



Steamworks Features 2025

Branches & Depots

Steam Cloud

Steam Input

Rich Presence

Game Recording



Builds, Branches, and Depots

Aaron Lieberman

This talk:

- 1. *Terminology***
- 2. *Branches*** *How they work, how you can use them*
- 3. *Depots & Packs*** *Organize your files for fast patching*

Terminology

Application

Build

Depot

Branch

Package

Terminology

Application – your game

Build – version the player runs

Depot – split up your files

Branch – which build gets downloaded

Package – what the player buys

Terminology

Application – your game

Build – version the player runs

Depot – split up your files

Branch – which build gets downloaded

Package – what the player buys

Branches (aka Betas)

The image shows a screenshot of the Xbox Game Pass interface. On the left, a sidebar menu is visible with the following items: UNIVERSE SANDBOX, General, Updates, Beta (highlighted), Controller, Workshop, and Game Recording. The main content area is titled 'Betas' and contains the following sections:

- Beta Participation:** Select the beta you would like to opt into. A dropdown menu is open, showing the following options:
 - None
 - update-34.1.1 - Update 34.1.1 | Old Graphics Engine, Windows 7 SP1+, 8, older versions of Windows 10, Intel Macs, & VR Supported
 - *update-24.1.2-directx10 - Update 24.1.2 | DirectX 10
 - *update-23.0.2-native - Update 23.0.2 | Native Library
 - *update-21.3-directx9 - Update 21.3 | DirectX 9 & 32 bit
 - update-33.0.2 - Previous Major Release
- Private Betas:** Enter beta access code to unlock private betas.

Below the 'Betas' section, there is a game card for 'UNIVERSE SANDBOX'. The card features a green 'PLAY' button, a dropdown arrow, and the following information:

- SELECTED VERSION: update-34.1.1
- CLOUD STATUS: Up to date
- LAST UPDATE: Today

At the bottom of the card, there are navigation links: Store Page, Community Hub, Discussions, Guides, and Workshop. Below the card, there is an 'ACTIVITY' section with a prompt: 'Say something about this game to your friends'.

Uses for Branches

Development Workflows

Single Player Games

- **Mods**
- **Major Updates**

Multiplayer Games

- **Testing & Balancing**

Branch Access Control

Public

or

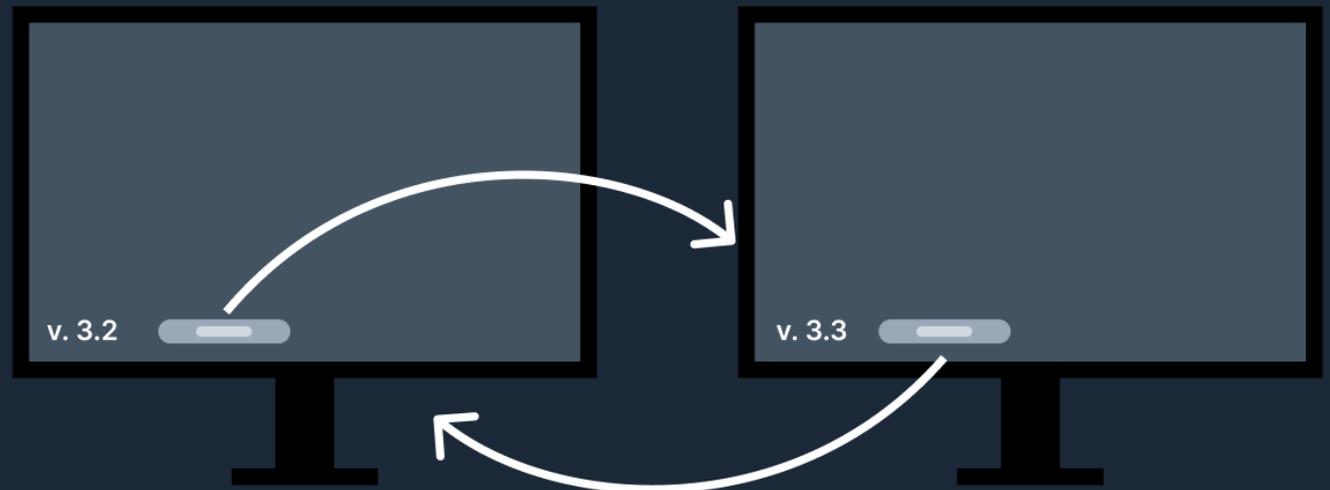
**Hidden via
password**

BRANCH	DESCRIPTION	PASSWORD	BUILDID
default	Public default branch		<u>199982</u>
≡ preview	Public preview		<u>199985</u>
≡ nightly	Nightly build off build server	mysecretpassword	<u>199987</u>

ISteamApps

**Interact with branches from within
your game**

**List branches, get info about them,
switch**



Automated Build Processes

Integration with build site / CI

Testing workflows, nightly branch

Deploying to default branch - need to authenticate

Depots & Packs

Why Do I Care?

Games can get big

Long update times

Content Across Depots

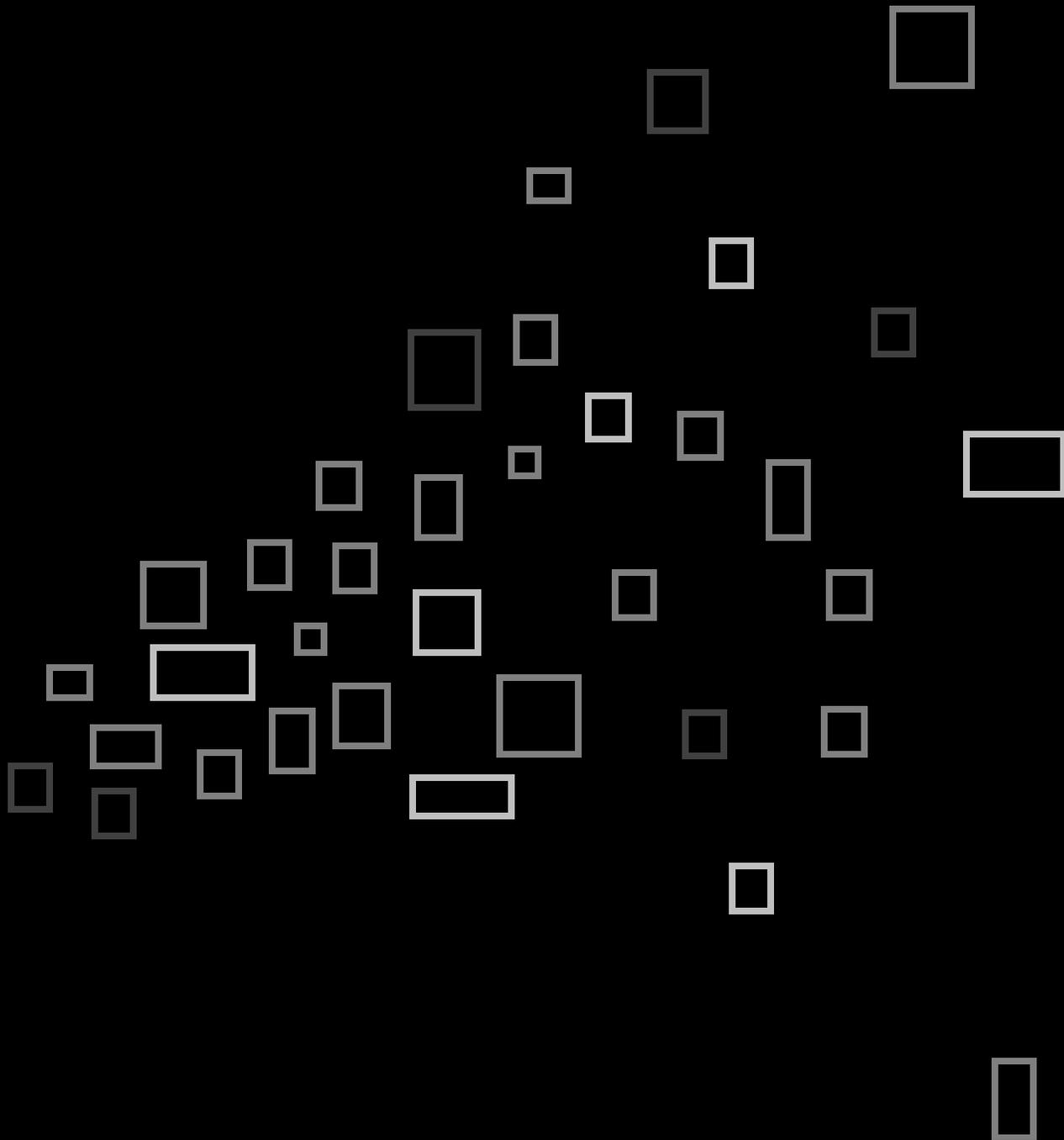
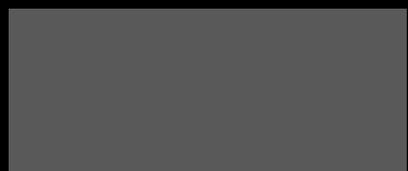
✓ **By Language**

