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Telemetry

You can upload telemetry to the Canopy Platform for use in simulations such as Thermal Replay and Channel Inference. Telemetry on the Platform is composed of two parts, the *Telemetry Config* and the *Telemetry Simulation*. When you navigate to the "Telemetry" page in the Canopy Portal, it will list both Telemetry Simulations and Telemetry Configs on the same page. However you don't often have to deal with telemetry configs directly.

The Telemetry Simulation

The Telemetry simulation takes a Telemetry Config containing a list of channels as an input, and writes the results out as simulation results in the same format as our other simulations. This simulation does not use any compute credits, however we do charge 0.1 storage credits per 1MB of telemetry data stored.

The simplest way to run this simulation is to click on the **"Import Telemetry"** button, which allows you to import a CSV, TSV or JSON file and automatically runs the simulation for you.

Converting telemetry to simulation results makes it far more efficient to pass the data around the platform, both as inputs to other simulations and as channels in the data viewers. It allows telemetry and other simulation results to be interchangable as simulation inputs. More benefits resulting from this change will be coming to the platform in the future.

The Telemetry Config

The Telemetry Config can now contain either a list of channel data as before, or it can contain a reference to a job on the platform.

Reference to a Job

To create a Telemetry Config containing a reference to a job (an existing simulation for example), you could edit the config manually in the editor. However a quicker way is to click on the "Stage as Telemetry" button when viewing studies or jobs. For Telemetry simulations the button is simply labeled "Stage".

Clicking "Stage as Telemetry" will generate a Telemetry Config containing a reference to the appropriate job and stage it for you. Staging a job as telemetry allows you to pass channel data from that job into another simulation.

List of Channels

If the Telemetry Config contains a list of channels, it cannot be saved directly as a config. Instead it must be run though the Telemetry Simulation which will convert the channels into simulation results. You can do this by simply clicking the **"Run Telemetry"** button in the editor, or, as mentioned before, you can use the **"Import Telemetry"** button to bypass the need to create the telemetry config manually.

Correlation Metrics

If you stage a Telemetry Config which contains certain channels then Dynamic Lap will return the correlation metrics mean and mean squared delta to your telemetry channel. It returns these metrics in the form of both a vector (delta and delta squared), and scalar result for the whole lap. These scalar results are particularly useful for dialling in correlation; run a large exploration on uncertain parameters (e.g. grip level, grip balance, aero, plank height...) then look at the correlation metrics in the parallel coordinates chart, and pick the runs which minimise the *MeanSquaredDeltaToRef*.

Channels that return correlation metrics are: *FzTyre***, *FPushRod***, *xDamper***, *xDamperPot***, *aRocker***, *hRide**, *MBrake***, *pBrake**, *aSteerWheel*, *vCar*, *rSlipTyre***, *aSlipTyre***, *gLat*, *gLong*, *gVert*.