
Beta Milestone

Build Submissions

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

- Finalize Trello board
 - All user stories in final categories
 - Complete = 100% done all test cases are true.
 - Partially complete = Something isn't done on the userstory yet, explain what in the comments for the card.
 - Incomplete = Little to no work done on the task, no test cases can be checked as true.
 - Hours spent on tasks entered
- Discuss work problems if there were any
 - If a user story estimate was off, why was it off?
- Do not archive or move userstory cards off the board.
 - Staff will copy incomplete work from sprint to product backlog where appropriate to be treated as unassigned userstories here forward

Quality Assurance

QA's goal

To make a ~~bug free~~ game

Common misconception

QA's goal

Get the product into an acceptable level of error

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

QA process

QA process

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 and we have met the acceptable level of error

Why do we want dedicated testers?

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
 - Multiple testers for the cost of 1 programmer

Bugs

What ARE bugs

- 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

- 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)

Reporting Bugs

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

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

X

Formatting help

Tour

X

Add

Members

Labels

Checklist

Due Date

Attachment

Power-Ups

Custom Fields

Actions

00:00:00s

Move

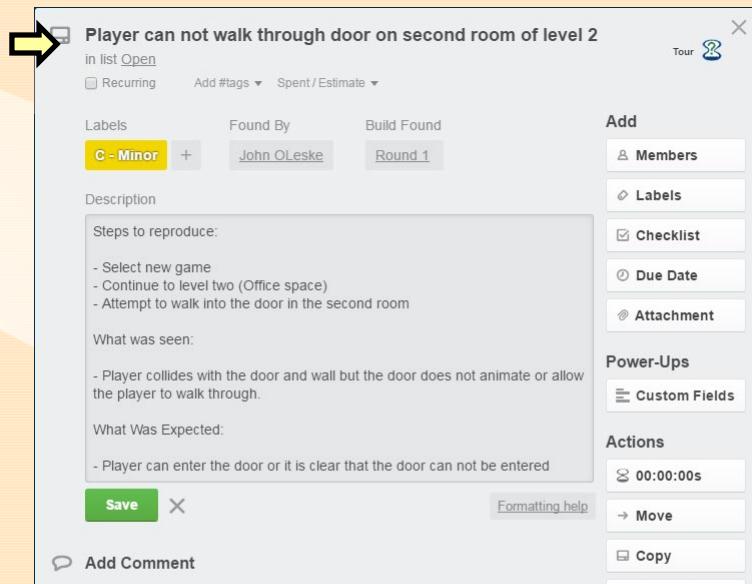
Copy

Add Comment

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 (highlighted by a yellow arrow)
- Status:** in list [Open](#)
- Recurring:** ☐
- Tags:** 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
- Buttons:** Save, Formatting help
- Right Sidebar:**
 - Add:** Members, Labels, Checklist, Due Date, Attachment
 - Power-Ups:** Custom Fields
 - Actions:** 00:00:00, Move, Copy
- Bottom:** Add Comment

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 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.

Add

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

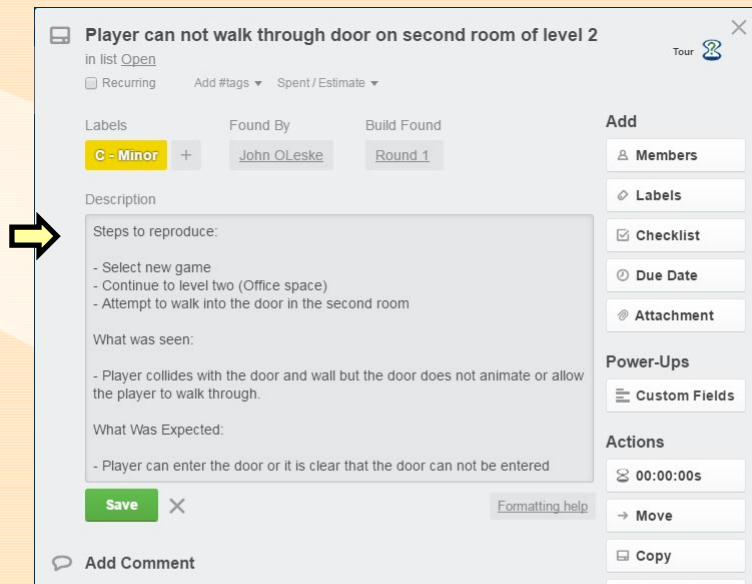
Power-Ups

- ☐ 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" (with "C - Minor" selected), "Found By" (with "John OLeske" entered), and "Build Found" (with "Round 1" entered). The "Description" field is highlighted with a yellow arrow and 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:

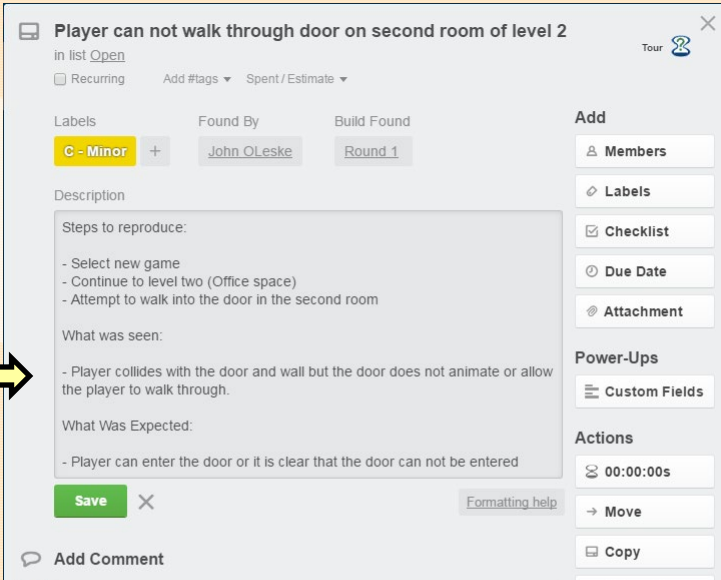
- Player can enter the door or it is clear that the door can not be entered

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](#)

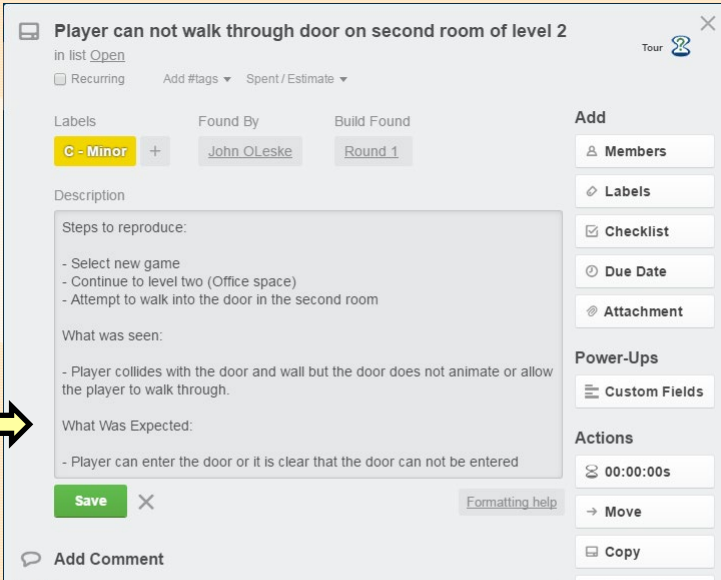
Actions

- [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 Tour

in list [Open](#)

☐ 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](#)

How severe the issue is

Reporting bugs

How severe is the issue

D - Suggestion

C - Minor ✓

B - Critical

A - Crash/ShowStopper

TRC Issue

TRC Issue

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

Reporting bugs

How severe is the issue



A – Crash/Show Stopper

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

Reporting bugs

How severe is the issue



D - Suggestion

C - Minor ✓

B - Critical ←

A - Crash/ShowStopper

TRC Issue

B – Critical

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

Reporting bugs

How severe is the issue

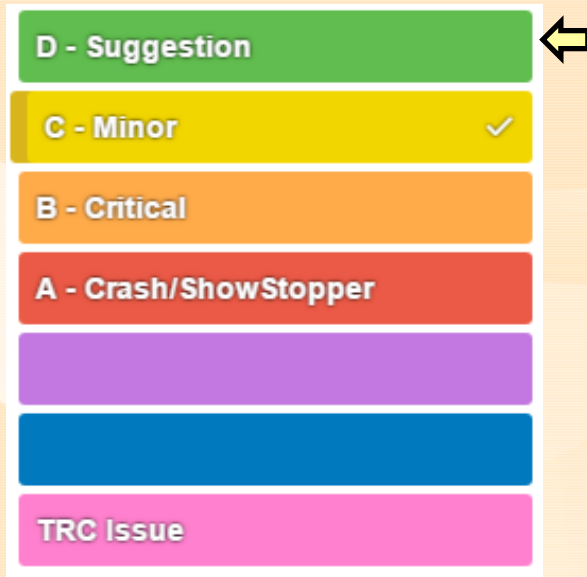
D - Suggestion
C - Minor ✓
B - Critical
A - Crash/ShowStopper
TRC Issue

