

Empowering community-oriented play with TRBot



TRBot Logo by David Revoy

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<https://codeberg.org/kimimaru/TRBot>

Overview

- What is TRBot?
- Motivation and history
- Technical workings (high-level)
- Community impact
- Future aspirations
- Q&A

Disclaimer

- This talk will refer to proprietary games and platforms for historical significance in TRBot's development and use
- I will not endorse nor encourage the use of these non-free platforms or software in this presentation

What is TRBot?



Maze Burrow (2020) – MPL-2.0

- Only two requirements:
 - 1) Source of text
 - 2) Virtual game controller
- Text source can be a chat platform (Ex. IRC) to allow collaborative play

Motivation



- Late 2016; found people playing The Legend of Zelda: Ocarina of Time through chat on Twitch stream
- Amazed at how much progress they made and eventually joined the community, playing many other games
- TRBot in its initial form as simple chatbot for rerun schedule

Motivation (cont.)

- 2018 - TwitchPlays_Everything slowing down
- I loved this collaborative play
- Late 2018 - TwitchPlays_Everything retired
- Existing free software bots?

Summary	Author	Date, Time
Added KimimaruBot, along with the converted parser	tdeeb	Mon Mar 4 14:48:09 2019 -0800
Initial commit	tdeeb	Sun Mar 3 16:10:29 2019 -0800

Why not create my own?

History

Stable • **1.0 Release** Thu, 06 Jun 2019 05:06:35 CEST

1.0
1d00cab9d0

Compare ▾

tdeeb released this 3 years ago | 731 commits to master since this release

Initial TRBot release, providing Twitch connection, vJoy integration for controller input, and more.

Please read the [wiki](#) for getting started.

TRBot 1.0 Release

Summary	Author	Date, Time
Added AGPL-3.0 License	tdeeb	Sat Jan 4 21:02:53 2020 +0000

- April 8, 2020 – TRBot 1.5 released with official GNU/Linux support
- December 8, 2020 – TRBot 2.0
 - SQLite database, modular structure, permissions system, periodic inputs, etc

History (cont.)

