Main insights

We've taken the prices of the two fuels as of 13/10/2023 in Spain. SP98: 1.83€/L; E10: 1.78€/L.

- Even if E10 is less expensive, we consume more on average (4.93L/100km vs 4.89L/100km of SP98) and our average cost per trip is higher (1.80€ vs 1.62€ for SP98).
- The main and general advice would be to use **SP98** and track gas stations where this fuel is less expensive.
- However, when the **average speed is less than 30km/h**, the **E10** performs better (consumes 5.61L/100km vs 5.82L/100km for SP98).
- Both fuels have a similar behaviour for small distances. For distances larger than 50km, we don't have enough data to obtain conclusions.
- There seems to be a difference between the consume of the two fuels when AC is used, but we don't have enough data to obtain conclusions.

Code and calculations: tech-challenge.ipynb (main folder)

Model

We've built a model that predicts the **total consume (L)** of the trip based on the following features:

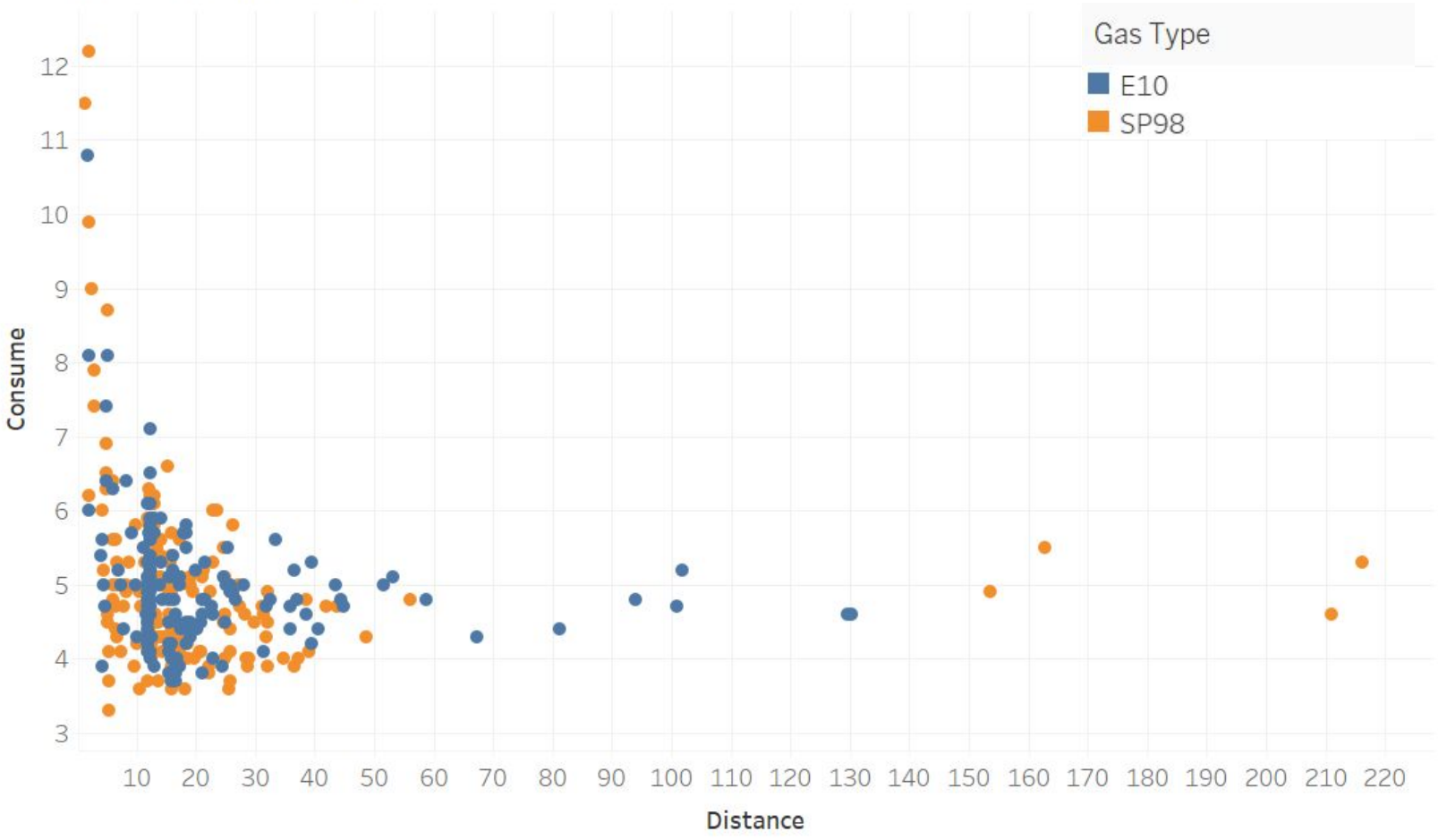
- Distance (km)
- Speed (average, km/h)
- Temperature difference between inside and outside (ºC)
- Gas type (1 = SP98, 0 = E10)
- AC, rain, sun (1 = true, 0 = false)