C - Minor

- A true unambiguous bug
- Not a high priority

Reporting bugs

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" field is set to "Round 1". The "Description" section contains "Steps to reproduce:" (Select new game, Continue to level two (Office space), Attempt to walk into the door in the second room) and "What was seen:" (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 states (Player can enter the door or it is clear that the door can not be entered). A yellow arrow points to the "Add" button, which is labeled "Members". A dropdown menu titled "Members" is open, showing a search bar and a list of "Board Members" with their avatars and names: John OLeske (johnoleske), Greg Bey (gregbey1), Jon Hamrick (jonhamrick1), Robert Martinez (rmartinez), Rod Moya (rodmoey), and Sean Hathaway (seanhathaway1). There is also a "Subscribe" button at the bottom of the dropdown.

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:

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

Add Comment

Write a comment...

Members

Search members

Board Members

- John OLeske (johnoleske)
- Greg Bey (gregbey1)
- Jon Hamrick (jonhamrick1)
- Robert Martinez (rmartinez)
- Rod Moya (rodmoey)
- Sean Hathaway (seanhathaway1)

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

Subscribe

Bug Rules

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

Bug Rules

Each bugs 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

Bug Rules

A bug is always reproducible

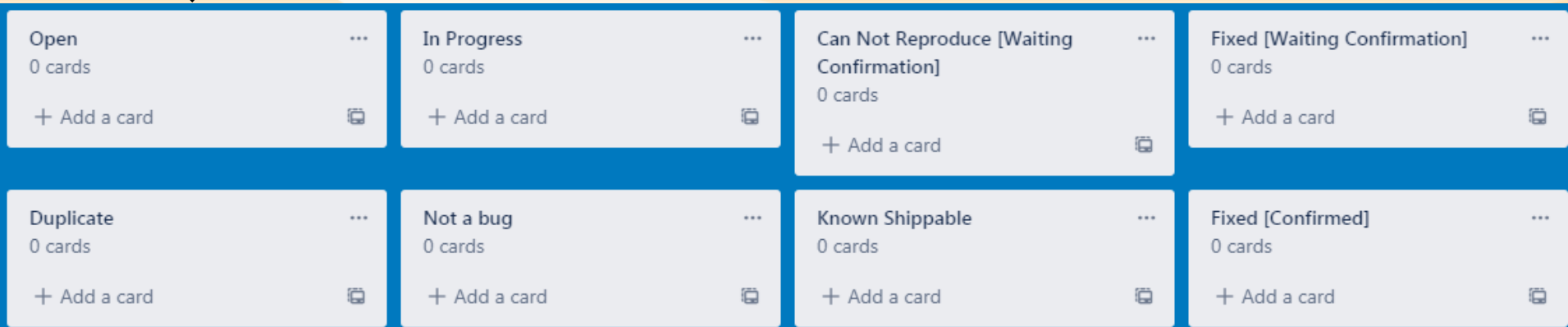
- This isn't saying that failing to reproduce the outcome means it isn't a bug
- If you can't reproduce the bug you haven't found the cause of the bug yet

Bug life cycle

Bug life cycle

Open

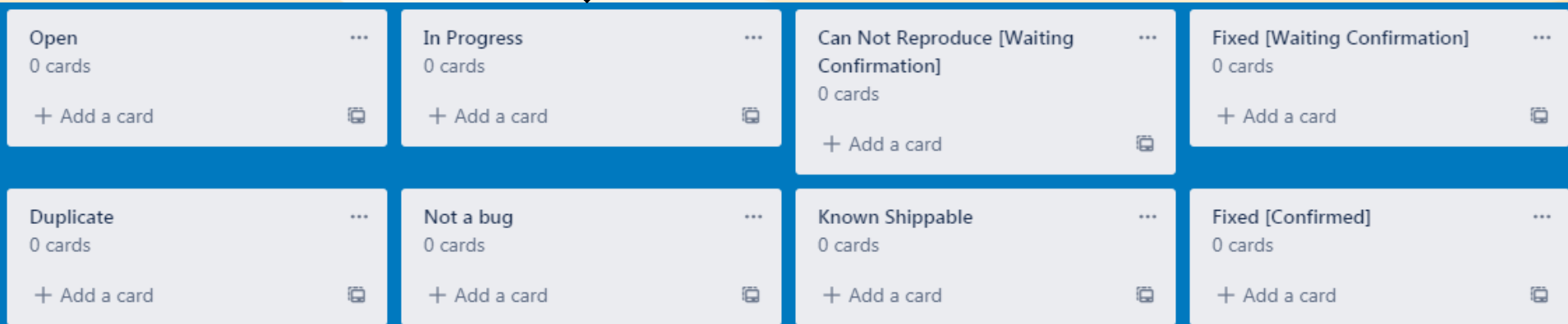
- Just got submitted
- Waiting for someone to start work on it