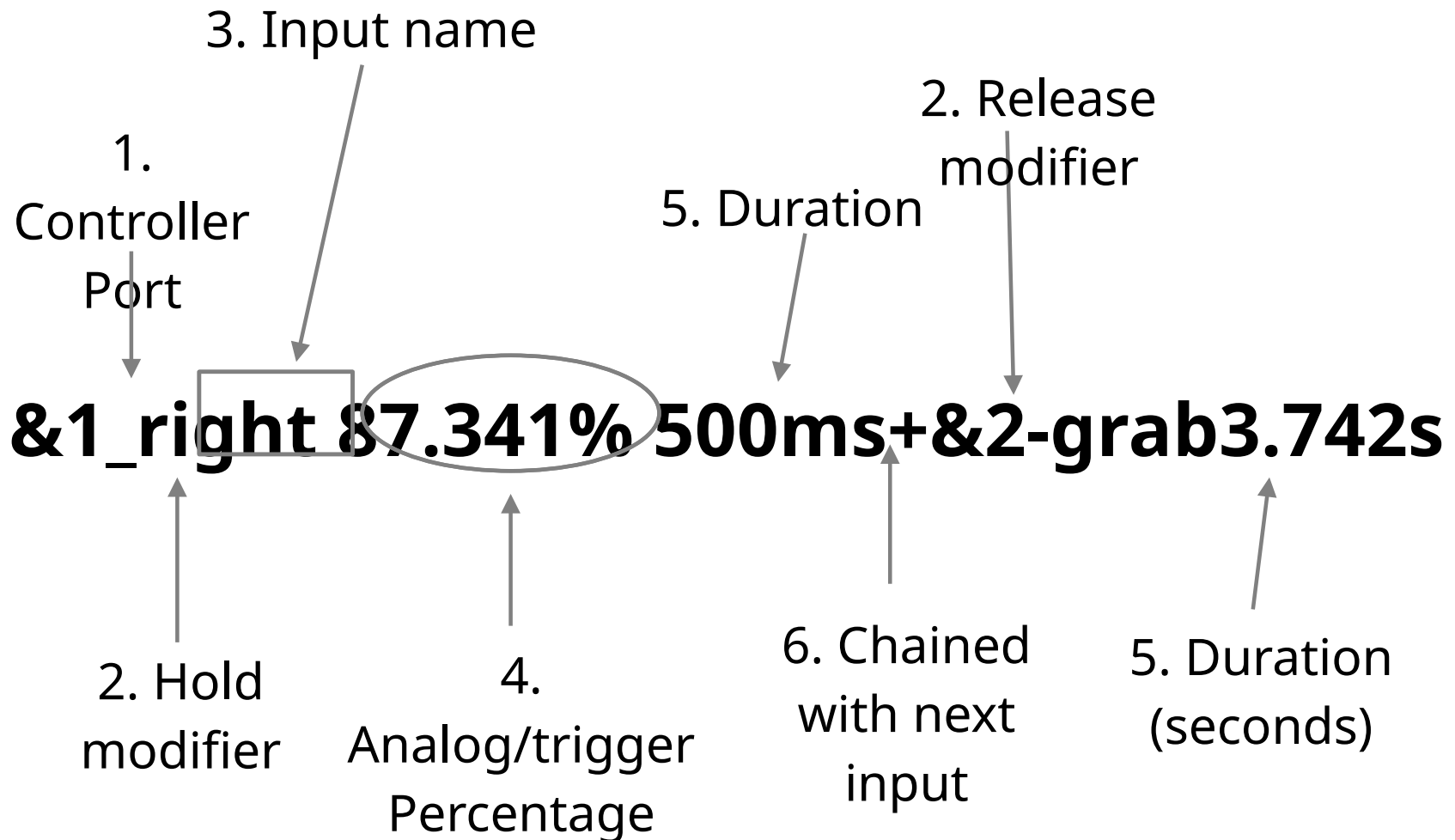
- Since 2.0
 - Many new features
 - WebSocket and IRC support
 - Custom code
 - Event dispatcher
 - Continuous Integration (CI)

Project Structure

TRBot.Build	No longer allow entirely whitespace names for the Terminal service	1 month ago
TRBot.Commands	Added a system-wide install option	2 weeks ago
TRBot.Connection	Fixed the IRC service not reconnecting by upgrading NetIRC from 1.1.0-preview.3 to 1.1.1	4 weeks ago
TRBot.Consoles	Updated years on copyright notices	1 month ago
TRBot.Data	Added a system-wide install option	2 weeks ago
TRBot.Events	Documented the event dispatcher	1 month ago
TRBot.Integrations	Updated years on copyright notices	1 month ago
TRBot.Logging	Added a system-wide install option	2 weeks ago
TRBot.Main	Added a system-wide install option	2 weeks ago
TRBot.Misc	Added a system-wide install option	2 weeks ago
TRBot.Parsing	Updated years on copyright notices	1 month ago
TRBot.Permissions	Updated years on copyright notices	1 month ago
TRBot.Routines	Added a system-wide install option	2 weeks ago
TRBot.Tests	Added FolderPathResolver unit tests	1 week ago
TRBot.Utilities	Added a system-wide install option	2 weeks ago
TRBot.VirtualControllers	Updated years on copyright notices	1 month ago
TRBot.WebSocket	Updated years on copyright notices	1 month ago
TRBotDataMigrationTool	Added a system-wide install option	2 weeks ago

