

# Model-based Operational Planning Using Coloured Petri Nets

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## Abstract

This talk describes a model-based approach towards the development of software tools to support operational planning in the Australian Defence Force. An overview of the military planning process is provided for the purpose of identifying key concepts in operational planning. Models of the key concepts are then developed and formalised by the construction of a CPN model of an abstract operational task. The CPN model specifies the execution of tasks in a Course of Action (COA). During planning, the CPN model is instantiated with concrete tasks for execution and analysis. The model-based approach is illustrated by a prototype COA Scheduling Tool (COAST) that supports sequencing and scheduling of tasks in planning. COAST has a client-server architecture. The client provides a graphical user interface for task instantiation and COA analysis. The server uses the instantiated CPN model to conduct state space analysis for generating and analysing sequences of tasks in a COA.