✓ **By Platform**

✓ **By Architecture**

✓ **By DLC**

Within a Depot



Pack Files

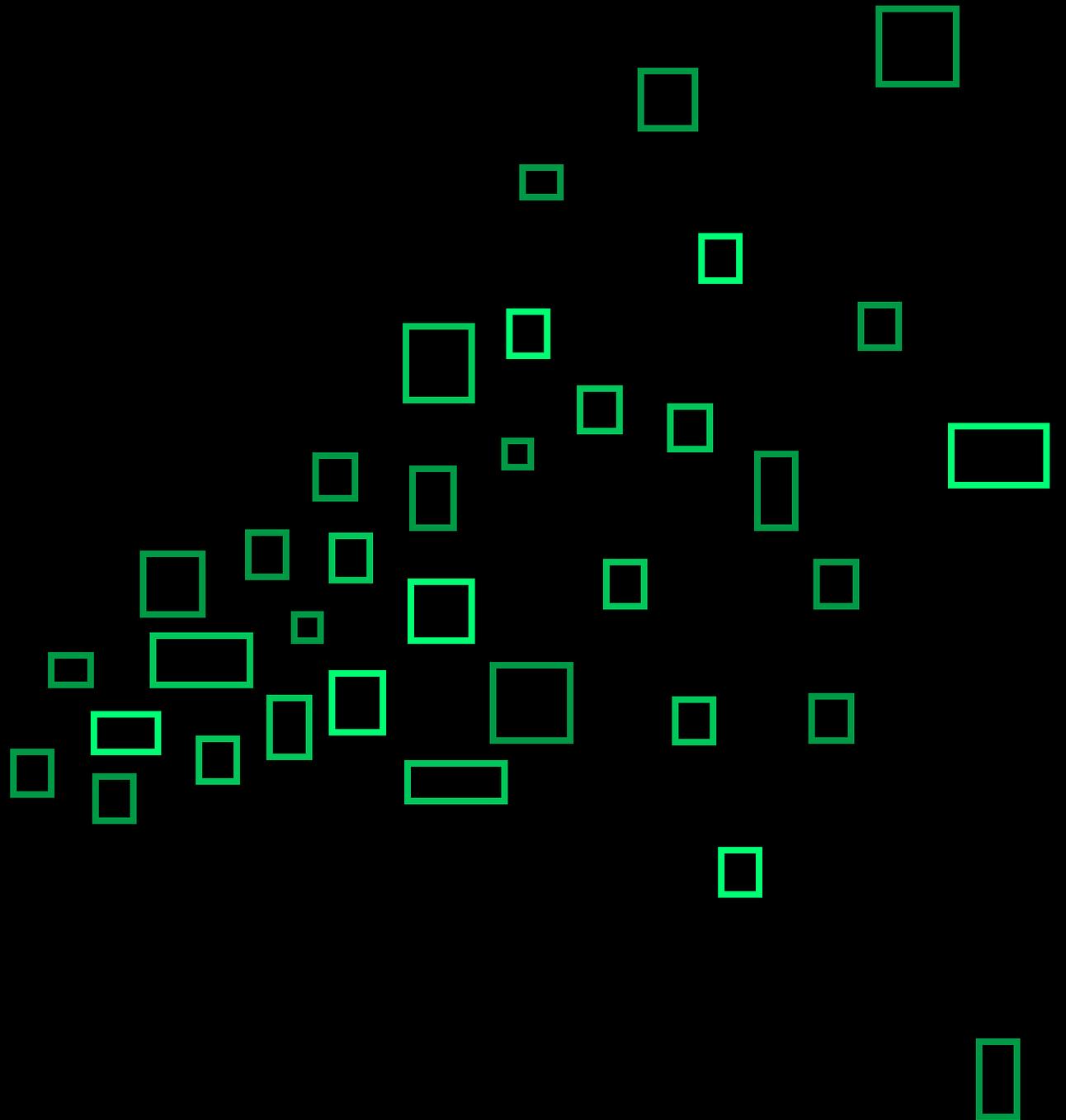
Aka:

.wad

.bundle

.pak

.pkg



Delta Patching

Delivering only what's changed



Initial file

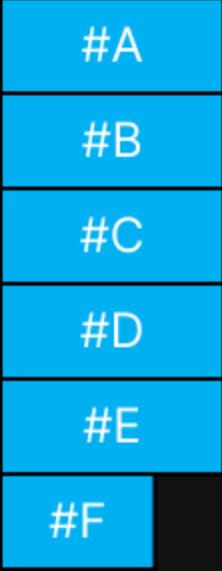
Delta Patching



Initial file


1 MB

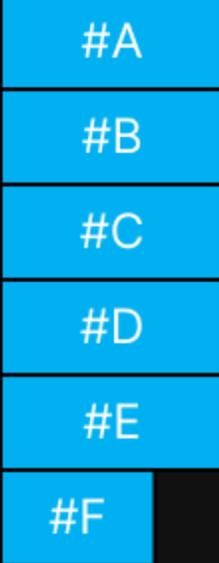
Registry





Initial file

Registry

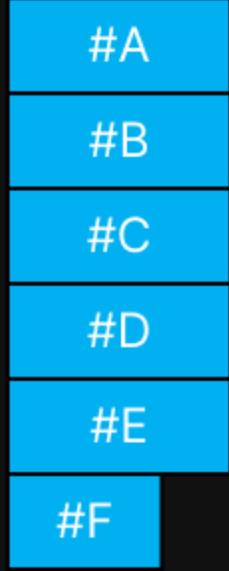


Updated file



Initial file

Registry



Sliding window



Updated file





Initial file



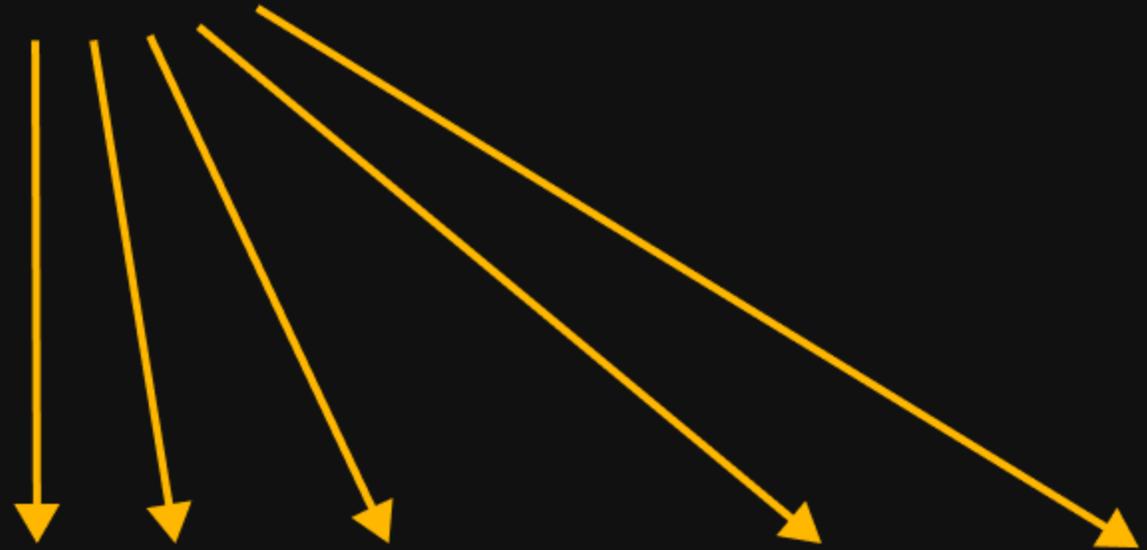
Registry



Updated file

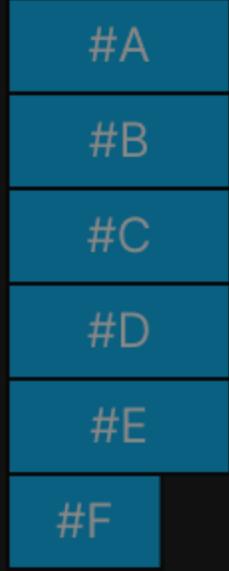


Initial file



Updated file

Registry



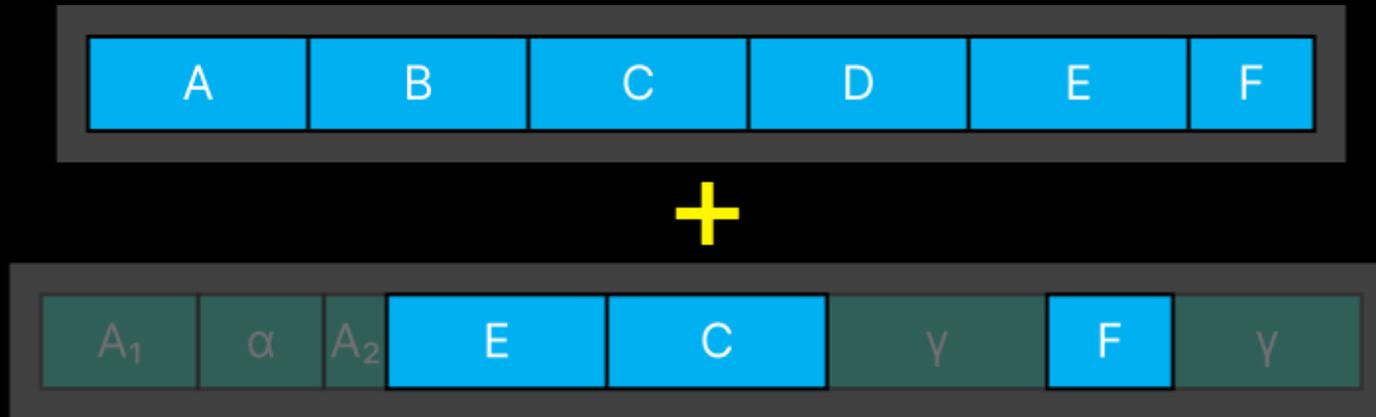


Updated file



Old and New

A copy of any files that have changed
Up to double the disk space!



