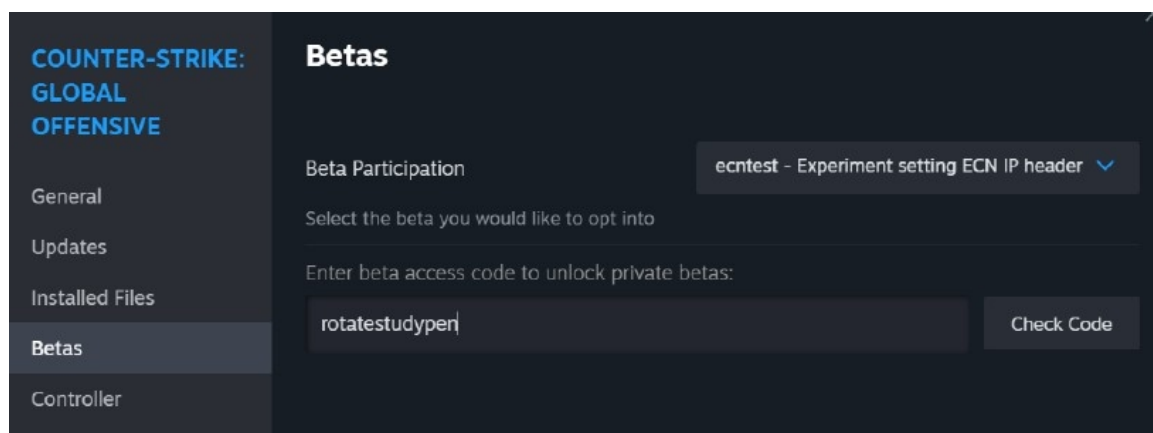# CS:GO Low Latency DOCSIS Trial Instructions

Purpose

CS:GO, a free to play game, provides network statics and the ability to enable/disable Low Latency DOCSIS (LLD) from within the game client. For this trial, we would like to collect measurable network statistics for different scenarios while LLD is enabled and disabled.

Setup

1. Install the Steam application: https://store.steampowered.com/
2. Install CS:GO from within the Steam application.
3. Once installed, in your Steam library list, right click on CS:GO and select "Properties…"
   - Under General>Launch Options, type: `-console -sw`
     i. `-console` allows opening of the console window to enter game commands
     ii. `-sw` allows the game to be run in a window instead of full screen. It also allows moving the mouse cursor outside of the game window to use other apps like Notepad and the iPerf traffic tool.
4. Download the iPerf traffic tool that will generate upstream traffic: https://www.dropbox.com/scl/fi/auerbv51wq6dbl8wxcut2/iPerf3-tool-v2.zip?dl=0&rlkey=e8kj06zg3pjwzqsq4selh48nr

Note: Currently only the Windows version of CS:GO supports LLD.

Test Scenarios

The three scenarios we would like to gather stats for are:

- ☐ Test 1: LLD is disabled with no background traffic.
- ☐ Test 2: LLD is disabled with traffic filling the upstream bandwidth.
- ☐ Test 3: LLD is enabled with traffic filling the upstream bandwidth.

The iPerf traffic generation tool will be used in the background for #2 and #3.

Playing CS:GO and Collecting Data

The below tests will take you out of the game and lose control of your character. While possible, it is not recommended to play a matched game, especially ranked, with other players while doing your testing! The below instructions will place you in an unpopular, unranked game mode.

