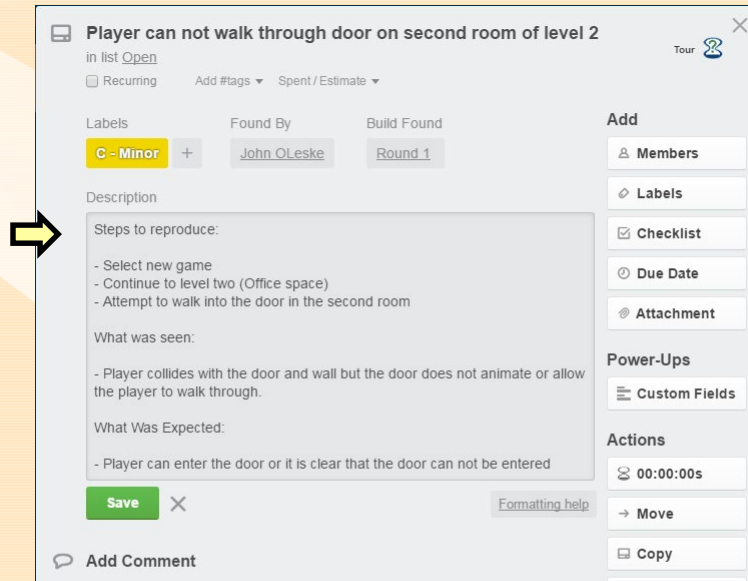
Custom Fields



# Reporting bugs

## Steps to reproduce the bug

- Should be steps starting from the main menu of a fresh boot



The screenshot shows a bug report form titled "Player can not walk through door on second room of level 2". The form includes fields for "Labels" (C - Minor), "Found By" (John OLeske), and "Build Found" (Round 1). The "Description" field is highlighted with a yellow arrow. The "Description" field contains the following text:

Steps to reproduce:

- Select new game
- Continue to level two (Office space)
- Attempt to walk into the door in the second room

What was seen:

- Player collides with the door and wall but the door does not animate or allow the player to walk through.

What Was Expected:

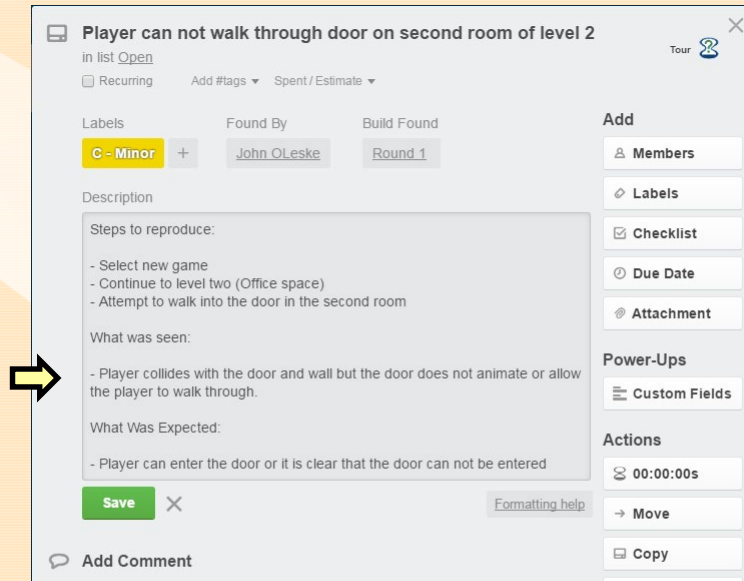
- Player can enter the door or it is clear that the door can not be entered

The form also includes a "Save" button, a "Formatting help" link, and a "Tour" button. On the right side, there are sections for "Add" (Members, Labels, Checklist, Due Date, Attachment), "Power-Ups" (Custom Fields), and "Actions" (00:00:00, Move, Copy).

# Reporting bugs

What was seen

- Why do you think what you saw is wrong



**Player can not walk through door on second room of level 2** ✕

in list [Open](#) Tour

☐ Recurring Add #tags Spent / Estimate

Labels Found By Build Found

**C - Minor** + John OLeske Round 1

Description

Steps to reproduce:

- Select new game
- Continue to level two (Office space)
- Attempt to walk into the door in the second room

What was seen:

- Player collides with the door and wall but the door does not animate or allow the player to walk through.