Bug life cycle

In Progress

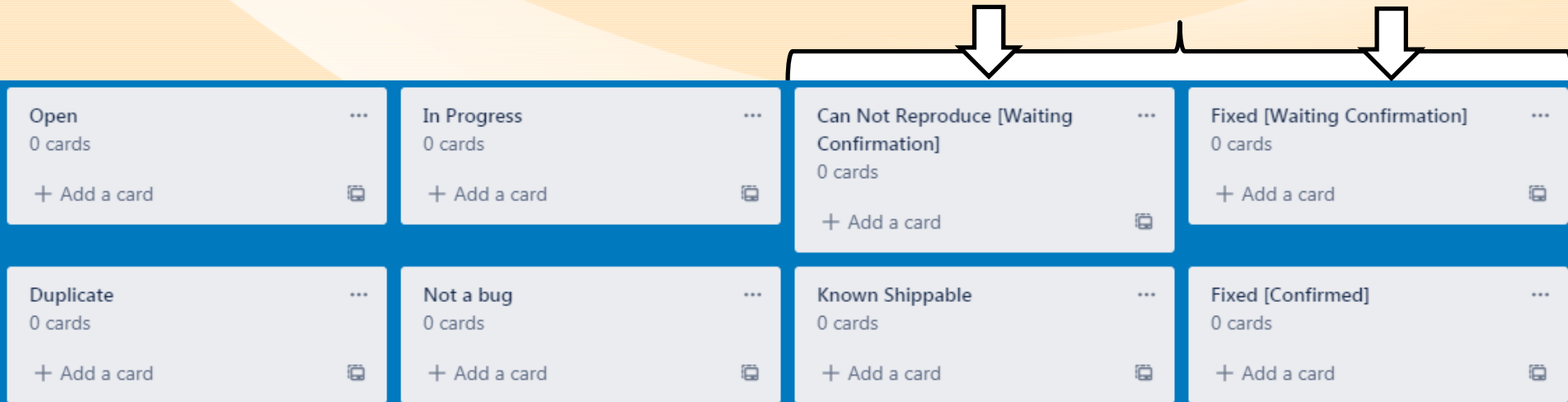
- Someone is currently working on fixing it



Bug life cycle

Waiting Verification Statuses

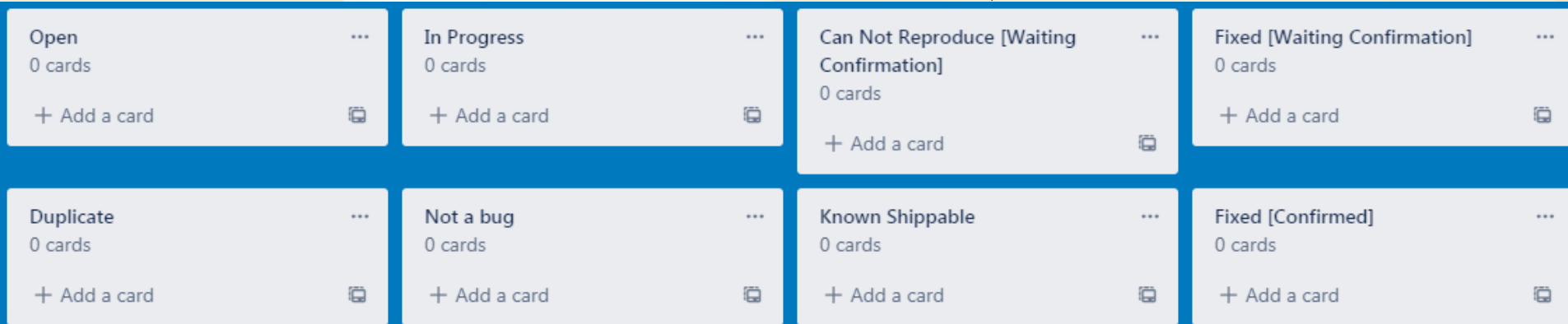
- Dev is done with the bug and it is returned to producers or QA for verification



Bug life cycle

Cannot reproduce (waiting confirmation)