We could use this model on a daily basis to decide if we should refill SP98 or E10

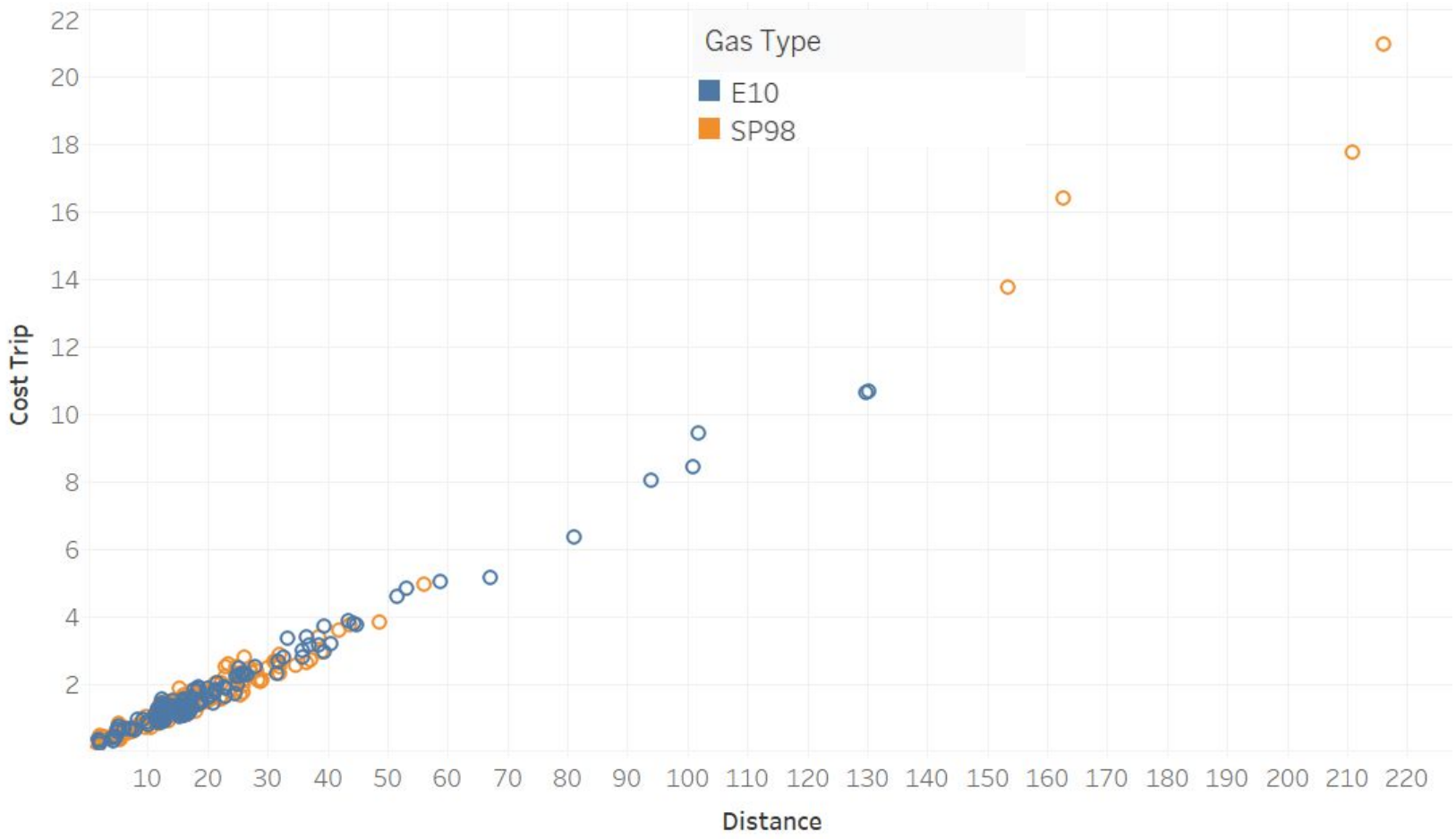
- We would input the average values of: distance, speed, temp diff (we could use calculated average values for winter, spring, summer and autumn, for example)
- We would decide the values of AC, rain, sun depending on the conditions
- We would input SP98 and E10 for making **two predictions**: one for SP98 and one for E10
- We would obtain predicted consume for SP98 and predicted consume for E10
- We would use **current price x predicted consume to decide which fuel to refill**

