

CASE STUDY

Scheduling and Optimization

► **Objective**

Develop and implement a customized and scalable scheduling optimizing application for resource scheduling

► **Client**

Ministry of Defense for a Southeast Asian Country

► **Benefits**

Improved the schedule compliance of the system and ensured early warnings for capacity shortfalls

Other Case Studies

↳ Transport Scheduling and Rostering : *Optimizing resource utilization and reducing transportation costs*

↳ Rostering and Optimization : *Streamlining rostering for resource optimization*

↳ Sales and Operations Planning: *Sales and operations planning for commodity*

Project Objective

To develop a scalable scheduling optimization application that will ensure minimal costs and uniform resource scheduling.

Client

The Ministry of Defense for a Southeast Asian country.

Approach

This project required a mix of high-end optimization modeling and application development that would be compatible with the other modules of the Integrated Ammunition Management System (IAMS). Three possible alternative solutions were evaluated to meet the client's requirements.

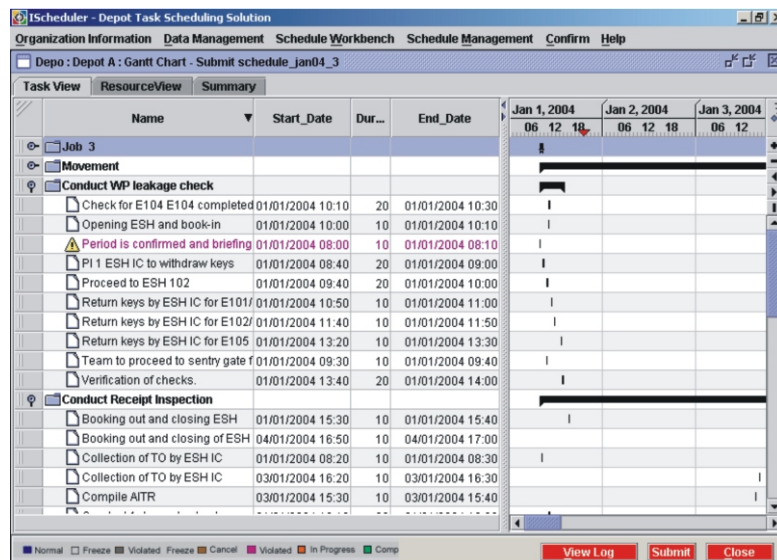
Options	1. ' Off The Shelf ' (OTS) Scheduling packages with embedded Algorithm	2. Customized algorithm built on OTS Mathematical Tools	3. End-to-end Customized Solution (no use of external tools or algorithm)
Suitability to client's requirements	Low, lots of unwanted features	Can be made highly suitable	High
Time to Implement	Low	Low	High
Risk	Low	High	High
Price	Low	Low	High

Evaluation of possible approaches for developing iScheduler

The optimization algorithm used constraint programming search tree with the ILog Scheduler and ILog Solver. The iScheduler (our scheduling application) also allowed generation of what-if scenarios to facilitate analysis.

Solution

The iScheduler represented the optimized schedules and the what-if analysis results in the form of Gantt charts.



Scheduling output using Gantt charts

Benefits

The iScheduler improved the schedule compliance of the system and allowed monitoring of critical system resources. It improved the resource utilization and provided early warning for capacity shortfalls.