TS2 Desync Testing and Debugging

# Systems

## Sync

This system captures events from anywhere in code across all registered threads and allows marking of frames, capture, and output of data.

## Replay

This system enables capture of inputs used for lock-step network frames and sync data from the sync system. It can be used to output replay that captured information and can be setup to play networked matches using the captured inputs. Very useful for capturing inputs that cause rare desyncs.

## SyncCompare

Command line tool used to parse a .sync file output by the

## DesyncReader

# Client Setup

## Supported Builds

The Sync system and associated information is available in the following configurations:

* game\_internal
* game\_debug

## User.ini

You cannot run distributed builds of the client ( e.g. Steam builds ) for desync testing as you cannot add a user.ini to those build. You will need to include several properties in your user.ini file to enable the system, data, and control what data is tracked.

The below enable play recording of multiplayer sessions – replay files can be used to replay the inputs through games to automate or replay situations that desync . Sync files are used to by the SyncCompare tool to report the first non-matching sync events and the proceeding events. The same information is used by the game to log desyncs on detection – useful when using the replay files

* Game\_Record = 1
* Game\_Record\_Sync = 1

The below are used to ensure that sync event data is capture, and that the sync system is enabled for use.

* Game\_Sync\_Verbose = 1
* Debug\_SyncEnabled = 1

The below are used to determine if the sync event is tracked – it’s an art to enable/disable the correct set of flags to manage the information you want vs. the performance of the game. With the below we were seeing ~20 FPS in Versus games. It’s paramount that all clients engaged in desync testing together use the same set of enabled flags.

* Game\_Sync\_AllowedCategory\_Random = 1
* Game\_Sync\_AllowedCategory\_Input = 1
* Game\_Sync\_AllowedCategory\_SceneGraph = 1
* Game\_Sync\_AllowedCategory\_Physics = 1
* Game\_Sync\_AllowedCategory\_AI = 1
* Game\_Sync\_AllowedCategory\_Player = 1
* Game\_Sync\_AllowedCategory\_NPC = 1
* Game\_Sync\_AllowedCategory\_Unit = 1
* Game\_Sync\_AllowedCategory\_Logic = 1
* Game\_Sync\_AllowedCategory\_Stats = 1
* Game\_Sync\_AllowedCategory\_Level = 1
* Game\_Sync\_AllowedCategory\_User = 1
* Game\_Sync\_AllowedCategory\_Camera = 1
* Game\_Sync\_AllowedCategory\_Vehicle = 0
* Game\_Sync\_AllowedCategory\_Projectile = 0
* Game\_Sync\_AllowedCategory\_Proximity = 0
* Game\_Sync\_AllowedCategory\_Debris = 0
* Game\_Sync\_AllowedCategory\_Raycast = 0
* Game\_Sync\_AllowedCategory\_Thread = 0
* Game\_Sync\_AllowedCategory\_Spatial = 0
* Game\_Sync\_AllowedCategory\_Particles = 0

The below is used to disable timeouts on the enet level.

* Debug\_Network\_NoTimeout = 1