TAS About

Documentation about Speedruns & Tool-Assisted Speedruns

By Full Moon Issue

Github - Youtube

Made with Slidev

Menu

- Speedrun
  - Definition
  - Category
  - Timer
- Tool-Assisted Speedrun
  - BizHawk emulator
- Appendices
  - Vocabulary
  - LiveSplit
  - Resources
  - Events
  - Other TA
  - Speedrun and TAS

- Skills
  - Glitch / Glitch Hunting
  - Language of the game
  - Menuing
  - Routing / Route Planning
  - Lag reduction
  - Sequence Break / Skip
  - Damage Boost / Take damage to save time
  - Death Warp / Death Abuse
  - Pause Buffering
  - OOB (Out Of Bounds)
  - Luck manipulation
  - ACE / GEG

Speedrun

Definition

The aim of speedrunning is to get the best time to end a game.

A category and a time have to be given when the speedrun of a game is done.

- 🇫🇷 Introduction au Speedrun

- 🇫🇷 Comment commencer le speedrun

- 🇺🇸 What is Speedrunning?

- 🇺🇸 How To Start Speedrunning

- 🇺🇸 Speedrunning is awesome and here's why

The definition of a TAS will be the same as the speedrun except that it's a very optimized version of it and made with an emulator (or other tools for computer games).

A TAS is a replay of scheduled inputs to be pushed at a certain time (when a speedrun is played live).

- 🇫🇷 Conférence sur le Tool-Assisted Speedrun

- 🇺🇸 Tool-assisted speedrunning explained

- 🇺🇸 Introduction to TAS

Category

Percentage finished of a game

- Any% (the fastest time to the end of a game)
- Low% (even 0%), 100% (even Max%)

Use of glitches / bugs

- Glitchless (none or some glitches allowed)
- NMG (No Major Glitch)

Others

- Segmented
- DLC / Rom Hack
- Version of the game / Patch applied

The community of a game may suggest some extra categories.

- RBO (Reverse Boss Order, defeat bosses in the inverted order)
- Damageless (take no damage)
- And many others…

With multiple constraints or :

- Minimum Press
- Maximum Score

Timer

RTA (Real Time Attack) is the time spent in real life. Once the agreement find by the community about when to start and stop the timer, the time spent between those two actions will be the speedrun time.

IGT (In-Game Time) is the time spent but computed by the game. It can contain (or not) loading times, time spent in cutscenes and other internal computations.

There is no direct answer to know which method to use for the ranking. Either some characteristics will eliminate a solution (example) or a debate will solve the question (example).

The computed time for a TAS is simpler than for a speedrun because it's always the same way whatever the game and the category.

The timer starts as soon as the game is launched and it stops when the last input is pushed.

This can lead to a last input pushed far from the end of the game (often seen as the beginning of the game credits).

Example with Sim City :

- TAS time : 6:52
- RTA time : 47:00

Tool-Assisted Speedrun

BizHawk emulator

- Manage many consoles (PS1, Saturn, GB, …)

- Game TASing is possible thanks to a lot of tools

- Is "Console Verified" (examples)

- Frame Advanced (play frame by frame)

- Save State (save anywhere)

- RAM Search and RAM Watch (search and watch values in the memory)

- Lua Scripting (launch a lua script to, for instance, display data on the screen)

A way to measure the accuracy of an emulator is to replay the TAS' inputs on a real console.

On some consoles (like the GBA), a TAS made with BizHawk can be replayed on a real GBA which shows a high level of accuracy of emulation (additionally).

TASBot is a robot created to do this verification (his history, 🇺🇸 part 1 and 2).

- 🇺🇸 Detailed page about BizHawk

- 🇺🇸 First TAS with BizHawk

- 🇺🇸 Some resources about BizHawk

- 🇺🇸 SubReddit about emulation

- 🇺🇸 List of emulators / tools to TAS

Appendices

Appendix #1 : Vocabulary

Related vocabulary about speedrun is present in these links :

- 🇫🇷 Présentation et lexique du Speedrun et TAS

- 🇫🇷 Le dictionnaire du Speedrun

- 🇺🇸 Speedrunning Glossary

Appendix #2 : LiveSplit

The main tool used by speedrunners to time their runs is LiveSplit.

- 🇫🇷 Configurer un Timer de Speedrun

- 🇺🇸 How to Set Up a Speedrun Timer

To not penalize less powerful computers when runs on PC are made, Load Removers can be coded to remove loading times from the final time of the run.