What Was Expected:

- Player can enter the door or it is clear that the door can not be entered

**Save** ✕ Formatting help

Add Comment

**Add**

- Members
- Labels
- ☒ Checklist
- Due Date
- Attachment

**Power-Ups**

- Custom Fields

**Actions**

- 00:00:00s
- Move
- Copy

# Reporting bugs

What was expected

- What do you think it should have been

**Player can not walk through door on second room of level 2**

in list [Open](#)

☐ Recurring Add #tags Spent / Estimate

Labels: **C - Minor** + Found By: **John OLeske** Build Found: **Round 1**

Description

Steps to reproduce:

- Select new game
- Continue to level two (Office space)
- Attempt to walk into the door in the second room

What was seen:

- Player collides with the door and wall but the door does not animate or allow the player to walk through.

What Was Expected:

- Player can enter the door or it is clear that the door can not be entered

**Save** X Formatting help

**Add Comment**

Write a comment...

Power-Ups: Members, Labels, Checklist, Due Date, Attachment, Custom Fields

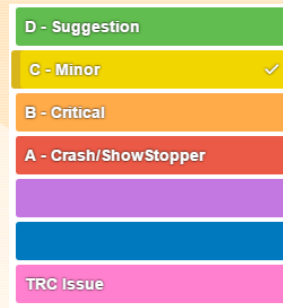
Actions: 00:00:00s, Move, Copy, Subscribe, Archive

## How severe the issue is

# Reporting bugs

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How severe is the issue



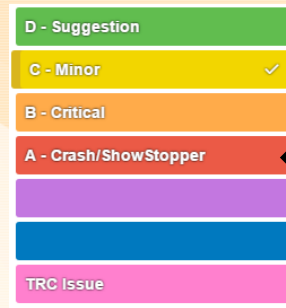
TRC Issue

- Would cause the game to be rejected from a targeted platform

# Reporting bugs

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How severe is the issue



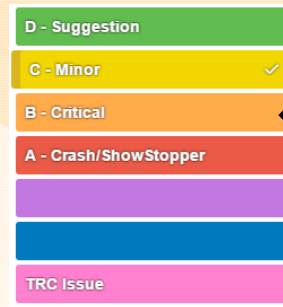
A – Crash/Show Stopper

- Would cause the game to be unsellable
- Hinders testing of the product

# Reporting bugs

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How severe is the issue



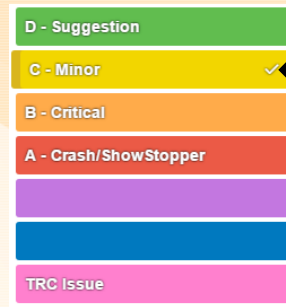
B – Critical

- Critically important to fix
- Would potentially cause loss of sales

# Reporting bugs

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How severe is the issue



C - Minor

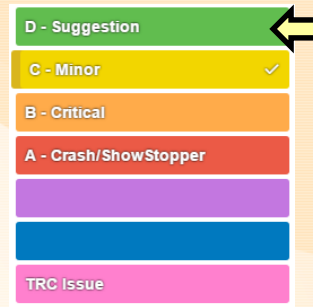
- A true unambiguous bug
- Not a high priority



# Reporting bugs

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How severe is the issue



D - Suggestion

- Grey area issues
- Things that could be left in the end product with little repercussion

## Who found the bug

## What build was the bug found in

# Reporting bugs

Who is going to fix the bug

The screenshot displays a bug reporting interface. The main bug report is titled "Player can not walk through door on second room of level 2". It includes fields for "Labels" (C - Minor), "Found By" (John OLeske), and "Category" (Design/Placement). The "Build Found" section is set to "Round 1". The "Description" field contains the text "Steps to reproduce:" followed by a list of steps: "Select new game", "Continue to level two (Office space)", and "Attempt to walk into the door in the second room". The "What was seen:" section contains the text "Player collides with the door and wall but the door does not animate or allow the player to walk through." The "What Was Expected:" section contains the text "Player can enter the door or it is clear that the door can not be entered". Below the description is an "Add Comment" section with a text input field and a "Save" button. On the right side, there is a "Members" panel with a search bar and a list of "Board Members" including John OLeske, Greg Bey, Jon Hamrick, Robert Martinez, Rod Moye, and Sean Hathaway. There are also buttons for "Subscribe" and "Archive".

