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[TOP](#) > [Available Volumes](#) > [Table of Contents](#) > Abstract

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Study on Trampler Allocation Planning Using Genetic Algorithm -"Order Type" Ship Allocation-

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Summary: Trampler allocation is important and difficult work operation because it affects heavily on transport efficiency and stability although a lot of factors must be considered carefully and properly. Provided that high performance trampler allocation plan be generated automatically by using computer program, it is very useful not only for labor saving but also for designing highly efficient enterprise-level maritime transport system through various and repeated analysis. There are 2 major types of trampler allocation ways. One is "tank balance type (or VMI: Vender Managed Inventory type)" and authors took it up in the former paper. In this paper we tried to solve the other one, "order type" trampler allocation. In "order type" allocation an operator receives a lot of orders from cargo owner in which detailed tasks are described, for example loading port name, day, item, quantity, and the operator tried to execute all the orders completely and efficiently under the restrictions. Firstly, we developed "order-type" allocation method by utilizing GA: Genetic Algorithm and logistics simulator, and implement it into an automatic allocation system. Secondly we apply it for a transport system modeled with a real ship operator and assess the system performance. We could conclude that our automatic trampler allocation system could generate fine allocation plans those are as efficient in total fuel consumption as the one made by human operators with high probability.

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