Separate projects - modular and extensible

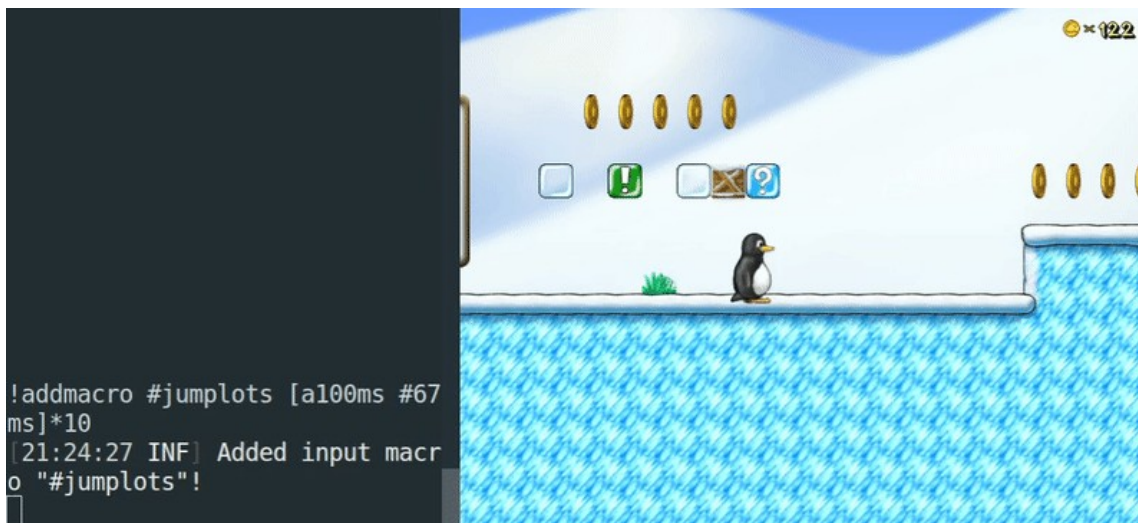
Input Syntax



More Examples (*SuperTux* - GPL3+)



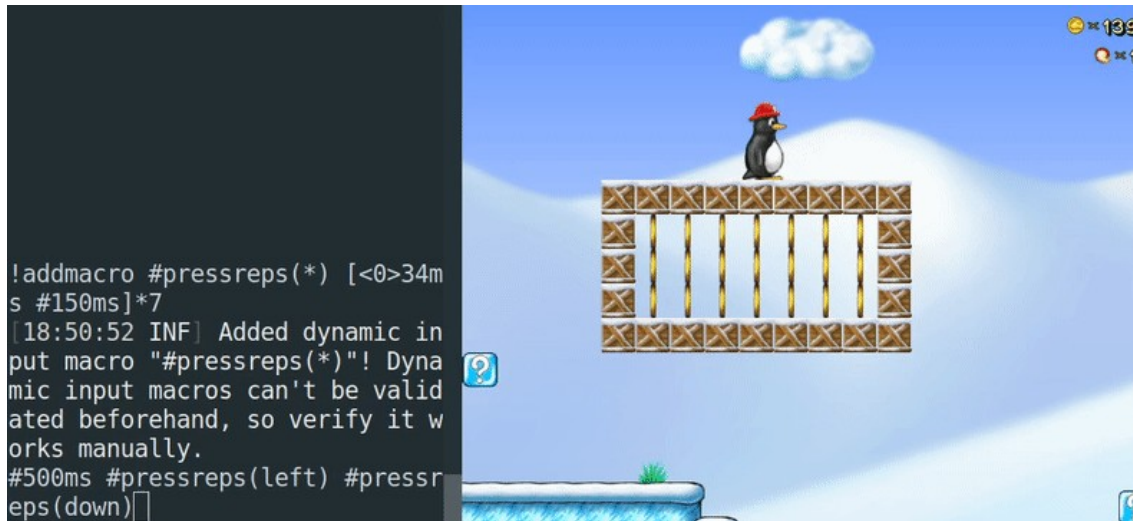
`#500ms _right #300ms
a1s`



Macro = “#jumplots”