- 🇺🇸 Making load removers for speedruns

All splits configured on LiveSplit are assigned manually during a run. However, it is possible to assign them automatically.

- from a computer game by "listening" memory addresses thanks to an ASL file
  - creation : 🇺🇸 Rich Diamond, 🇺🇸 Devil May Cry 4
  - usage : Resident Evil 3 (🇺🇸 in practice)
- from a console game by comparing images
  - Auto-Split (🇫🇷 Demonstration)
  - Sikuli (Demonstration)

Appendix #3 : Resources

MULTIPLE THEMES (SPEEDRUN)

- 🇺🇸 Apollo Legend
- 🇺🇸 EZScape
- 🇺🇸 GladJonas
- 🇺🇸 Karl Jobst
- 🇺🇸 Lowest Percent
- 🇺🇸 SubReddits : Speedrunning and Speedruns

COMMENTED SPEEDRUNS

- 🇫🇷 Ceci est un speedrun
- 🇫🇷 Gaming Speed Dating
- 🇫🇷 Hugo Délire & Laink
- 🇫🇷 Mach One
- 🇺🇸 Speedrun explained
- 🇫🇷 Speedrun File 1.0, 2.0, 3.0

SHOWS ABOUT TAS

- 🇫🇷 88 miles à l'heure
- 🇫🇷 In Vino VeriTAS
- 🇫🇷 Speed Game
- 🇫🇷 TASpedia
- 🇺🇸 Tool-Assisted Podcast Episodes

ADDITIONALLY

- 🇺🇸 Devs React to Speedruns
- 🇺🇸 SubReddit (TAS)
- 🇺🇸 Twitch "TAS" tag
- 🇺🇸 Developers who speedrun their own game

  (Polyphony Lunar Run - Pro Gymnast)

Appendix #4 : Events

Appendix #5 : Other TA

TOOL-ASSISTED SUPERPLAY

Entertainment over speed.

- TAS vs TAS (Ryu vs Cloud, Ness vs Young Link)
- Glitchfest (Mortal Kombat 3, Super Mario World)
- TAP (Tool-Assisted Playaround)

TOOL-ASSISTED PLAYTHROUGH

Gameplay, dialogues and cutscenes of a game.

- TAFP (Tool-Assisted Flawless Playthrough)
- TAP (Tool-Assisted Playthrough)
- TAW (Tool-Assisted Walkthrough)
- TAG (Tool-Assisted Gameplay)

TOOL-ASSISTED SPEEDRUN, MULTIPLE …

- … players (2, 3, 4)
- … games (🇺🇸 Pokémon B&R : Coop Diploma)
- … games, same inputs (3, 4, 11)

LOTAD / HUMAN THEORY TAS

A LOTAD (Low Optimized Tool-Assisted Demonstration) is an unoptimized version of a Tool-Assisted Speedrun.

A Human Theory TAS is a doable version by a human (without using TAS-Only strategies) with a very good execution and luck.

Appendix #6 : Speedrun and TAS

DIFFERENCES

- The category Blindfolded can only exist in speedrun

- Because time is not computed the same way, a speedrun can appear faster than a TAS

- Some risky strategies are only viable in TAS like having few life points

COMPETITIONS

- Run times are split (speedrun.com on the one hand and tasvideos.org on the other hand)

- Competitions are split (example : Super Mario 64 Competition, Speedrun | TAS)

PEOPLE WHO ARE SPEEDRUNNER AND TASER OF A SAME GAME

- Bluekandy : Mario Golf

- CrazyGameNerd : F-Zero GX

- Gymnast86 : Twilight Princess

Skills

Here is a non-exhaustive list of skills used during speedruns / TAS which reduce more or less the time to end a game.

Some of these skills can lead to the creation of a new speedrun category if, for example, it "brakes" too much a game (like the SRM in Ocarina of Time).

Glitch

In general, a glitch (or bug) is a failure in a game.

Malfunctions can occur like clips (go through a wall), skips, …

🎥 References :

- 🇺🇸 Alundra, Bomb Glitch

- 🇺🇸 Twilight Princess, Back in Time Glitch

- 🇺🇸 Son of a Glitch

Glitch Hunting

Glitch Hunting is the process to search for glitches and exploit them.

Test how the game reacts when two events occur at the same time is one way to find (or not) some potential glitches.

🎥 References :

- 🇺🇸 Who finds the Glitches used in Speedruns?