Also Patch Time

$\max(\text{Download time, Patch time})$



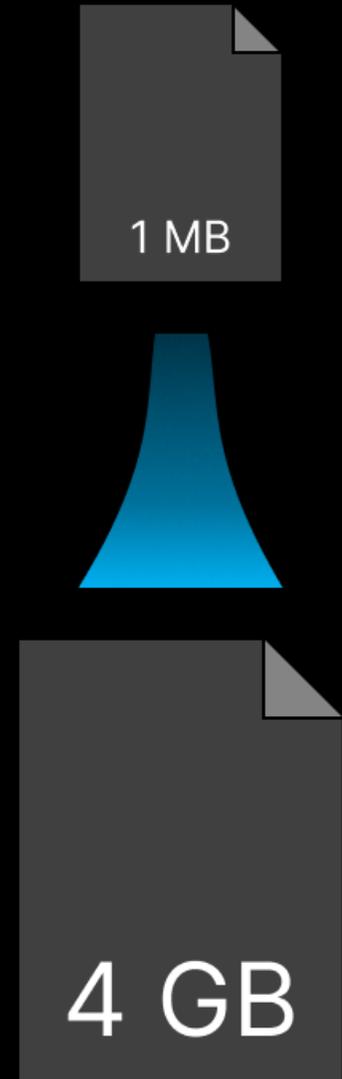
Pack File Advice

Split into multiple files

Change Locality

Avoid archive compression

Unreal and Unity tips in docs



Conclusion

Branches

- **Lots of uses**
- **Access control**

Depots

- **Split into depots**
- **File sizes**
- **Change locality**

**As important
as ever**



Steam Cloud

Adil Sardar

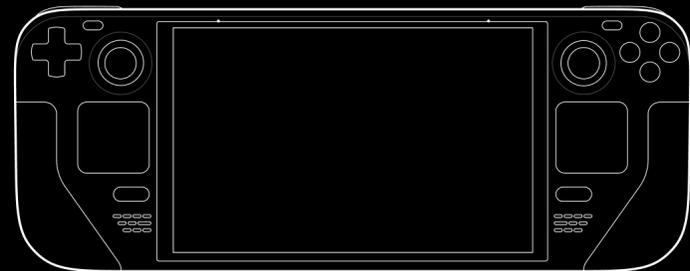
What is Steam Cloud Sync?

Save files are uploaded to Steam Cloud upon game exit

Restored when resuming on another device

Why cloud saves are important

Half of all Steam users have played a game on more than one device in the last year



Steam Cloud at a glance

Game progress saves normally

Automatically upload upon exit

Syncs across devices

Conflicts automatically detected



Player benefits

Seamless play across devices

Automatic sync

No loss of progress

Scale of Steam Cloud

Stores 40 Petabytes

Around 40 billion files

Ingress 25 Gbps or 250 Tb/day

Data centers in 31 Countries

Two Cloud Methods

Plus, a recommended extension

Method 1: Auto-Cloud

- **Requires no code**
- **Define one or more paths**
- **Supports filename wildcards**
- **Supports override per OS**

ROOT PATHS					
	ROOT	SUBDIRECTORY (?)	PATTERN (?)	OS (?)	RECURSIVE (?)
1	App Install Directory	hl2/save	*.*	[All OSes]	<input type="checkbox"/>
	Preview: [Steam Install]/SteamApps/common/Half-Life 2/hl2/save				
2	App Install Directory	episodic/sav	*.*	[All OSes]	<input type="checkbox"/>
	Preview: [Steam Install]/SteamApps/common/Half-Life 2/episodic/save				

Method 2: Cloud API

- **Game has granular file control**
- **Reads and writes are through API**
- **Quota management is manual**

Steamworks Documentation

ISteamRemoteStorage Interface

Steamworks Documentation > Steamworks API Reference > ISteamRemoteStorage Interface

Provides functions for reading, writing, and accessing files which can be stored remotely in the Steam Cloud.

Challenge of multi-device sync

A suspended game on a Steam Deck will prevent playing it on another device

This scenario will create a save conflict



Cloud Out of Date

You played Half-Life 2 on the Steam Deck "steamdeck" (Today at 9:48 PM), and that save is not yet in the cloud. (app suspended)

You can still play this game, but that may create a conflict when your previous game progress successfully uploads.

Play anyway

Cancel

Solution: Dynamic Cloud

Graceful suspend mode

- **Wrap state saves and update with:**
`BeginFileWriteBatch()` / `EndFileWriteBatch()`

Syncs from cloud on resume

- **Requires resume detection and handling of local file changes**

Steam Cloud

Components and Capability

User quota

**10 Gb
Storage**

**10,000
Files**

Estimate typical user needs (+ buffer)

Steam Auto-Cloud uses LRU to clean up space
in cloud only

Cloud API allows custom solutions

Shared Cloud Storage



Demo to full game



Between games (not supported)

Shared Cloud Storage

You can save Steam Cloud data for this game using another game's appid. Use this to share saved games between a demo and full game. Enter the app ID to use for shared cloud data here. Only enter this on one app page (ideally set this for your demo to use base game's appID). Do not enter it on both shared app IDs.

Shared cloud App ID:

How Offline Saves Work

Syncs when connection is restored
Called *background sync*

**Steam will alert user about re-connect
sync conflict**



Steam Cloud Tips

Tip: Limit files and size

Cloud save impacts game exit time

Consider slow internet speeds

Consider bandwidth caps

Tip: User settings, not system settings

**Cloud gameplay config:
language for subtitle or voice over**

**Don't cloud system settings:
video card resolution, primary screen**

Tip: Test Steam Cloud

Force sync for testing

Your account's files on the web

Home > Account > View Steam Cloud

VIEW STEAM CLOUD

HALF-LIFE 2

This game files are saved in your Steam Cloud :

FOLDER	FILE NAME	FILE SIZE	DATE WRITTEN	
GameInstall	hl2/save/half-life-000.sav	833.12 KB	May 30, 2017 @ 5:31pm	Download
GameInstall	hl2/save/half-life-001.sav	922.38 KB	May 31, 2017 @ 5:56pm	Download
	cfg/config.cfg	7.45 KB	Jul 7, 2023 @ 1:58pm	Download

Conclusion: Steam Cloud

- **Important for user experience**
- **How to Implement Dynamic Cloud for SteamOS/Steam Deck**



Steam Input

This Talk: Steam Input

- 1. What and why**
- 2. Appearance in Store & Library**
- 3. Choosing an Input API**
- 4. Action API**
- 5. Tips**