**Player can not walk through door on second room of level 2**  
in list [Open](#)  
☐ Recurring    Add #tags    Spent / Estimate    [Tour](#)

Labels: **C - Minor**    Found By: [John OLeske](#)    Category: [Design/Placement](#)

Build Found: [Round 1](#)

Description: [Edit](#)  
Steps to reproduce:

- Select new game
- Continue to level two (Office space)
- Attempt to walk into the door in the second room

What was seen:

- Player collides with the door and wall but the door does not animate or allow the player to walk through.

What Was Expected:

- Player can enter the door or it is clear that the door can not be entered

[Add Comment](#)  
Write a comment...  
[Save](#)

**Members**  
Search members

**Board Members**

- [John OLeske \(johnoleske\)](#)
- [GB Greg Bey \(gregbey1\)](#)
- [JH Jon Hamrick \(jonhamrick1\)](#)
- [RM Robert Martinez \(rmartinez\)](#)
- [RM Rod Moye \(rodmoeye\)](#)
- [SH Sean Hathaway \(seanhathaway1\)](#)

[Show other team members...](#)

[Subscribe](#)  
[Archive](#)

# Reporting bugs

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What is the current status of the bug



# Reporting bugs

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A bug is clear as to what the issue is

- Avoid ambiguous terms
- Use the same names for items that are used in the product

# Reporting bugs

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Each bug only contains one issue

- It is tempting to submit “level one has the following issues...”
- Each bug should contain one thing that needs to be fixed

# Reporting bugs

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A bug is always reproducible

- This isn't saying that failing to reproduce the outcome means it isn't a bug
- If you can't reproduce the bug you haven't found the cause of the bug yet