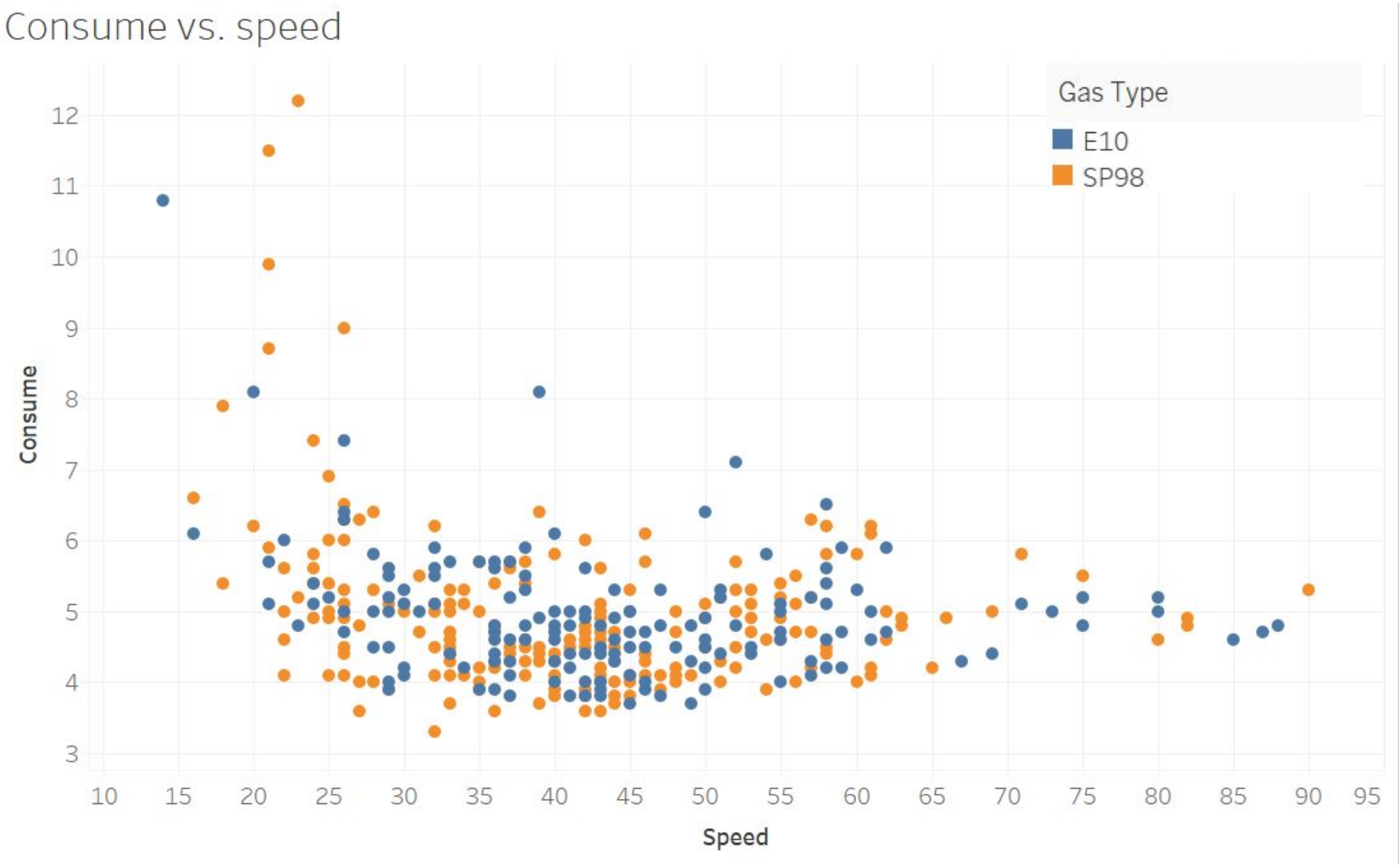
Code and calculations: tech-challenge.ipynb (main folder)