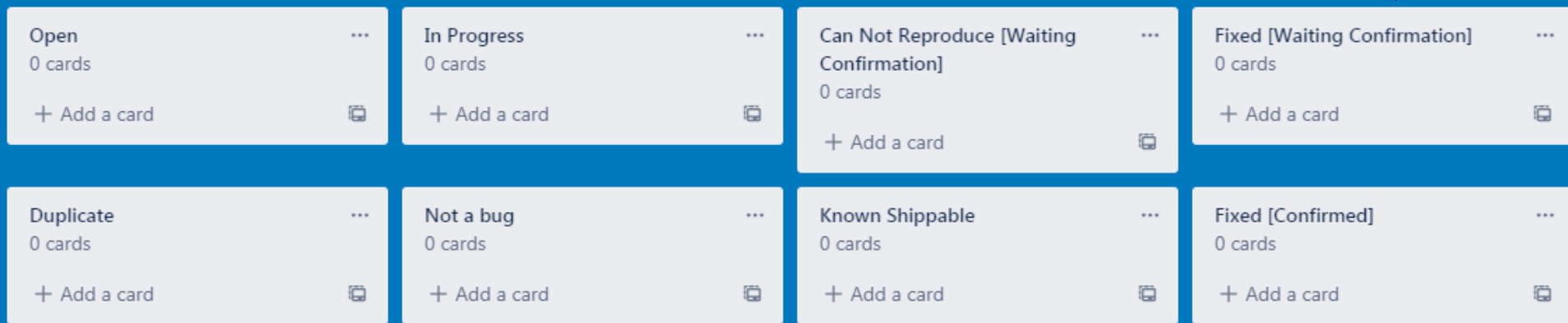
- A developer attempted to reproduce it on their own machines and were not able to
- Perhaps got fixed since it was entered as a bug from something else
- Developer may need assistance in recreating it



Bug life cycle

Fixed (waiting confirmation)

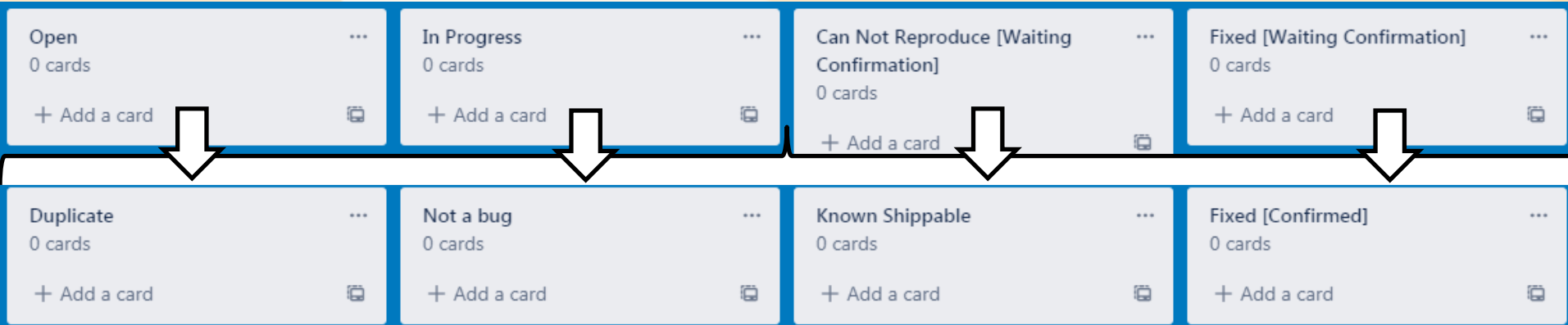
- A developer went in and fixed the bug



Bug life cycle

Closed Statuses

- No more action on the card is necessary



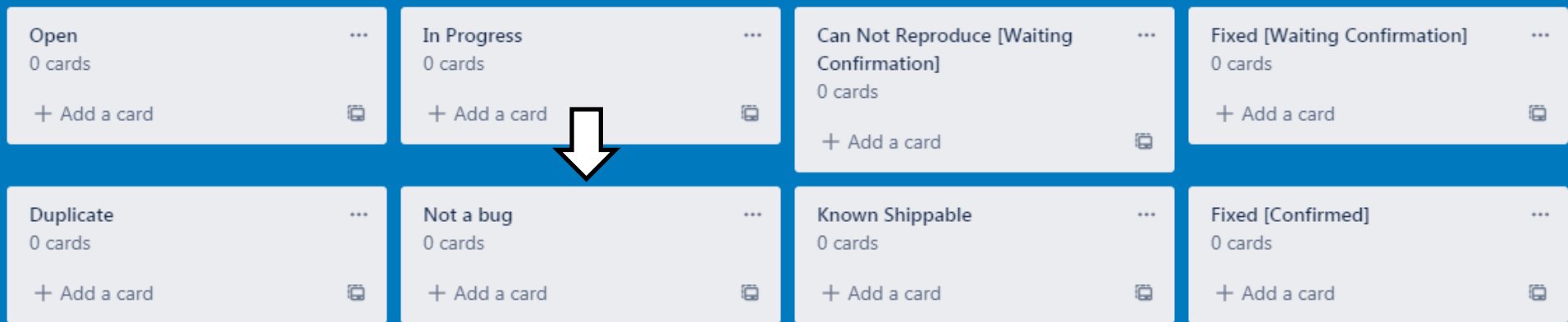
- Entered in the bug database elsewhere
- Comments must reference the bug it is a duplicate of