Steam Input

What and why

Steam Input: Goal

To enable players to enjoy any game with their preferred controller seamlessly

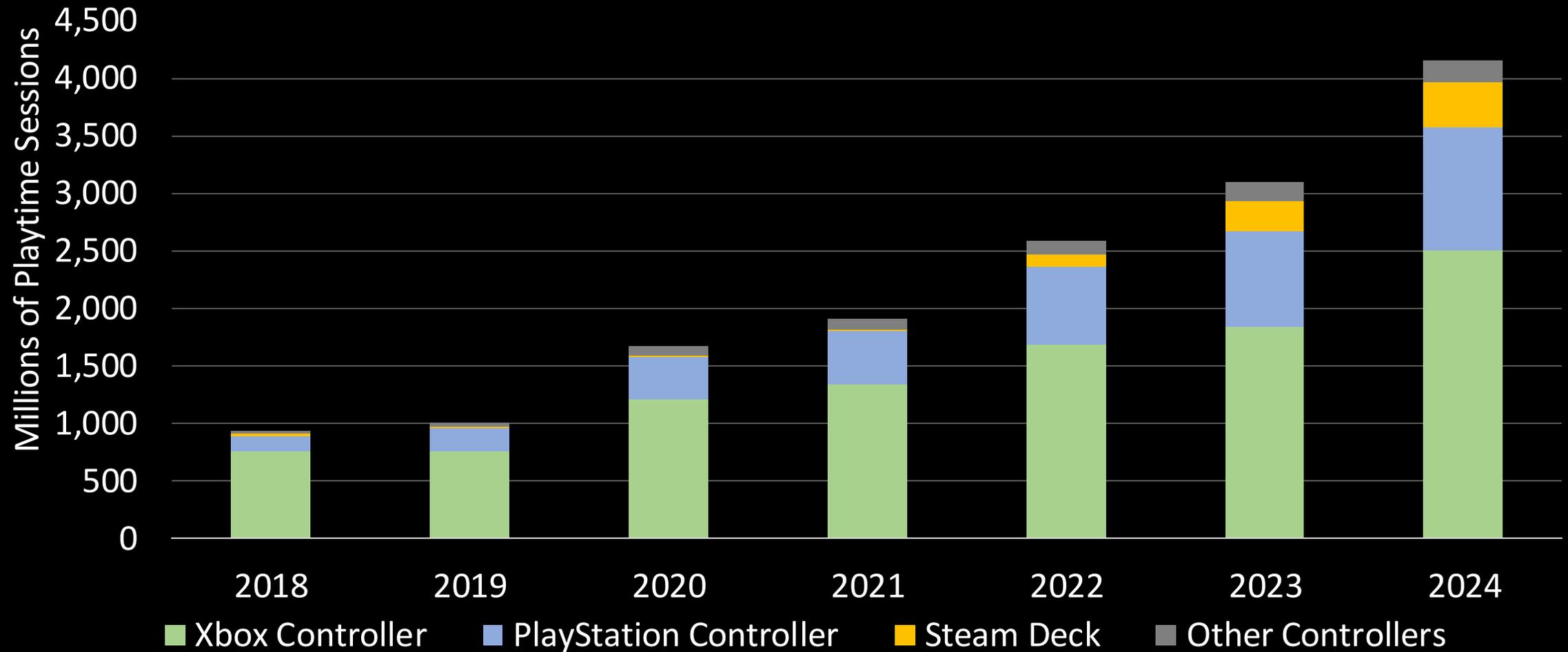
Steam Input is...

Configurator: a robust remapping engine

Steam Input API is...

**Hardware-abstracted
action-based API**

Controller Types Over Time: Playtime Sessions



200+ different controllers...

And growing.



Example: PlayStation Controllers

PS official SDK only supports wired USB mode (not wireless)



Use Steam Input API instead to also get wireless support

Steam Input Simplifies meeting Deck Verified controller requirements



Steam Input

Appearance in

Store & Library

Store: Your Controller

The controllers your game supports

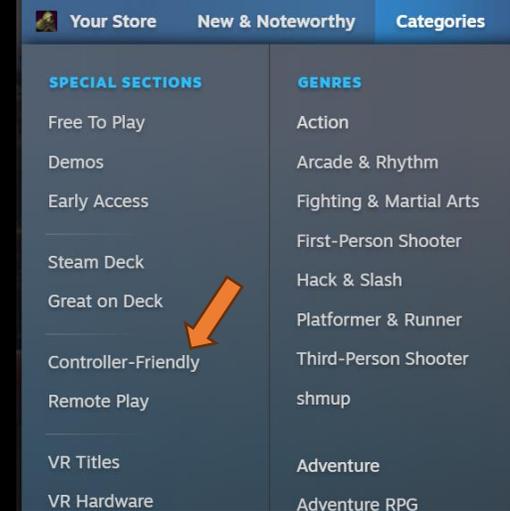
User see their controllers



Store: Controller-Friendly Hub

Filter games by supported controllers

Expanding to store and sale pages in the future



Filter by supported device:



Your Xbox Controller



DualShock Controller



DualSense Controller



All Controllers

POPULAR TITLES

4 hidden

Library: Your controller matters

CONTROLLER



Supports Your Xbox Controller

This game should work great with your controller

[View controller settings](#)

Controller Support Info

This game has full built-in controller support for the following device models:

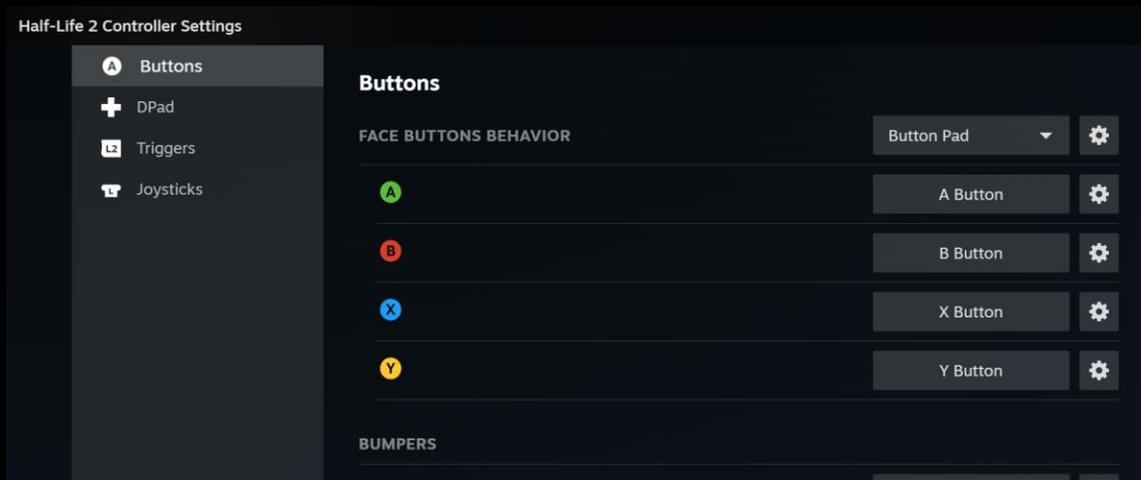


YOUR CONTROLLER

Library: Configurator

Players remap Buttons

Remap Joysticks, Trackpads and Gyros to Joysticks or Mouse



Library: Configurator Enables...

Official Mappings

User-customizable mappings

Community-made

Play however you like!

★ RECOMMENDED 🎮 TEMPLATES **👤 COMMUNITY LAYOUTS** 🔍 SEARCH

Community Layouts

	Ghost117	📄 NOT DOWNLOADED	👍 145	🕒 146358 HOURS PLAYED
	Ghost117's Bindings			
	Tu configuración modificada para este juego.			
	Aaron	📄 NOT DOWNLOADED	👍 184	🕒 74108 HOURS PLAYED
	Tractor's DualShock 4 Bindings (Half Life 2)			

Community:

Enables controller support for normally unsupported games



 Playable

-  All functionality is accessible when using the default controller
-  This game's default graphics configuration performs well on Steam Deck

CONTROLLER



Controllers Not Supported

This game wasn't designed to support controllers

[View controller support](#)