Sequence = “[a100ms
#67ms]*10”

Dynamic Macros



Macro = "#pressreps(*)"

Sequence = "[<0>34ms
#150ms]*7"

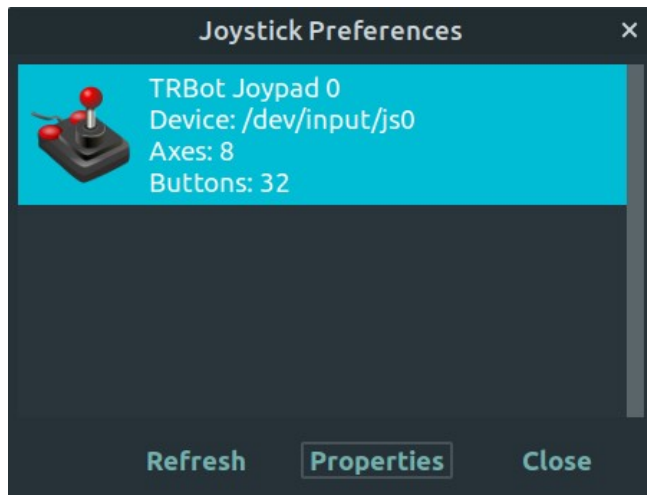
"#pressreps(left)" = "[left34ms
#150ms]*7"

Text Parser

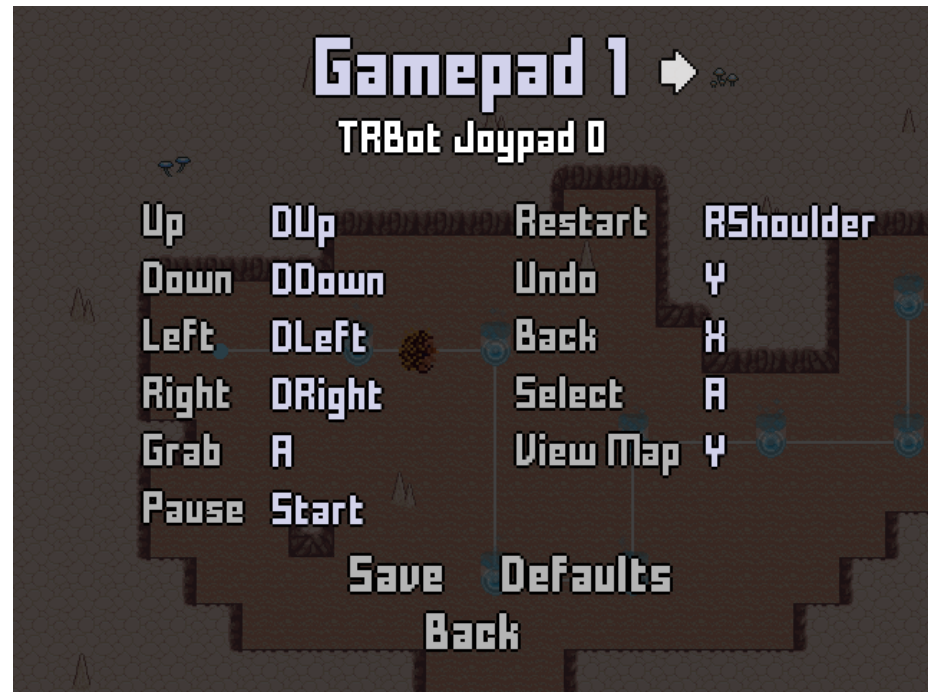
TRBot parsing steps:

- 1) Prepare the string for parsing (Normalize, etc)
- 2) Parse string into input data
- 3) Validate parsed data

Virtual Controller



jstest-gtk



In use in Maze Burrow

- Virtual device running entirely in software
- Feed data to press or release buttons and axes