Bug life cycle

Not a bug

- Unsure why it was entered as a bug at all
- Unclear on tester's intention
- Note: This is often vastly overused by new developers. Just because it was intended by the developer does not mean it isn't a bug if the players do not understand



- A choice was made to leave it in the build as is

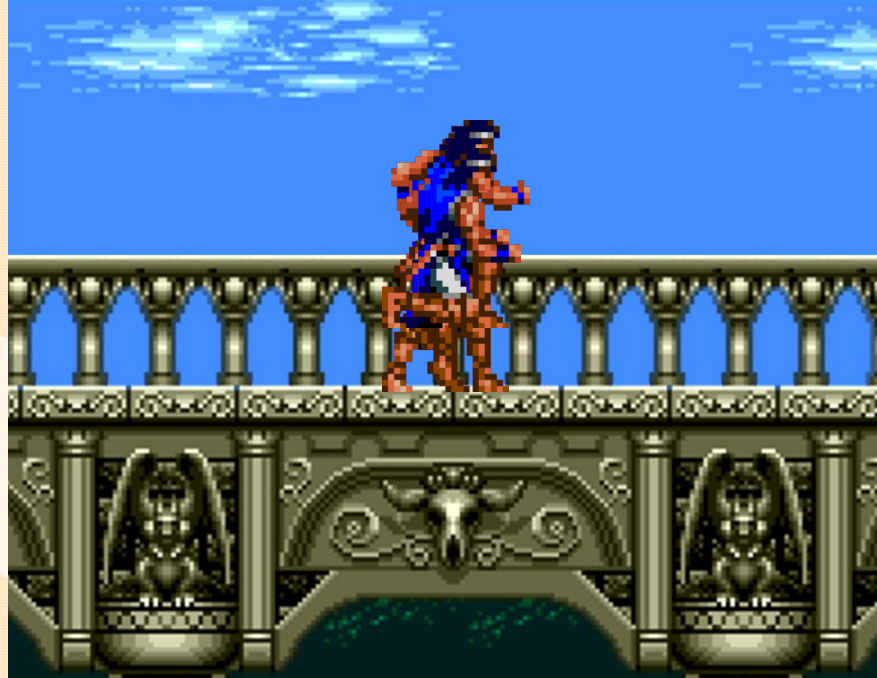


Example

A bug's life

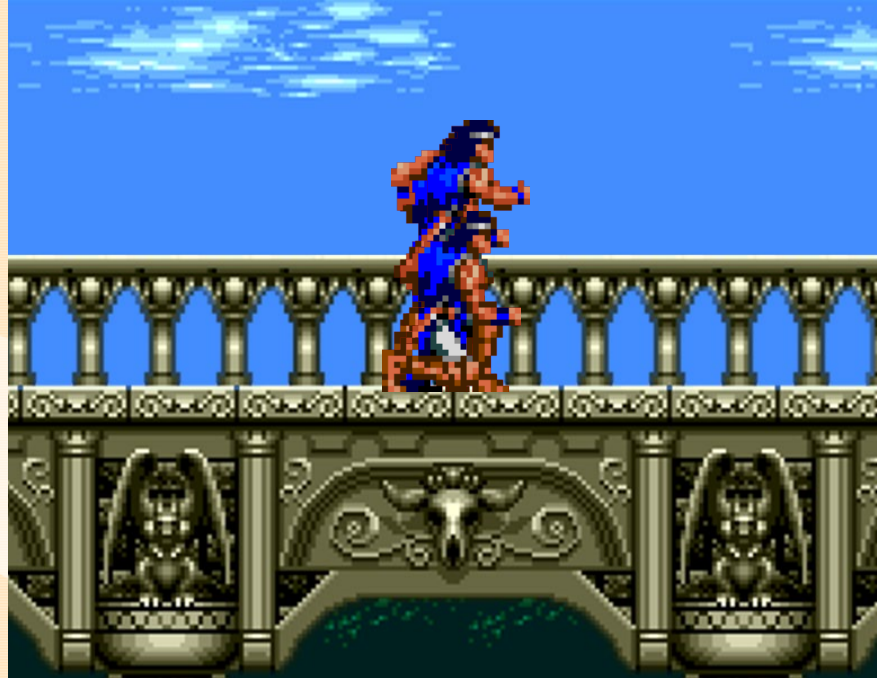
Example: What was seen

- What was seen



Example: What was expected

- What was expected (player)



Example: Bug reported

Collision issues jumping on the bridge on level two

in list [Open](#)

Recurring

Add #tags

S/E & More

LABELS

C - Minor

+

Description

Edit

From the main menu select new game.