Choosing an Input API

Method 1: XInput



Introduced by Microsoft in 2005 for Xbox 360 controllers on Windows

PCs automatically detect and use XInput with Xbox controllers

Supports 14 digital buttons + analog input

Limitations of XInput



Doesn't work with other popular controllers

**Lacks modern features
(Gyro, Trackpads, extra buttons)**

**Button icons don't match many other
controllers**

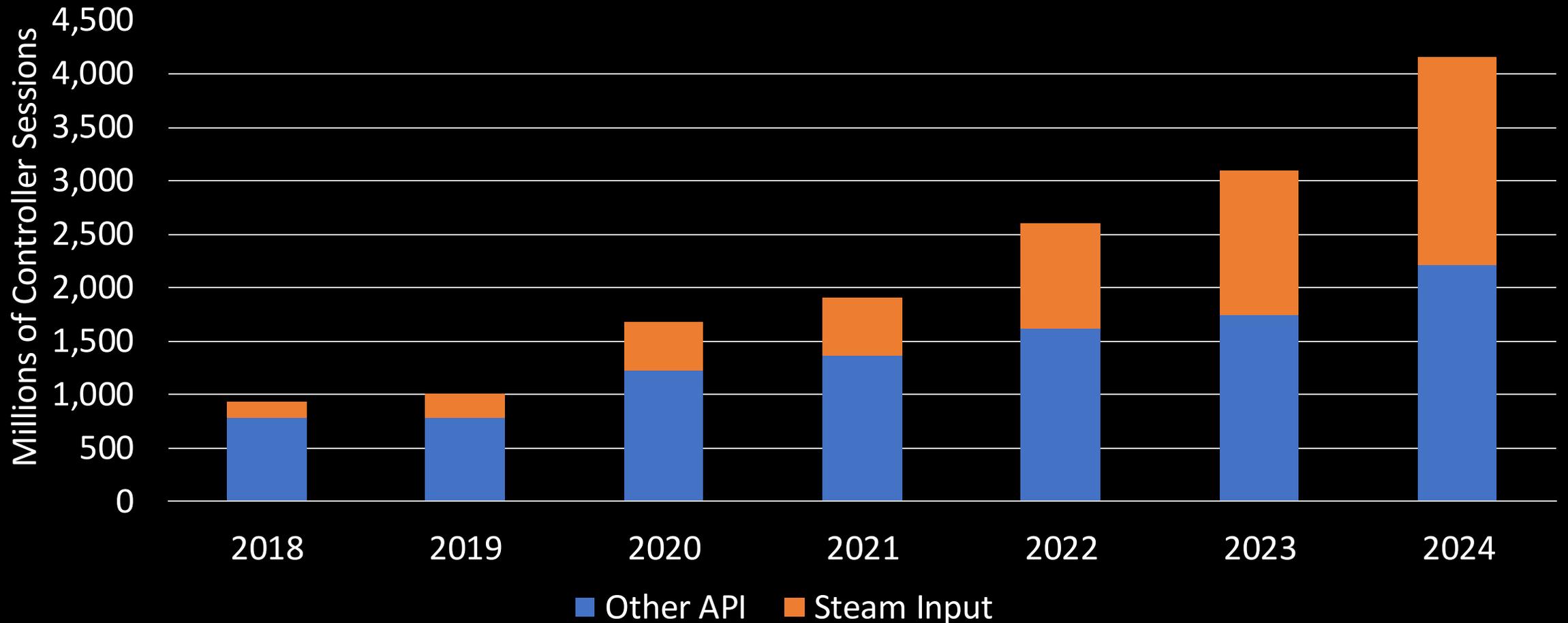
Method 2: Steam Input API

Recommended for games on Steam

Overcomes XInput's limitations

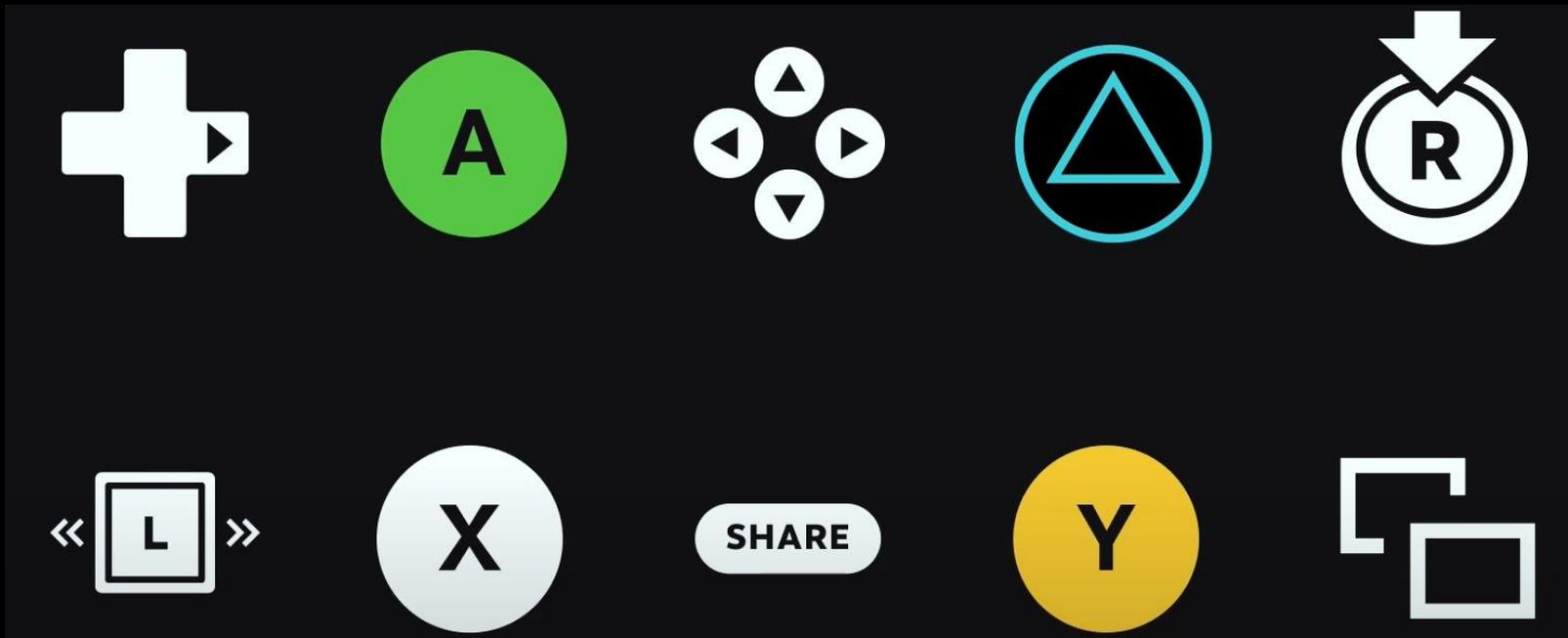
*Steam Input API**

Playtime sessions



Steam Input API

Displays correct button icons for different controllers



Steam Input API

Supports gyros, trackpads and LED controls

Up to 128 digital buttons

Up to 16 players

Steam Input API

Future-Proof

**Eg. Lenovo to ship Legion Go S with
SteamOS**



Steam Input API

Action API

Action-Based API

Removes hardware-dependent inputs

Maps actions (e.g., "Jump") instead of physical buttons

Action-Based Mappings

Eg. The "Jump" action is mapped to:

 **on Xbox controller**

 **on PS controller**

Action-Based Glyph Display

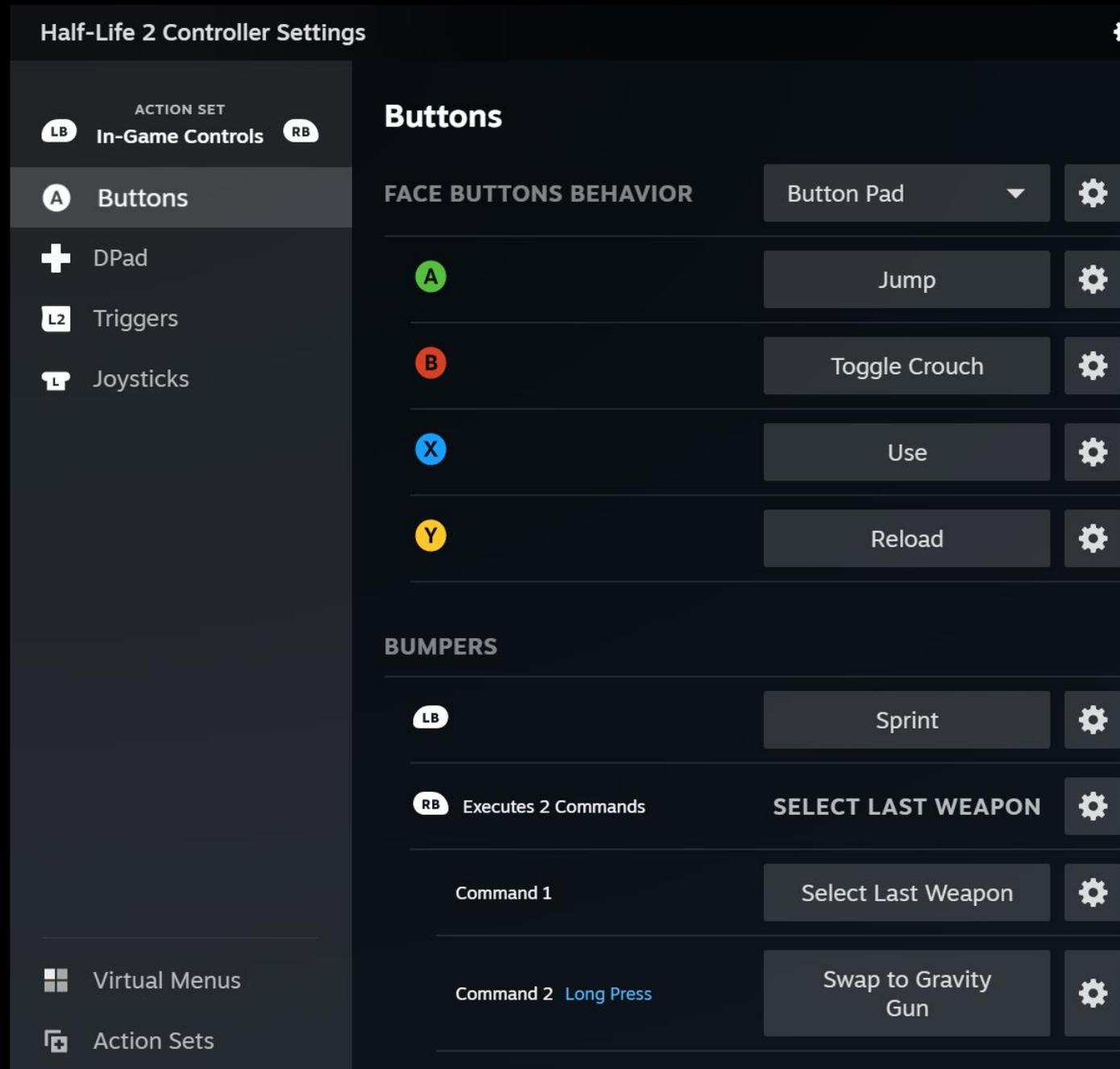
When requesting an action like 'Jump,' the Steam Input API returns the correct controller glyph.