Virtual Controller (High-level Overview)

```
#include "SetupVController.h"

int GetMinControllers()
{
    return MIN_CONTROLLERS;
}

int GetMaxControllers()
{
    return MAX_CONTROLLERS;
}

int GetMinAxisVal()
{
    return MIN_AXIS_VAL;
}

int GetMaxAxisVal()
{
    return MAX_AXIS_VAL;
}

void UpdateJoystick(struct libholder* libholder)
```

```
/// <summary>
/// Native wrapper for the uinput virtual controller impleme
/// </summary>
public static class NativeWrapperUInput
{
    private const string LIB_NAME = "SetupVController.so";

    [DllImport(LIB_NAME)]
    private static extern int GetMinControllers();

    [DllImport(LIB_NAME)]
    private static extern int GetMaxControllers();

    [DllImport(LIB_NAME)]
    private static extern int GetMinAxisVal();

    [DllImport(LIB_NAME)]
    private static extern int GetMaxAxisVal();
}
```

On GNU/Linux, virtual controllers written in C

C# wrapper

GameConsoles and InputData

Table: Consoles

	ID	Name
	Filter	Filter
1	12	mazeburrow
2	13	vvvvvv
3	16	test
4	17	3ds
5	67	nes
6	68	snes
7	69	genesis

- Define data
- Data = input feed

Table: Inputs

	ID	AxisValue	ButtonValue	ConsoleID	DefaultAxisVal	Enabled	InputType	Level	MaxAxisPercen	MaxAxisVal	MinAxisVal	Name
	Filter	Filter	Filter	Filter	Filter	Filter	Filter	Filter	Filter	Filter	Filter	Filter
46	397	0	12	67	0.5	1	1	0	100.0	1.0	0.5	select
47	398	0	9	67	0.5	1	1	0	100.0	1.0	0.5	b
48	399	0	8	67	0.5	1	1	0	100.0	1.0	0.5	a
49	400	0	3	67	0.5	1	1	0	100.0	1.0	0.5	down
50	401	0	2	67	0.5	1	1	0	100.0	1.0	0.5	up
51	402	0	1	67	0.5	1	1	0	100.0	1.0	0.5	right
52	403	0	0	67	0.5	1	0	0	100.0	1.0	0.5	#

InputHandler

- GameConsole data + parser data + virtual controller
- Performance-critical
 - Why?
- Ex. “a1200ms b300ms+c200ms”
- Chained inputs
- End of input sequence?

Community-building Features

- Intrinsic
 - Macros
 - Syntax
- Free software!

Impact

The screenshot displays a game interface with a central play area showing a character in a cave. The top left shows equipment slots for SHOVEL, BODY, HEAD, FEET, and RING, along with a BOMB icon. The top right shows health hearts and gold coins (x55). The Twitch chat window on the right contains the following messages:

```
GamingProsAdventure:
uuuu
theLuigiGuy: food shop
potential
GamingProsAdventure: r
anti79: rr
Kailaria: it's never
the food shop
GamingProsAdventure:
d+
BraceYourselfGames:
ERR_PLUS_AT_END
GamingProsAdventure:
d+!
lazerray: Is this the
first time the stream
gets to 2-X?
BraceYourselfGames:
Welcome to the stream,
lazerray 🍷 We hope
you enjoy your stay!
theLuigiGuy: 🍌
blizzzilla: d
natalietoday: PB is
2-3
theLuigiGuy: we're
poor tho
GamingProsAdventure:
3rd time to 2-x
anti79: u
Kailaria: u+d u
GamingProsAdventure: i
got it
yuka34: uuuu
Kailaria: ! u
blizzzilla: 🍌
GamingProsAdventure:
kail
```

At the bottom, there are three panels: 'HOW TO INPUT COMMANDS' with basic keypress instructions, 'HIGH LEVEL MESSAGE' displaying 'ZONE 3 HERE WE COME', and 'STATS' showing 'WINS 0' and 'DEATHS 191'. The bottom left shows 'FPS: 60 GC/5: 19500' and the bottom right shows 'DEPTH: 2 LEVEL: 3'.