- Complete level one and continue to level two
- Proceed halfway though level two where there is a large ornamental bridge
- 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.

Custom Fields

T FOUND BY

Tester

BUILD FOUND

Round 1

Attachments

image.png

Added just now - [Comment](#) - [Delete](#) - [Edit](#)

Make Cover

SUGGESTED

Join

Feedback

ADD TO CARD

Members

Labels

Checklist

Due Date

Attachment

Cover

POWER-UPS

Custom Fields

Get More Power-Ups

Get unlimited Power-Ups, plus much more.

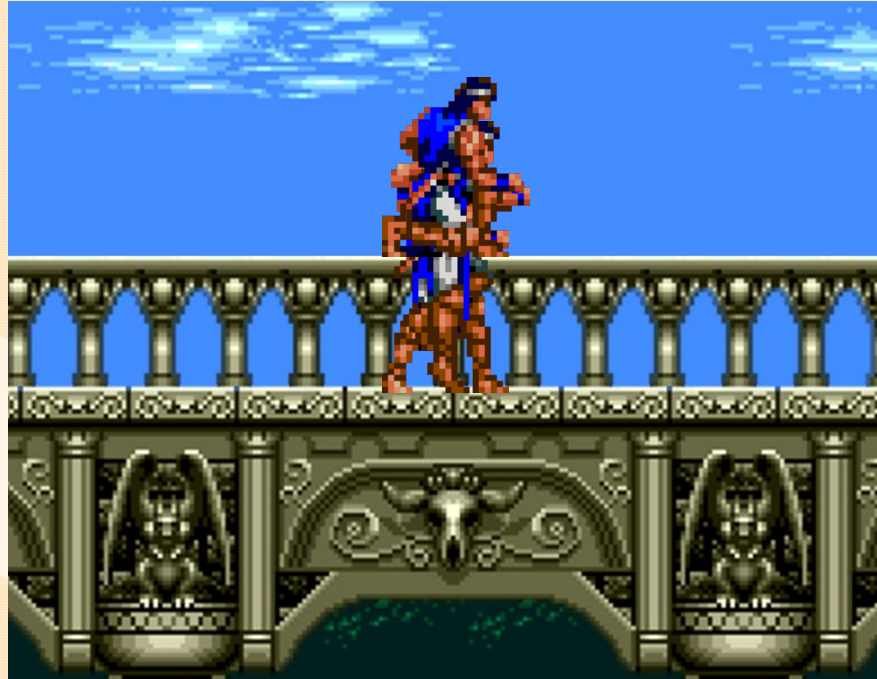
Upgrade Team

ACTIONS

00:00:00s

Example: Dev Intent

- What was expected (Dev)