If player uses  then show 

If player uses  then show 

Action-Based Configurator:

The Steam Library's Configurator will show action name making it easier to build controller mappings



Action Set API

Define Action Sets for different game modes

Action Set *walking* includes action “Jump”

Action Set *menu* includes ‘Accept’ or ‘Cancel’ instead of ‘Jump’

`SteamInput() → ActivateActionSet()`

Steam Input

Tips

Tip: Support hot Swap

Controllers are dynamic, not static

Users might connect or activate controllers after the game starts

Poll Regularly (once per second):

`SteamInput() → GetConnectedController()`

Tip: Pause on Disconnect

Pause the game if an active controller disconnects

Display a disconnect icon

Allow users to reconnect and re



Tip: Avoid Launchers

Launchers often lack controller support

**Player must interrupt play to find mouse
and keyboard**

Tip: Add Official Controller Mappings

At a minimum for these devices:



Xbox controller



Steam Deck



PlayStation controller

Tip: Allow Both Mouse & Joystick

Steam Input enables mixed input:

- **Gyroscope can be mapped to mouse**
- **Controller can still have a joystick**

Don't force exclusive input mode

- **Allow inputs from Joystick, Trackpad and Mouse together; no matter which input was last used**

Tip: Support Controllers Fully

1. A player must be able to do everything in the game with only a controller.

- * getting past any pre-game launchers**
- * playing the game**
- * interacting with menus**
- * changing settings**
- * and exiting the game.**

Continued...

Partial Controller Support

	Xbox Controllers
	PlayStation Controllers
	Steam Input API ?

★ The developers recommend playing this game with a controller

Tip: Support Controllers Fully

2. Display the correct glyphs (icons) on screen

3. Any text input must open virtual keyboard

4. Local multi-player games must support multiple controllers

Partial Controller Support



Xbox Controllers



PlayStation Controllers



Steam Input API



The developers recommend playing this game with a controller

Tip: See how players play your game

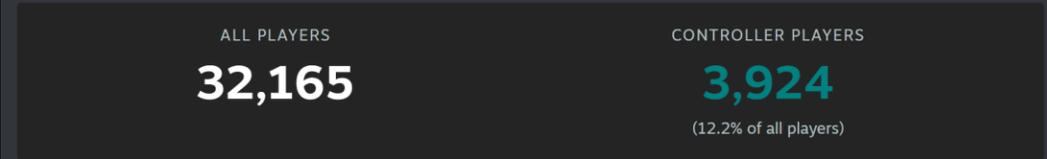
Displays controller usage and breakdown

Controller Stats: Portal 2

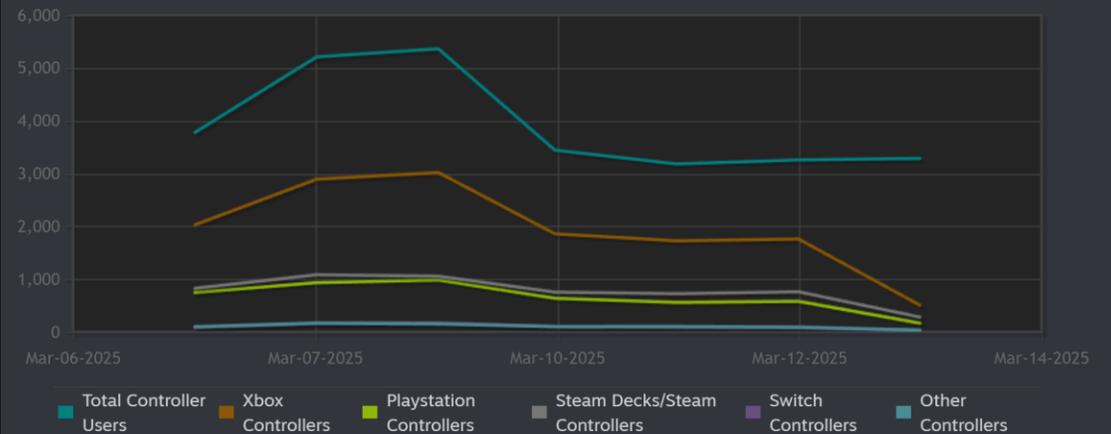
<< back to [Portal 2](#)

[LEARN MORE](#)

Daily Active Users (Average over most recent week)



Daily Active Users, By Controller Usage



Sessions Per Controller Model (most recent week)

This also describes the number of sessions that utilize Steam Input to translate between controllers and your game. Steam Input may be enabled by your game or by players as they seek to use particular controllers with your game.

Controller Type	Sessions	Percentage of Total Sessions	Percentage of Controller Sessions	Steam Input Sessions	Steam Input Percentage of Sessions
All Sessions	366,982				
All Controllers	34,523	9%		20,822	60%
Xbox Controller	16,760	(5%)	49%	3,129	18%
PlayStation Controller	5,636	(2%)	16%	5,605	99%
Steam Deck/Steam Controller	9,947	(3%)	29%	9,947	100%
Switch Controller	853	(0%)	2%	850	99%
Other Controllers	941	(0%)	3%	905	96%

Conclusion:

- 1. What and why**
- 2. Appearance in Store & Library**
- 3. Choosing an Input API**
- 4. Action API**
- 5. Tips**

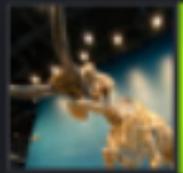


Rich Presence

Yosef Durr

What is Rich Presence?

Helps players know what their friends are up to in-game and when it makes sense to send them an invite.



yosefd

Temtem: Swarm

Playing Pigepic in Arbury - 2 min

Rich Presence: For Players

**Improved Friends and
Chat experience**

**Improved multiplayer
game display**



A Rich Presence card for the user 'lavamonsta88'. It features a small profile picture of a helmet on the left, followed by a larger icon of a blue character. The text to the right of the icons reads: 'lavamonsta88', 'PUBG: BATTLEGROUNDS', and 'Normal, Miramar, 3Squad, 68/94, 3:39 elapsed'.

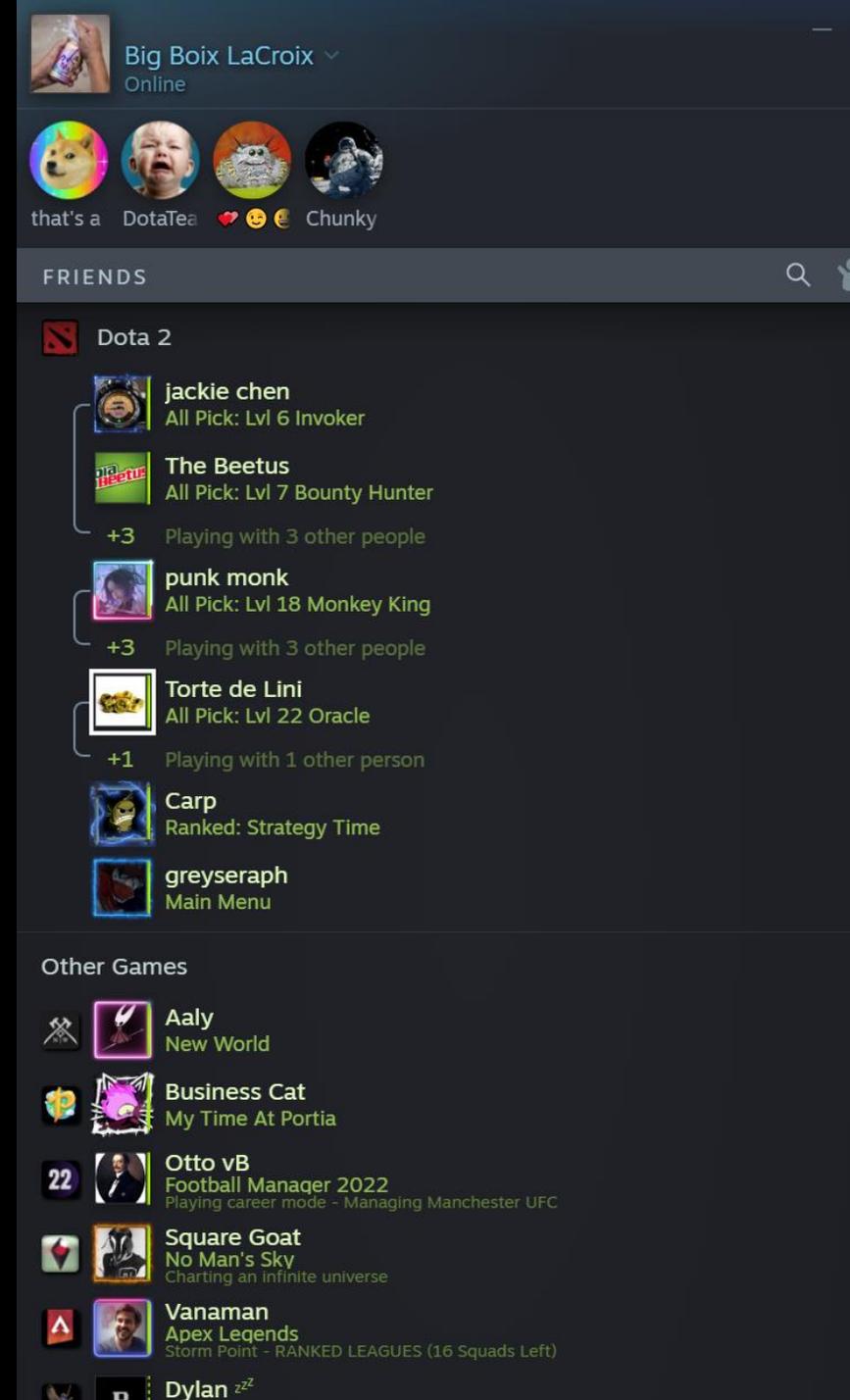


A Rich Presence card for the game 'Dota 2'. It features the Dota 2 logo at the top left. Below it, there are four entries, each with a small icon, a name, and a game mode: 'kazoo`数学者' (Ability Draft: Lvl 18 Jakiro), 'Kongo' (Main Menu), 'Big Boix LaCroix' (Ranked: Lvl 20 Abaddon), and 'Morty' (All Pick: Lvl 19 Tidehunter). There are also two '+1' indicators with the text 'Playing with 1 other person' between the second and third entries, and between the third and fourth entries.