- 🇺🇸 How are speedrun glitches found?

- 🇺🇸 Speedrunning, Glitch Hunting and the Intersections of Gaming and Coding

Language of the game

To be sure to get the best time in a game, playing with the most advantaged localized version of the game is a must.

Here are some examples of language used switch the speedrunned game :

- Twilight Princess, in German
- Breath of the Wild, in French (at least Any%)
- Super Mario 64, in Japanese

Menuing

Menuing is the optimisation of the use of the menu during a run.

The goal is to do the less count of back-and-forth into the menu by doing multiple actions (if possible) when opening it and having a good inventory management.

🎥 References :

- 🇺🇸 Resident Evil 1 : Jill Any% Glitchless Inventory Management

- AGDQ 2019: Final Fantasy XI - Blindfolded Menuing

Routing / Route Planning

The writing of the path to follow to retrieve the best time for a game is the Routing (or Route Planning).

It can evolve when, for instance, new glitches are found.

The videos "World Record Progression" are a good example to see the changes in the routing of some games.

🎥 References :

- Speed Docs
- Summoning Salt

Lag reduction

When too many elements are displayed on the screen, the speed of a game can decrease.

To avoid that, some tricks can be tested.

🎥 References :

- 🇺🇸 Super Metroid – Lag Reduction comparison

- 🇺🇸 The Best Kept Secret in SM64 Speedruns

Sequence Break / Skip

A Sequence Break (or Skip) is a shortcut but not intended by the game developers.

🎥 Some videos of EZScape about the biggest skips in speedruns :

- 🇺🇸 Top 10 Biggest Skips In Speedrunning #1

- 🇺🇸 Top 10 Biggest Skips In Speedrunning #2

- 🇺🇸 Top 10 Biggest Skips In Speedrunning #3

Damage Boost / Take damage to save time

Sometimes, enemies, even our own weapons, allow us to move faster when being hit by them (Damage Boost or D-Boost).

Thus, a balance will be searched between a bunch of damage taken to save time and remaining life points to not die.

Damage Boost is a part of "Take damage to save time" family which gathers skills allowing to trade some life points for time saved.

🎥 Speedrun examples containing some D-Boost :

- The Goonies II, Any%

- Super Metroid, 100%

Death Warp / Death Abuse

DESCRIPTION

In some games, death becomes a shortcut.

Indeed, death can take back to a previous checkpoint without doing strictly speaking this return manually.

🎥 References :

- 🇺🇸 Death Abuse - SpeedTech Ep. 1 - Speedrunning Tricks

- Speedrun of O.D.T.: Escape… Or Die Trying containing Death Warps

Pause Buffering

DESCRIPTION

In some games, repeated pause can cause effects that can't append in another way.

🎥 References :

- 🇺🇸 Mega Man 1, Pause Buffering

- 🇺🇸 Super Mario 64, Pause Buffering

OOB (Out Of Bounds)

Some glitches allow getting "out of bounds" of the game.

🎥 References :

- 🇺🇸 Luigi's Mansion, Chest Glitch

- 🇺🇸 Resident Evil 4, Ditman Glitch

OOB AS A CATEGORY

OOB will become an other category when too many fragments of the game are skipped.

🎥 References :

- Ghostrunner, Any% OOB

- Portal, Any% OOB

Luck manipulation

Some events in a game can be subject to the luck (like doing a critical hit in Pokémon).

The name given to the luck in a game is the RNG (Random Number Generator). It can be represented as a probability that an event occurs whose computation may have different parameters (frame number, last input(s) pushed, …).

When TASing, this RNG will be manipulated to get (if possible) the desired events.

🎥 References :

- 🇺🇸 Dampe in Ocarina of Time Explained

- 🇺🇸 Top 10 Luck Dependent Speedruns

ACE / GEG

An ACE (Arbitrary Code Execution) is a glitch that allows to execute unintended code in a game.

This allows to go quickly to the end of a game (named GEG (Game End Glitch)) or to code a game into a game (example, 🇺🇸 related article, 🇫🇷 related video).

The idea is to arrange the order of the bytes / bits to become a new code to execute when they will be read.

ACE are very powerful because they are able to get a full control on a game.

🎥 References :

- 🇺🇸 TAS 100% Source Requirement, Zelda Majora's Mask, in less than 37 minutes

- 🇺🇸 TAS Castlevania: Symphony of the Night "Game End Glitch"