Example: Dev response

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

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

If they did spend time to understand the bug

- Fix the collision detection line for the handrail

Example: Fixing

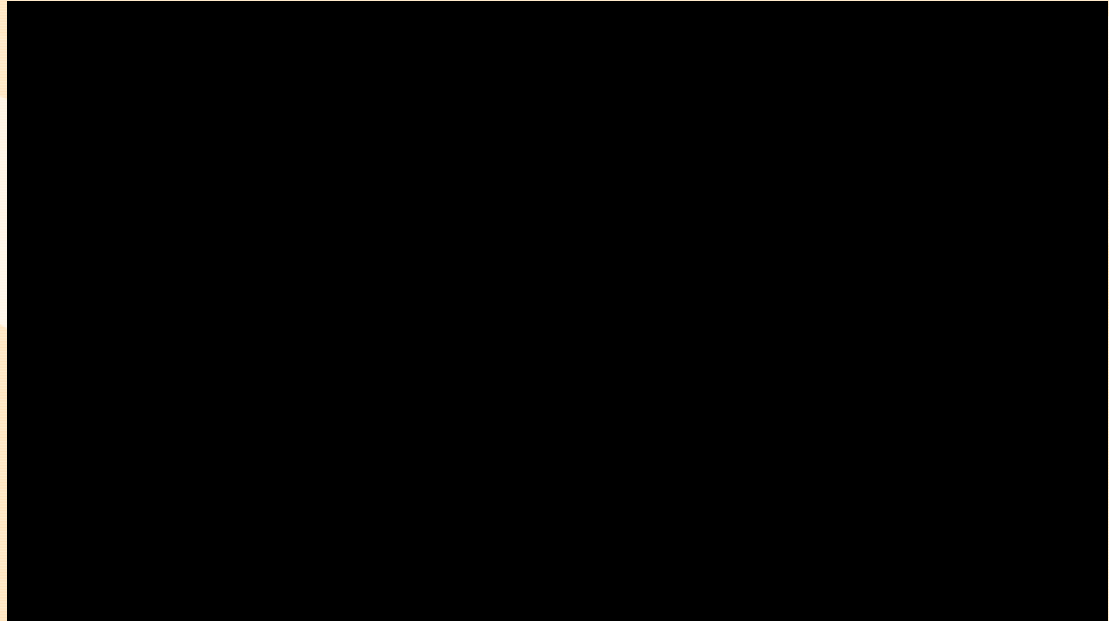
Fix the real problem

- 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

Bug examples

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



Don't let it get Personal

- 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

Additional Resources

Steve Wetherill: Opinion—Quality Assurance For Dummies

- http://www.gamasutra.com/view/news/104290/Opinion_Quality_Assurance_For_Dummies.php



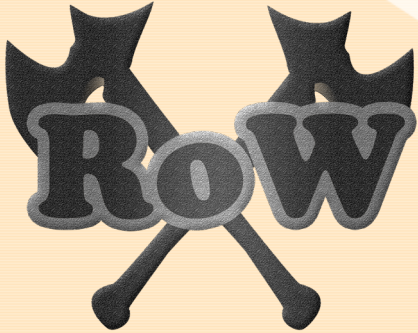
Promotional Materials

Promotional Materials

- Promotional materials need to be created
 - 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

- Logo
 - Printable
 - No solid background
 - Readable at a distance



Promotional Materials: Screen Shot

- 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
- Don't expect to get a perfect screen shot on the first try



Promotional Materials: Video

- 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)
 - (Not studio or Loiloscope, that adds a watermark)

- Editing

- HitFilm Express (<https://fxhome.com/hitfilm-express>)
- DaVinci Resolve (<https://www.blackmagicdesign.com/products/davinciresolve/>)



Additional Viewing

Konsoll 2013: Marketing Indie Games on a \$0 Budget

konsoll.org - Emmy Jonassen: To become a successful indie game developer, you must first become a successful indie game marketer. Trouble is, for many indies, marketing doesn't come naturally or fit the indie budget.

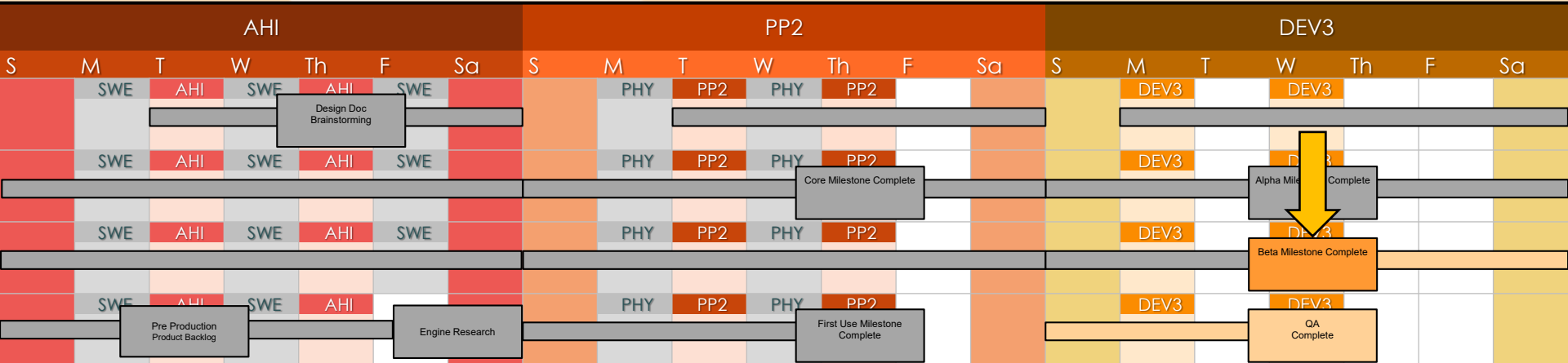


Assignments

QA and Finalizing

Starts day 6 of PP3

- Average hourly commitment
 - 4 dedicated work days
 - 2 testing days
 - 2 fixing days



QA Schedule

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
 - 10 unique bugs 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

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

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

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

QA Schedule

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
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 - Assign a team member to the task