Rich Presence: For Devs

Encourage the gaming community to connect about your game

Attract more players

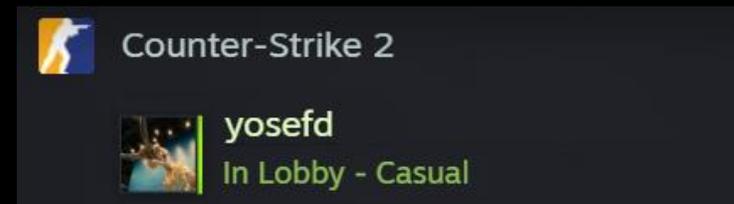


Rich Presence: How

```
SetRichPresence( const char *pchKey, const char *pchValue )
```



Example

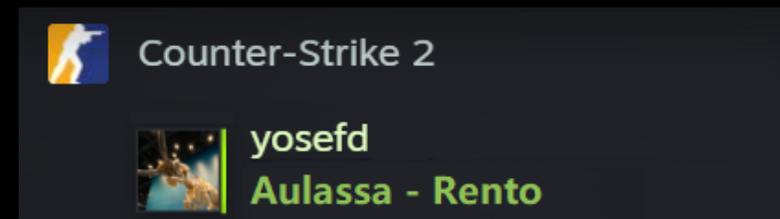


1. Start by adding localized strings to Steamworks

```
"#gamemode_casual"      "Casual"  
"#display_Lobby"       "In Lobby - {#gamemode_%game:mode%}"
```

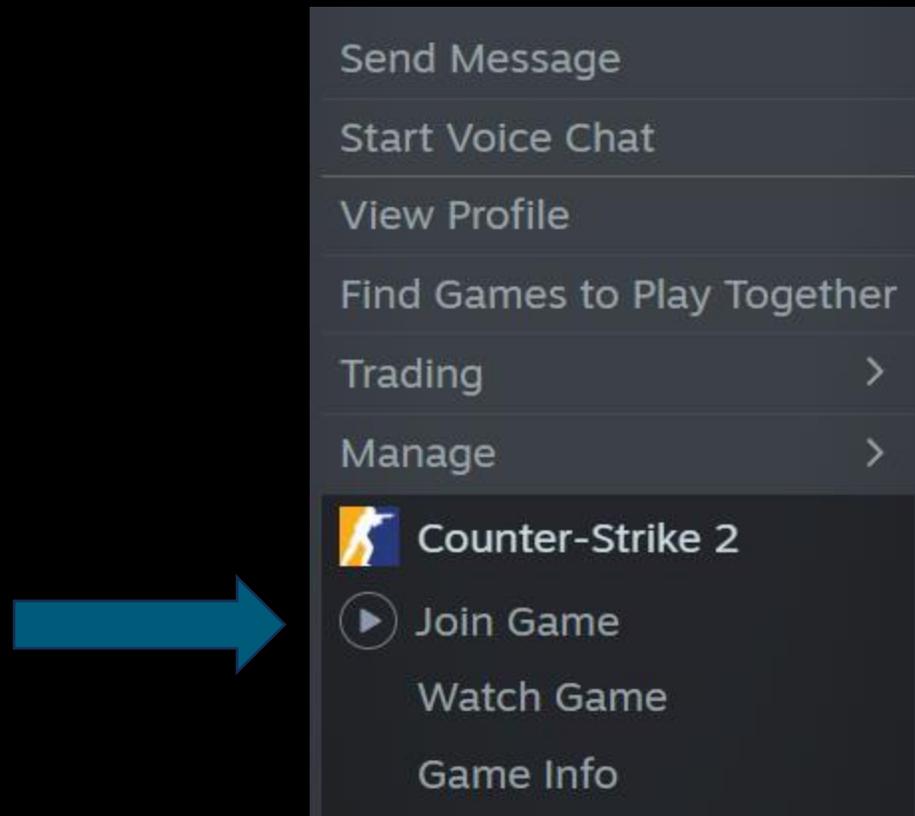
2. Call SetRichPresence in your game

```
SetRichPresence( "game:mode", "casual" );  
SetRichPresence( "steam_display", "#display_Lobby" );
```



Expose Invite Link

```
SetRichPresence( "connect", "+gccconnect2C5212B73DA" );
```



Assign Groups

```
SetRichPresence( "steam_player_group", "2C5212B73DA" );  
SetRichPresence( "steam_player_group_size", "2" );
```



Rich Presence: Testing

<https://steamcommunity.com/dev/testrichpresence>



Cole F.

Casual - Mirage [4 : 7]

Localized Rich Presence Result: Casual - Mirage [4 : 7]

Encountered errors/warnings: None

Rich Presence for user:

Key	Value
status	Casual Mirage [4 : 7]
version	14071
game:xptrail	0
game:state	game
steam_display	#display_GameKnownMapScore
connect	+gccconnect282C21843DA21A37A00F8C8C
game:mode	casual
game:map	de_mirage

Rich Presence: Summary

Enhance your game's Rich Presence

- **Help the gaming community connect about your game**
- **Attract new players**

Localize your Rich Presence strings

- **Use nested keys**



Game Recording

Game Recording

A new built-in system for creating and sharing gameplay footage



REC Record

↺ Replay

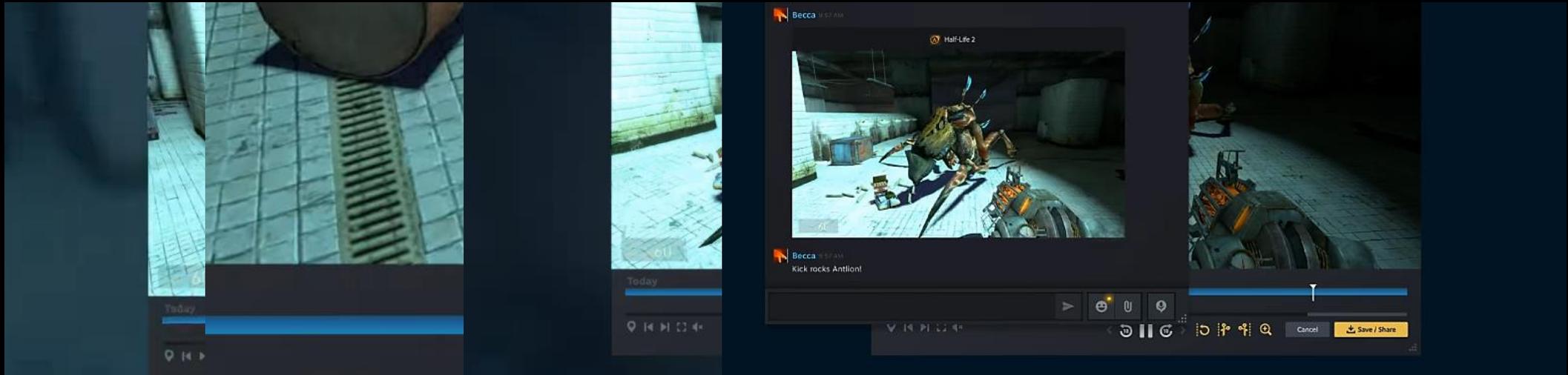
✂ Clip

↑ Share

Game Recording: For Players



Game Recording: For Players



Game Recording: For Devs

Use Game Recording for bug reporting

Improving Game Recording integration makes it easier for customers to save and share gameplay clips



Use: Bug Reporting

**In Steam Client Settings > Game Recording
select “Record in Background”**

Select your recording mode:

- Recording Off**
Steam will not record your gameplay.
- Record in Background**
Steam will automatically record your gameplay when you start playing, so you don't miss those unexpected moments.

The last **120** minutes of video will be kept in a temporary format for you to replay or save as permanent clips.
- Record Manually**
Steam will record video only after you press **Ctrl+F11**.