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# Example

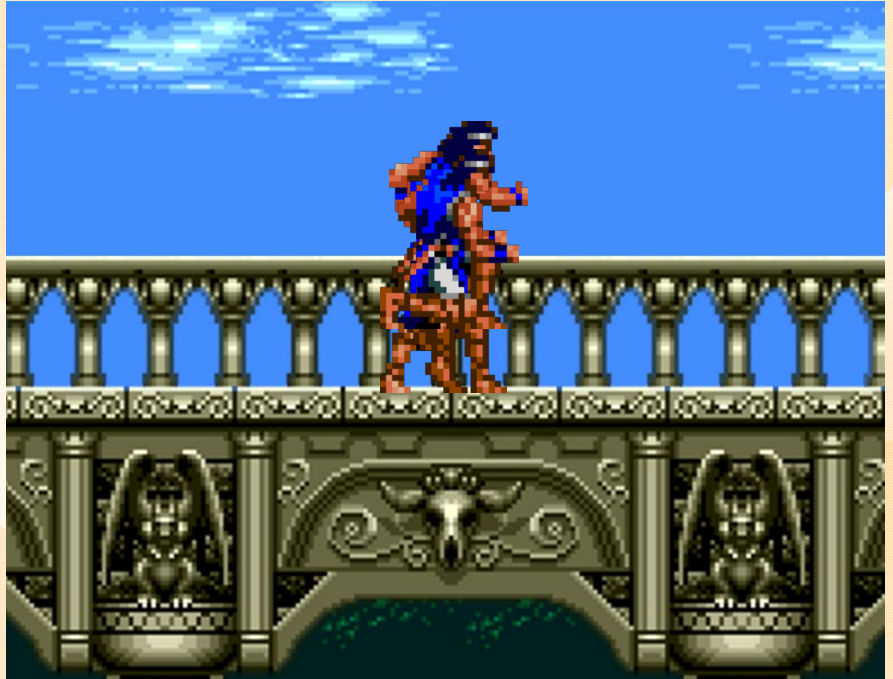
A bug's life

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# Example: What was seen

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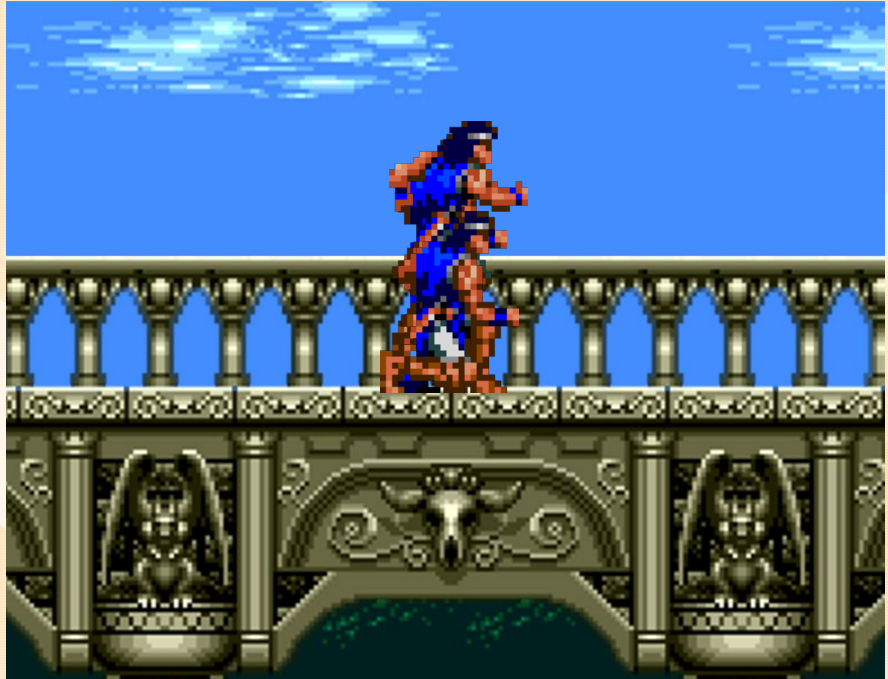
- What was seen



# Example: What was expected

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- What was expected (player)



# Example: Bug reported

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Collision issues with the bridge on level two

1. From the main menu select new game.
2. Complete level one and continue to level two
3. Proceed halfway though level two where there is a large ornamental bridge
4. Jump onto the bridge

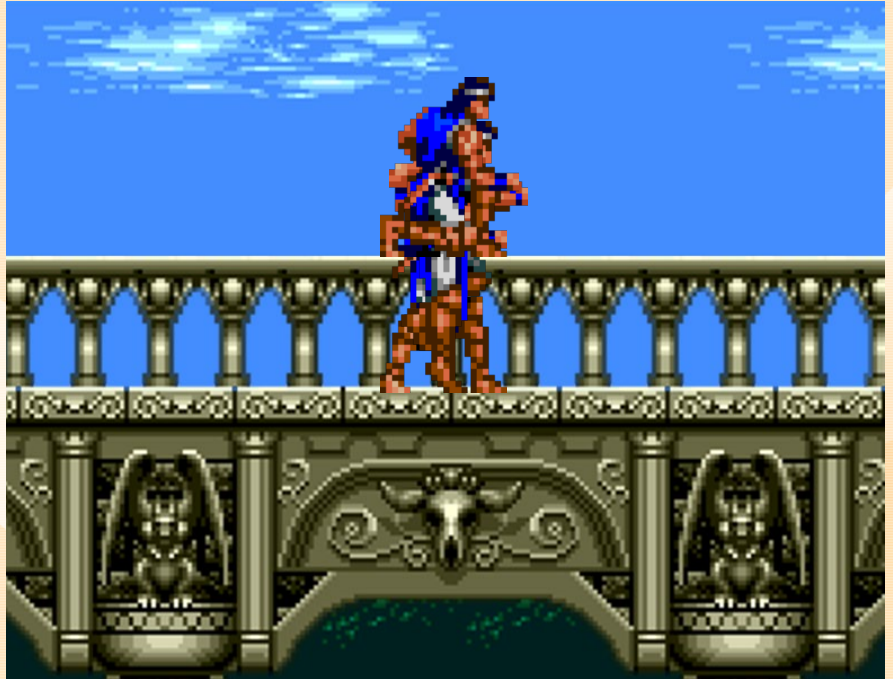
Result: When the user jumps on the bridge the player lands slightly above the floor of the bridge. This issues does not occur when walking onto the bridge.

Expected result: The player will walk along the bridge normally no matter what way they entered it.

# Example: Dev Intent

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- What was expected (Dev)



# Example: Dev response

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If they didn't actually spend time to understand the bug

- Not a bug. We intended to be able to jump on the hand rail.