- December 2020 - Brace Yourself Games hosts 100+ viewer cooperative playthrough using TRBot
- Something for players to look forward to during COVID pandemic

Impact (Extra-Life)



June 2021 - Cross-Community OOT 100% Charity Race

Dashboard Messages Resources T2P Welcome, Type2Play.


ABOUT EXPERIENCE COMMUNITY

 a program of Children's Miracle Network Hospitals

YOUR TEAM Extra Life 2021

Participant	Goal	Raised	Donations
 ZaddBuzuki	\$5,000.00	\$391.44	12
 Type2Play	\$5,000.00	\$320.00	6

Team members 1-2 of 2



Impact (Speedrun Community)

 Metal Gear Speedrunners @MGSrunners 28 Aug 2021

Breaking: New discovery in MGS1!

A group effort by MGSR users on [@TwitchSpeedruns](#) has resulted in a brand new time save. The guards during the escape sequence can be manipulated with the DPAD on the port 2 controller.

Video by [@PlatonicUser](#)



Aug 28, 2021 · 6:27 AM UTC

🗨 28 📺 484 🍷 89 ❤️ 1,308 📺 92,182

- Prominent TRBot user TwitchPlaysSpeedruns makes new discovery in 1998 video game – popular with speedrunners
- Unique circumstances made possible with TRBot

Impact (Community-building)

CanadianJoysticks: a2s+left0.4s
dragonc0: I know the system quite well yea
CanadianJoysticks: ss1
CanadianJoysticks: #mash(a)
CanadianJoysticks: b
02superspeed: have u played this a lot or have u made one of these?
dragonc0: I've played alot, mostly on a different channel
CanadianJoysticks: ok hold do we hold b
dragonc0: did a few dark story stages here too
CanadianJoysticks: up2s+a3s

dragonc0: nice
dragonc0: 🤪
CanadianJoysticks: teamwork!
CanadianJoysticks: ss1
02superspeed: ayyye
CanadianJoysticks: right0.4s
02superspeed: killiin it
02superspeed: almost there

CanadianJoysticks: up9s+_a #mash(b)
dragonc0: mind if I try one?
CanadianJoysticks: sure
dragonc0: _up1s+_a#mash(b)
dragonc0: ls1
dragonc0: hmm
KimimaruBot 🤔🤔🤔
CanadianJoysticks: right0.6s
CanadianJoysticks: ss1
dragonc0: just needs more up at the end I guess
CanadianJoysticks: _up7s+_a#mash(b)
CanadianJoysticks: _up1s+_a#mash(b)+up4s
dragonc0: commands are always done sequentially, so it will perform inputs from left to right
dragonc0: nice

CanadianJoysticks: up3s
CanadianJoysticks: b2s
CanadianJoysticks: ls2
CanadianJoysticks: 20s
CanadianJoysticks: up1-s
CanadianJoysticks: up20s
02superspeed: YOOOOOOOO
blaze800000: !setmessage death chamber knux raps 4
CanadianJoysticks: letz goooo
02superspeed: LETSSS GOOOOOO
dragonc0: gg!
CanadianJoysticks: thanks fam
02superspeed: we deserved an a rank smh
02superspeed: we all killed it

- Skill levels – fosters collaboration
- Learning from experienced players = higher engagement and satisfaction
- Free software = no restrictions on hosting

Future Plans

- Abstracted virtual devices beyond game controllers
 - Emulate keyboard, mouse, touchpad, etc.
 - Play more types of games
- Matrix protocol support
- XMPP/BOSH support
 - Open Streaming Platform (OSP) and PeerTube chat
- Further performance improvements

How can I help?

- Host a collaborative play stream of your favorite free software game
- Code contributions
- Create packages
- Spread the word

<https://codeberg.org/kimimaru/TRBot>



Thank you!

Q&A