**Optional:
Adjust recording length and
quality**

GAME-SPECIFIC SETTINGS

 Counter-Strike 2 				
LENGTH		QUALITY		DISK SPACE
240 Minutes 	×	High (Default) 	=	21.6 - 68.4 GB 
<hr/>				
 All Other Games				
LENGTH		QUALITY		DISK SPACE
30 Minutes 	×	High (Default) 	=	2.7 - 8.55 GB 
Add game-specific settings here				

Use: Bug Reporting

Optional: Customize shortcut keys

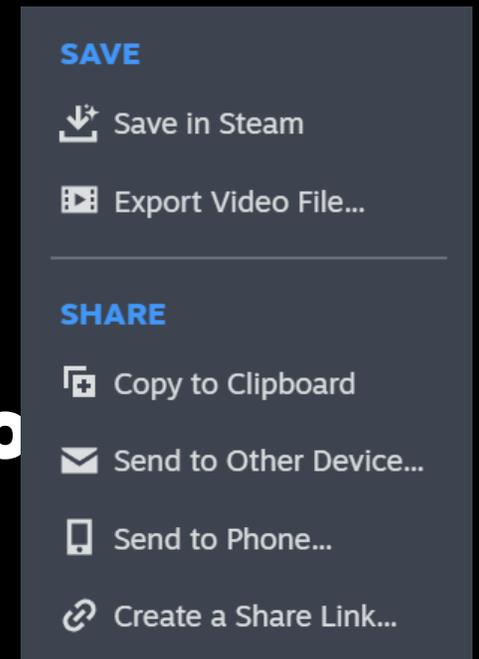
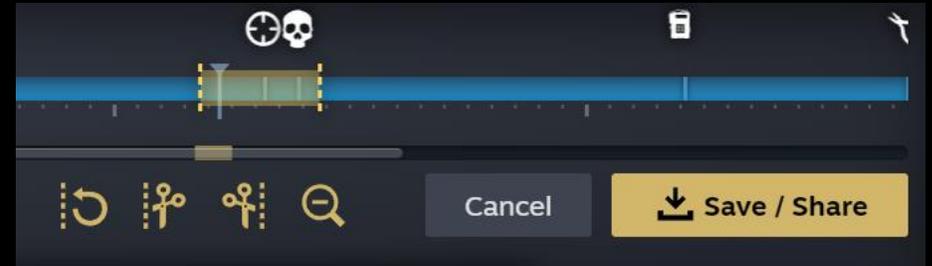
SHORTCUT KEYS	
Start/stop saving a clip	Ctrl+F11
Add a timeline marker	Ctrl+F12
Take a screenshot	F12
Save the last <input type="text" value="20"/> seconds of gameplay as a clip	Ctrl+'

Use: Bug Reporting

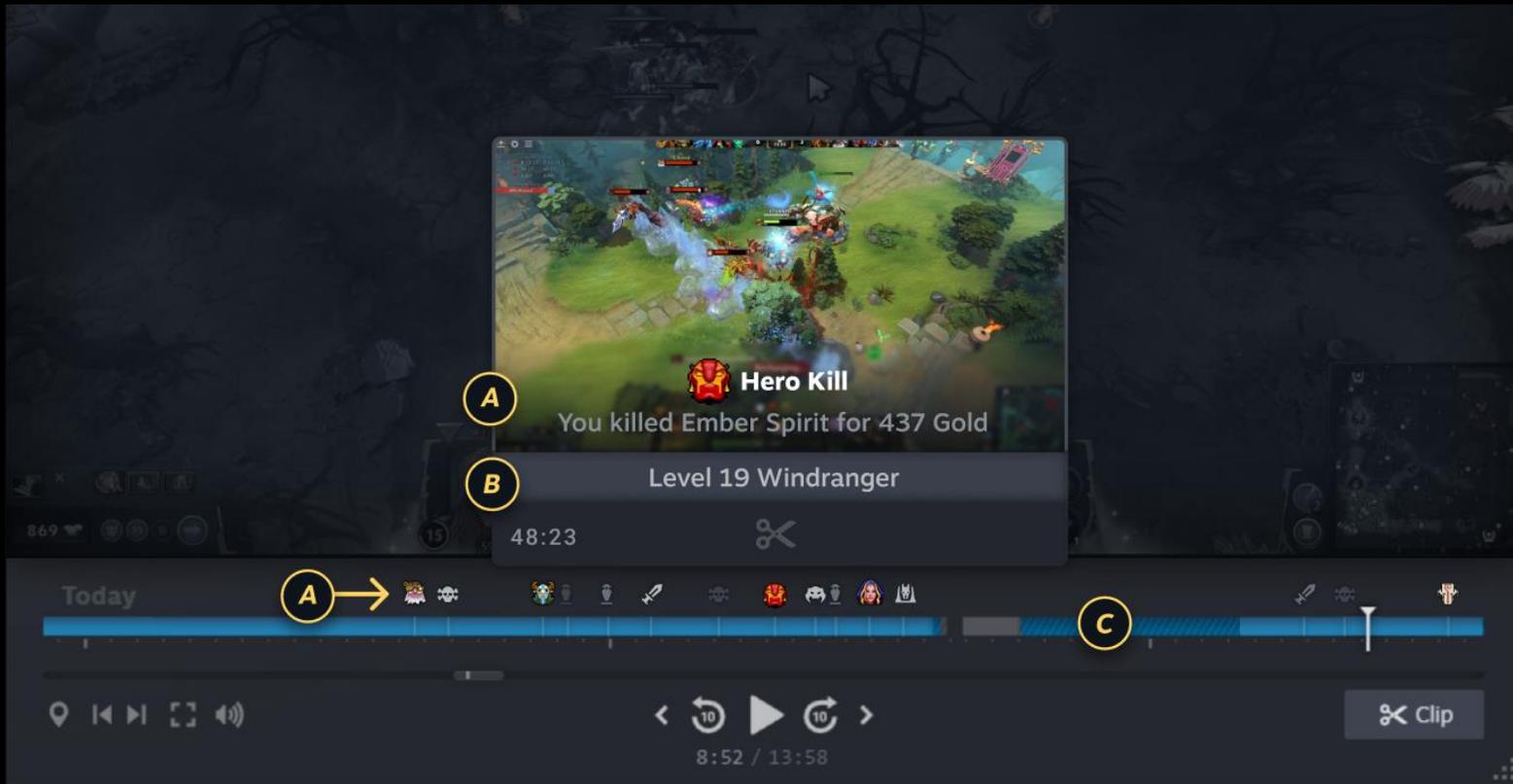
When an issue happens

- **Add a marker**
- **In the Steam Overlay select the marker and share a clip of the issue**

Easiest way to share is Copy to Clipboard to transfer the .mp4 to other tools



Game Integration



A **Game-Added Markers**
Indicate when something notable happens

B **State Description**
Indicates current game status (i.e. level, quest, score, location, character, etc)

C **Game Modes**
Control timeline bar appearance

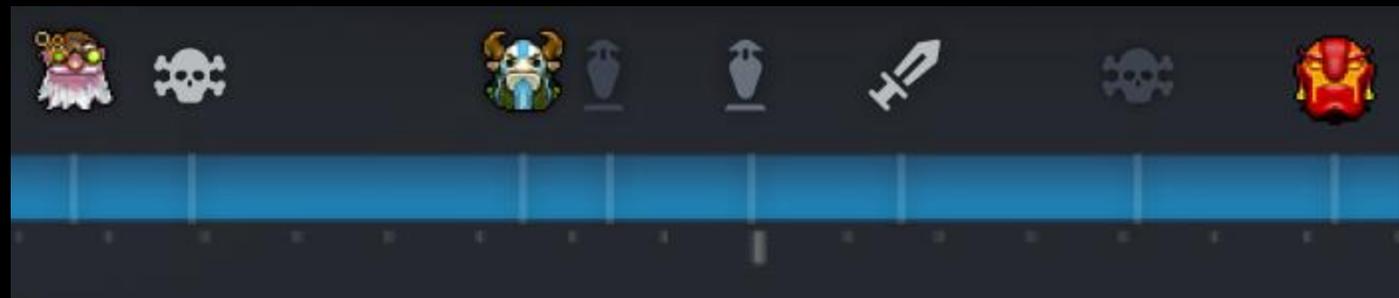
SteamTimeline API

SteamTimeline->AddRangeTimelineEvent(title, description, icon, timeline priority, starting offset, duration, suggested clip priority)

```
SteamTimeline->AddRangeTimelineEvent(  
    "Healed",  
    CFmtStr( "Restored %d Health", pEvent->GetInt( "health_restored" ) ),  
    11,  
    0,  
    -5.f,  
    5.f,  
    k_ETimelineEventClipPriority_Standard );
```

Game-Added Markers

Indicate when something notable happens



SteamTimeline API

SteamTimeline->SetTimelineTooltip(description, time delta)

```
SteamTimeline->SetTimelineTooltip( "Level 19 Windranger", -2.f );
```

State Description

Indicates current game status
(i.e. level, quest, score, location, character, etc)

Level 19 Windranger



SteamTimeline API

SteamTimeline->SetTimelineGameMode(ETimelineGameMode)

```
SteamTimeline->SetTimelineGameMode( k_ETimelineGameMode_Playing );
```

Game Modes

Controls the timeline bar appearance



Steam Timeline API



Game Recording: Summary

Records in the background so you won't miss the big moments

Use as a dev tool

Add deeper integration with your game to improve the customer experience



Steamworks Features 2025

More Information