If they did spend time to understand the bug

- Fix the collision detection line for the hand rail

# Example: Fixing

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Fix the real problem

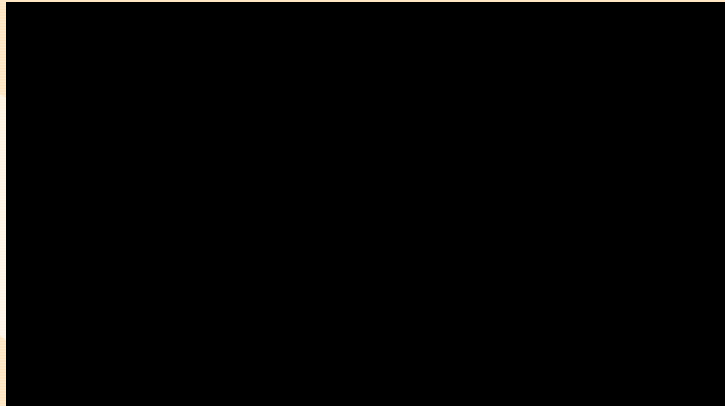
- Frequently the fix is not the expected results
- Many times the fix is informing the player of the intent
- Sometimes the fix is avoiding the issue

# <Activity> Bug Examples

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## Bug examples

- How would we go about resolving issues that get reported to us.
  - <https://youtu.be/CGhme22zvvl>





# Example

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It is very easy to lose sight of the bigger picture

- It isn't about the people involved, it is about making the game as good as it can be
- QA reporting bugs != QA saying your game is bad
  - Or that you are a bad dev in conjunction with that
- It isn't QA's fault that they found a bug
  - The bug was there, they are just letting you know about it.
- Dev refusing to fix a bug does not mean it shouldn't have been submitted
  - Discussions and decision on that have to be made

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# Promotional Materials

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# Promotional Materials

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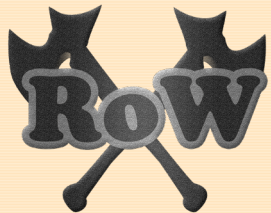
- Promotional materials need to be submitted
  - Team Logo
  - Screenshot
  - Demo Video
- Why
  - We need them for archiving
  - They will be used at the expo
  - You should want them to promote yourself

# Promotional Materials: Logo

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Create a simple team logo

- Printable
  - No solid background
- Readable at a distance



# Promotional Materials: Screen Shot

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Create a screenshot

- Shows a main player action
- Shows an interesting environment
- Shows obstacles being overcome
- Is clear as to what is happening

Suggested Program

- fn+alt+prt sc (print screen)
- MSPaint



# Promotional Materials: Video

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## Create a Video

- Shows multiple player actions, environments, and obstacles being overcome
- Start and end with a game/team title screen
- 1-2 minutes long
- MINIMUM resolution 1280x720
- .mp4 (H.264 codec preferred)

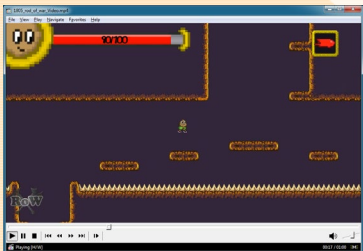
## Suggested programs

### Capture

- OBS
  - <https://obsproject.com/>
- Loilo Game Recorder
  - [http://loilo.tv/us/product/game\\_recorder](http://loilo.tv/us/product/game_recorder)
  - Not studio or Loiloscope, that adds a watermark

### Editing

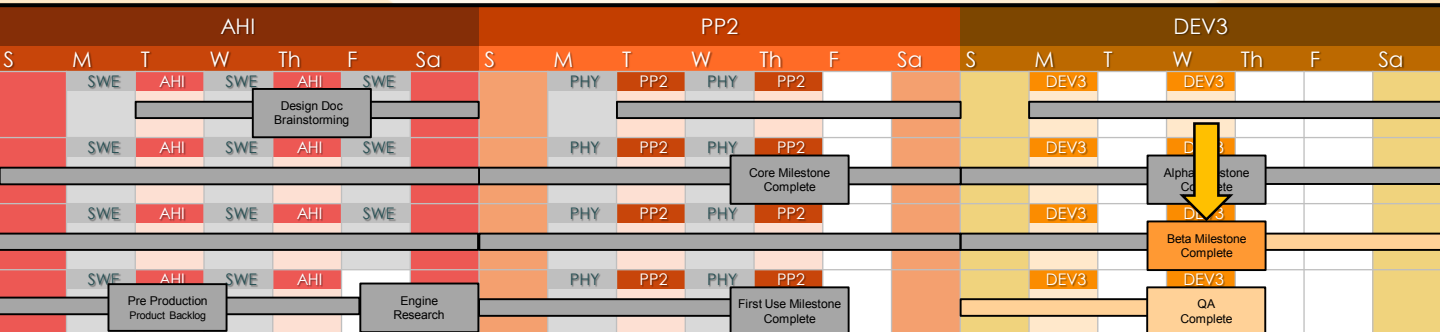
- DaVinci Resolve



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# Assignments

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# QA Schedule

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Today before end of lecture

- Dev teams will provide test teams:
  - Game installer
  - Access to bug tracker

