

Improving the Run Times of Existing and Historical Demand Models Using Simple Python Scripting

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Abstract : The run times for a large strategic model that we were managing had become too long leading to delays in project delivery, increased costs and loss in productivity. Software developers are continuously working towards developing more efficient tools by changing their algorithms and processes. The issue faced by our team was how do you apply the latest technologies on validated existing models which are based on much older versions of software that do not have the latest software capabilities. The multi-model transport model that we had could only be run in sequential assignment order. Recent upgrades to the software now allowed the assignment to be run in parallel, a concept called parallelization. Parallelization is a Python script working only within the latest version of the software. A full model transfer to the latest version was not possible due to time, budget and the potential changes in trip assignment. This article is to show the method to adapt and update the Python script in such a way that it can be used in older software versions by calling the latest version and then recalling the old version for assignment model without affecting the results. Through a process of trial-and-error run time savings of up to 30-40% have been achieved. Assignment results were maintained within the older version and through this learning process we've applied this methodology to other even older versions of the software resulting in huge time savings, more productivity and efficiency for both client and consultant.

Keywords : model run time, demand model, parallelisation, python scripting

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