1) In the Steam app, select CS:GO in the game list and click Play.
2) When in the game, we recommend changing your video settings to make getting to the iPerf tool and Notepad easier:
   a) Click the cog to access the game options.
   b) Under Video, change your Display Mode to "Windowed" and lower your Resolution so you can see your Windows desktop.
   c) Close the options window.
3) Pressing ~ will open and close the console window.
4) Depending on the scenario being tested, enable or disable LLD by typing one of these commands in the console window:
   a) `sdr ecn -1`
      - Disable LLD. It is the default when starting the game.
   b) `sdr ecn 1`
      - Enable LLD until you change the setting manually or exit CS:GO.
   c) `sdr ecn`
      - View your current setting.
5) Click Play CS:GO
6) Setup your match with these settings: Deathmatch, Classic mode, and Hostage Group. You likely will be placed in a match by yourself.
7) Click GO
8) Matchmaking may take a minute. Once matched, choose your side to start. It is *not* necessary to play the game and you can idle if you want. Spectating is also fine for testing if you die.
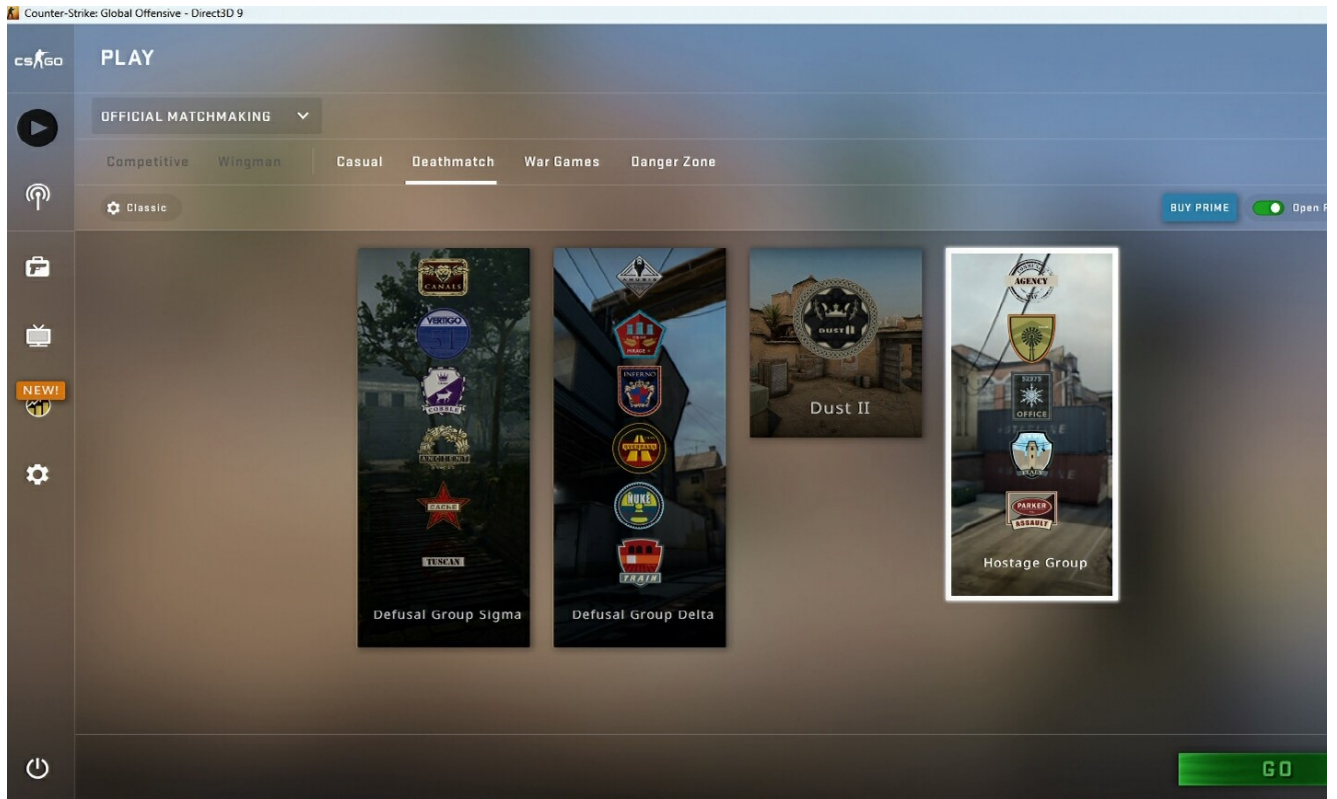
Collecting the Game Stats

1. Press ~ to open the console window.
   a) If you are testing scenario 1, complete steps 2-5 after 5 minutes.
   b) If you are testing scenarios 2 or 3, complete steps 2-5 **before** the iPerf tool's 5 minute timer ends.
2. Type these commands into the console window:
   a) `clear` : clear the console window.
   b) `sdr ecn` : show your LLD setting for the record.
   c) `net_connections_stats` : output the game session's network stats
3. Highlight all the test in the console, right-click and select Copy.
   a) You may have to hold down the left mouse button and scroll up to capture all the output.
4. Open Notepad and paste the copied text.
5. Save the Notepad file with a unique name to help keep track of which of test scenario the data is for.

Subjective Testing

The above testing will provide quantifiable data demonstrating the benefits of low latency while gaming, but it does not provide a good situation for the player to "feel" a benefit. CS:GO is in a genre of games that should noticeably benefit in a real match against other players when high amounts of action are on screen.

If willing, we would like our trial users to also play more populated deathmatches with LLD enabled and disabled. And if feeling brave, with the iPerf traffic generator running in the

background. We would welcome feedback on how the gameplay feels not just during this LLD trial, but also compared to past matches where you noticed moments where gameplay slowed down or the frame rate dip during high intensity moments.

Send In Your Results

If you want to run the tests more than once each, we welcome the extra data!

Please use this form to upload the notepad files with data you collected using the console commands: https://app.smartsheet.com/b/form/b57ea3a3364f4b69a97c4ed1fbc37a74

Please use this form to provide your subjective feedback on playing regular deathmatches outside of collecting the network statistics based on past patches and matches with LLD enabled and disabled: https://app.smartsheet.com/b/form/1f8a26bed7ab40a5916fb1ad7f5ebf23

Thank you!