By 9am tomorrow

- First round of testing must be complete
  - 10bugs per tester minimum
  - Allow Dev teams time to fix bugs

Before the 7th lecture

- Fix as many issues as possible
  - Update the tracker to show its status
  - Have a new build made BEFORE class
- Create Promotional Materials
  - Assign a team member to the task

# QA Schedule

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## Start of class Lecture 7

- Promotional Material submitted
- New build delivered to QA teams
  - Testing team must confirm that bugs are truly fixed

## By 9am the day after lecture 7

- Second round of testing must be complete
  - 10bugs per tester minimum
  - Allow Dev teams time to fix bugs

## Before the 8th lecture

- Fixing the remaining issues.
  - Update the tracker to show its status
  - Have the final build BEFORE class

# QA Schedule

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## Start of class Final Day

- Final turn in
  - Installer
  - Codebase
  - Trello Exported by staff
- New build delivered to QA teams
  - Final fix confirmations
  - Only reporting A level issues
  - All bug in database should be fixed or approved to remain by CD
- Games running on target platforms
  - Public at this point

## Before end of lab

- Postmortem
  - Class discussion/ Document creation
- Wrap up notes

# Presentations

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## Presentation day

- \*confirm date and time
- Open floor expo presentation
  - Teams spread evenly throughout the room
  - Guests playing the games on your computers/hardware
  - We are available to answer questions and present the games 1 on 1

# Additional Resources

## Steve Wetherill: Opinion—Quality Assurance For Dummies

- [http://www.gamasutra.com/view/news/104290/Opinion\\_Quality\\_Assurance\\_For\\_Dummies.php](http://www.gamasutra.com/view/news/104290/Opinion_Quality_Assurance_For_Dummies.php)



The screenshot shows the Gamasutra website interface. At the top is the Gamasutra logo with the tagline 'The Art & Business of Making Games'. Below the logo is a navigation bar with links: GAME JOBS, UPDATES, BLOGS, CONTRACTORS, NEWSLETTER, STORE, and a search bar. A secondary navigation bar categorizes content: ALL, CONSOLE/PC, SMARTPHONE/TABLET, INDEPENDENT, VR/AR, and SOCIAL/ONLINE. On the left side, there is a 'Member Login' section with fields for Email and Password, a 'Login' button, and a link for 'Forgot Password? Sign Up'. Below the login section are social media icons for Facebook, Twitter, RSS, and Email. A vertical menu on the left lists game development categories: PROGRAMMING, ART, AUDIO, DESIGN, and PRODUCTION, each with a corresponding icon. The main content area features an article titled 'Opinion: Quality Assurance For Dummies' with a sub-header 'Opinion: Quality Assurance For Dummies'. The article is dated 'March 30, 2007' and is by 'Steve Wetherill'. It includes a 'Post A Comment' button and a 'More: Console/PC' link. The article text begins with 'Over the years, I've dealt with many different video game development QA departments. At Westwood Studios the QA director reported to me for several years, and we shipped many significant titles, the Command & Conquer series, etc.'

**GAMASUTRA**  
The Art & Business of Making Games

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Password:   
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Forgot Password? [Sign Up](#)

f t RSS e

**PROGRAMMING**  
**ART**  
**AUDIO**  
**DESIGN**  
**PRODUCTION**

**Opinion: Quality Assurance For Dummies**

March 30, 2007 | By **Steve Wetherill**

Post A Comment

More: Console/PC

[In this opinion piece, former Westwood Studios/EA executive [Steve Wetherill](#), currently running mobile game firm [Uztek](#), weighs in on "poor QA processes" that he's seen, offering eight major steps to improving the speed and efficiency of game testing.]

Over the years, I've dealt with many different video game development QA departments. At Westwood Studios the QA director reported to me for several years, and we shipped many significant titles, the *Command & Conquer* series, etc.

# QA Schedule

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