# Designing with Cheaters in Mind

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LOGIN 2009

# Brian 'Psychochild' Green

- Worked on *Meridian 59*, 1998-present.
  - Programmer, System Designer, Business Manager, Game Administrator
  - M59 is a very aggressive PvP game.
- Co-edited *Business and Legal Primer for Game Development*.
- Blog at: http://www.psychochild.org/

# A Standard Caveat

- "Do as I say, not as I do."
  - Or, "Dealing with cheating is hard!"
- *Meridian 59* is a hotbed of cheats.
  - The game and technology are old.
  - I inherited many of the problems.
  - It's been worse in the past.
- You profit from what I've learned.
  - Especially about designing against cheats.

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# Understanding Cheating

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# What is Cheating?

- Interacting with the game to gain an advantage others cannot obtain legitimately.
  - Violating the rules.
  - Exploiting a technological weakness.
  - Abusing a design flaw.
- Why stop cheating?
  - The feeling of fairness to other players.
  - Stop potentially harmful use of the system.

# Dealing With Cheaters

- Dealing with cheats is multi-disciplinary.
  - **Design** is the first place to stop cheats.
  - **Programming** has solutions (and problems!)
  - **Customer Service** sees the effects first-hand.
  - **Community Management** sees the trends.
- Many cheats have technical solutions.
  - Many cheats are caused by tech.
  - Today's focus:  design and implementation.

# Great Design is Not Enough

- Not even simplistic games avoid cheating.
- MMOs have many moving parts.
  - *Meridian 59,* a "small" game, has ~150 spells.
    - 11,175+ combinations of two.
    - More than half a million combos of three.
  - How complex is your game?
- 1000+ players will beat 1 designer.
  - A few motivated players can beat you.

# Why Do Players Cheat?

- There are numerous in-game reasons.
- Consider Dr. Richard Bartle's basic types:
  - **Achievers** want faster recognition.
  - **Explorers** want to push boundaries.
  - **Socializers** want payback.
  - **Killers** want to dominate others.

# Why Do Players Cheat?

- There are also meta-game reasons.
- Grudge seekers want to hurt you.
  - They want to strike out against "the man".
  - (Psst, that's you.)
- Personal profit and satisfaction.
  - Access to resources to sell for $$$.
  - Consequence-free behavior: random PKing.

# How Do Players Cheat?

- Gain information others don't have.
  - See hidden information.
  - Developer "Easter Eggs" only they know.
- Gain abilities or items others don't have.
  - Remain unattackable while helping others.
  - Attacking players who cannot attack back.
- Limit other players.
  - Blocking paths of others with collision.

# How Do Players Cheat?

- ## Social Engineering.
  - Get an administrator to intervene in the game.
  - Gain an advantage over others.
  - Create a perception of unfairness.

- ## Accidental occurrence.
  - A godly item arrives in the mail!
  - Accidental discovery of a repeatable bug.

# Cheats Before Launch

# Cheats Before Launch

- Cheats are easier to fix before launch.
  - Less worry about backward compatibility.
  - Less people to frustrate with changes.
- Cheats are easy to miss before launch.
  - Less people testing during closed beta.
  - Some players hide cheats until launch.
- **Important!** If it can be exploited, it will be.
  - Security through obscurity is **BAD**.

# Tips for Avoiding Cheats

- Look at what has happened in other games.
    - PvP flagging systems.
    - Advancement systems.
    - Macros.
- Control "emergent behavior" in the game.
    - How do systems interact?
    - What are the expected results of interaction?
    - Is it something that you want players doing?

# Tips for Catching Cheats Early

- Identify parts most likely to be abused:
  - PvP systems.
  - The economy. (Gold/item dupes.)
  - Repetitive elements.
- How are people *really* playing the game?
- Double-check everything on the server.
- Communicate design with the team.
  - Avoid misunderstandings.

# Know Your Tradeoffs

- Cheats usually involve a tradeoff in technology or design.
- Design Example: Use-based advancement.
  - Simple mechanic – cast a spell, get better at it!
  - Vulnerable to automation by macros.
- Tech Example: Frequency of client updates.
  - Less frequent updates mean less bandwidth.
  - Less frequent updates means slower actions.

# Cheats During the Live Game

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# Cheats During the Live Game

- Player expectations change at launch.
  - There are more of them.
  - They are now paying customers.
- Procedures change after launch.
  - Unstable live servers = **DEATH**.
  - More testing, approvals, and restrictions.
- You won't be able to react as fast as you would like to.

# Improving Your Reaction Time

- Detect cheats as soon as possible.
  - Watch for and detect odd behavior.
  - Prioritize the problems you find.
- Your team is not the enemy.
  - Share information with everyone on the team.
  - Make sure someone is informing the players.
- Beware the "emergency hotpatch."
  - Bad: Fixing the problem late.
  - Worse: Making the problem even bigger.

# Involve the Whole Team

- Programming
  - Many cheating solutions are technical.
  - Understand and establish tradeoffs.

- Customer Service
  - Find out what generates complaints.

- Community Management
  - Let you know the hot topics in the community.
  - Help spread info: What's considered a cheat?

# Unintended Consequences

- Preventing one cheat can cause another.
  - Example: Flag those who randomly kill others.
  - Then unflagged characters help flagged ones.
  - Or, killers prey on flagged characters.

- A gameplay element may feel like a cheat.
  - Players think it's unfair.
  - Game or class imbalances.

- You can't predict everything.

# Creativity vs. Cheating

- Players will be really creative and solve problems in ways you didn't anticipate.
  - Don't fret, that's a good thing!
  - It's neat to see people playing your systems.
- For your game, make guidelines for:
  - Cheats that harm the game.
  - Design flaws that should be fixed.
  - Creative solutions that should not be punished.

# Detecting Cheats

- Monitor the game for anomalies.
  - Log everything.
  - Watch your metrics.
  - Investigate reports describing cheats.
- Detect first, prevent later.
  - Catch cheaters in the act.
  - Stopping a cheat lets people know you detect it.
  - Allowing a cheat means they're not sure.

# In Closing: Top 10 Lessons I've Learned about Designing with Cheaters in Mind

# Top 10 Lessons I've Learned

10. Listen to players about possible cheats.

   – Get specific information from them.

9. Use modifier values for temporary changes.

   – Avoid modifying the base value.

   – Make it easier to "reset" things if it goes bad.

8. Make it easy to make changes on the fly.

   – Use global values to adjust game parameters.

   – Fine-tune the economy.

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# Top 10 Lessons I've Learned

7. Do not put testing items on the live server.
    – What is the need for a one-shot kill item?
    – Accidents (and bribes) happen.

6. Don't ignore social engineering.
    – Someone will let it go to their head.
    – Someone will believe a lie.

5. Don't let your ego get in control.
    – Relish it when players outsmart you.

# Top 10 Lessons I've Learned

4. Don't be afraid to punish cheaters.

  – Legit players may start to lose faith.

3. Competition (PvP) makes things worse.

  – Players hate others having "unfair" advantages.

  – Pay extra attention to these areas for cheats.

2. Be realistic about cheats.

  – A design won't work if it can't handle cheating.

  – Players may find cheats long after an update.

# #1 Lesson I've Learned:

1. Remember to keep your game fun.
   – Don't punish people for punishment's sake.
   – Stop cheaters to keep the game fun for others.
   – Better to let a guilty person go free than to punish a just person.

# Contact Information

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**Q&A outside, please!**