Consume vs. distance

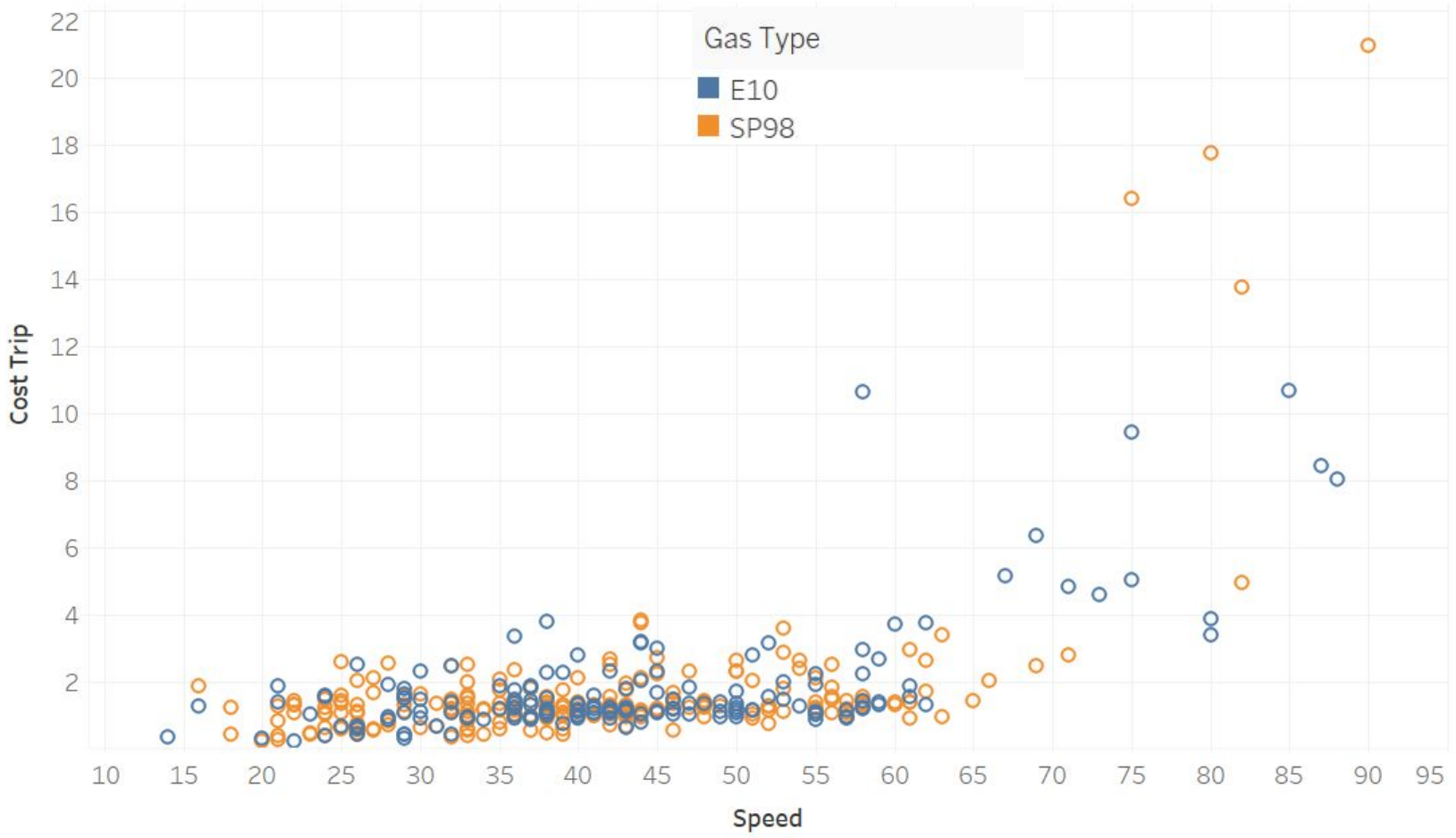


Cost trip vs. distance

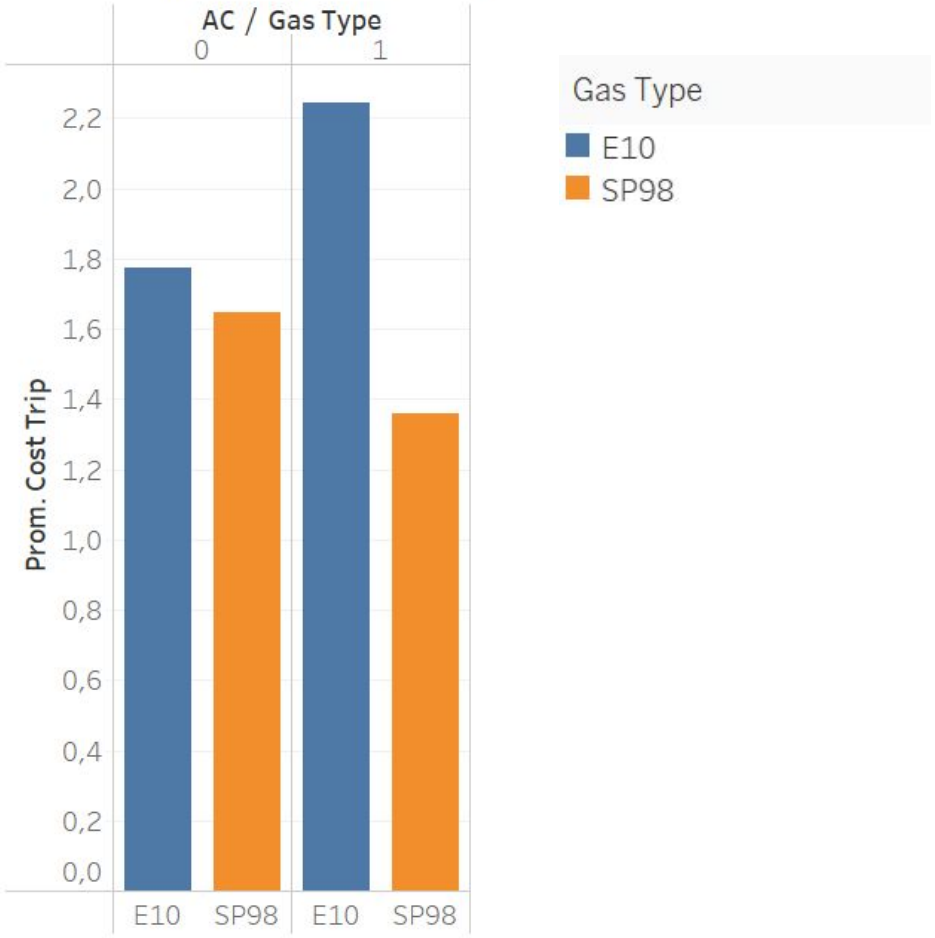



Consume vs. speed
Gas Type
E10
SP98
Consume
Speed
12
11
10
9
8
7
6
5
4
3
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95

Cost trip vs speed



Cost trip (avg) vs gas type & AC



- Code and calculations: tech-challenge.ipynb (main folder)
- Tableau workbook: https://public.tableau.com/app/profile/diego.castillo3758/viz/ih_tec_ch_cobify/consumevsdistance?publish=yes