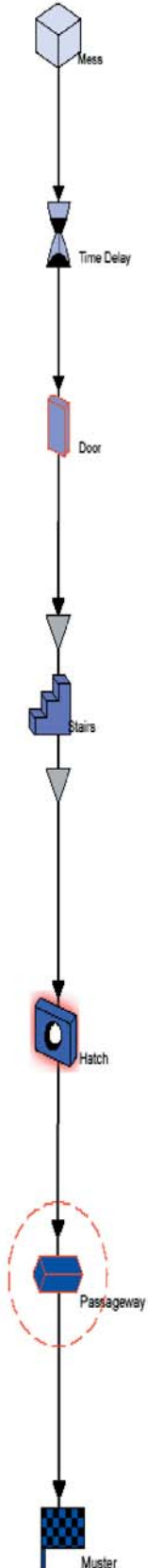




S-CAPE

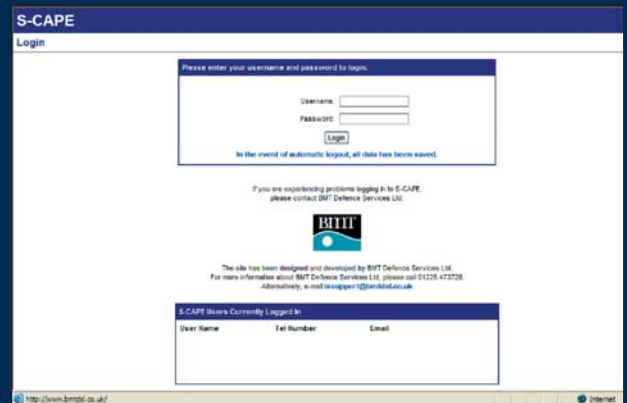
BMT Defence Services (Australia) Pty Ltd



S-CAPE (Simplified Concept Analysis of Personnel Escape) is a software program developed by BMT Defence Services Ltd in the UK to enable cost-effective comparative studies of the escape performance of ship arrangements to be undertaken during the preliminary design phase. The software is also equally valuable when assessing existing designs and developing improvements to life-saving arrangements. Realistic representations of a ship's general arrangement can be input in short timescales and multiple versions developed to allow rapid analysis of different design variations. The program is designed to be flexible, allowing modifications to the design layout and personnel distribution to be performed quickly and efficiently.

Key features include:

- based on the IMO guidelines for ship escape and evacuation analysis;
- facilitates rapid, cost-effective creation and modification of models;
- clearly highlights areas of congestion and poor personnel flow;
- designed to be network based, allowing multiple users to access a central database of models.



Background

S-CAPE has been developed by BMT Defence Services under sponsorship from the UK Ministry of Defence (MoD). The program has been developed in partnership with the MoD's Escape & Evacuation Naval Authority, part of the MoD's naval regulatory framework and a subject matter expert.

S-CAPE was initially created as a codification of the guidance published by the IMO. Through the partnering arrangement between BMT Defence Services and the Escape & Evacuation Naval Authority the software has been further developed and now caters for the differences in arrangements and personnel ability between naval and civilian ships.

Capabilities

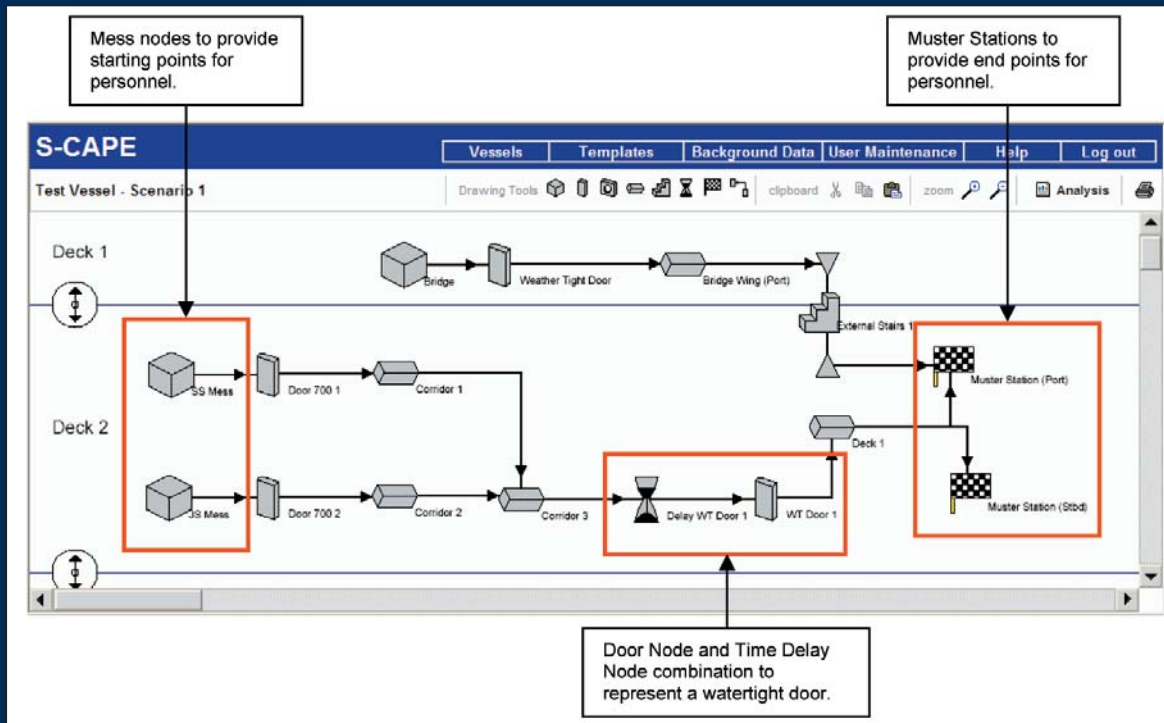
S-CAPE's flexible design allows investigation of the capability of a vessel at many levels, be it whole-ship analyses, the effect of individual design changes or detailed assessments of particular areas. Some key stages in the ship life-cycle where S-CAPE can be used are:

- Concept design:
 - o comparison of different generic design philosophies;
 - o optimising the arrangement of key spaces and personnel distribution before the general arrangement becomes established.
- Preliminary design:
 - o evaluation of the design against the escape time targets set by the Naval Authority;
 - o monitoring the evolving design to ensure escape performance is maintained.
- Existing vessels:
 - o investigating the effects of proposed design changes at the earliest stage;
 - o identifying and assessing improvements to escape arrangements to optimise safety.

Creating the model

A model in S-CAPE is a schematic representation of the ship's escape routes. It is created using a number of basic components (known as nodes) to represent compartments, doors, hatches, corridors and stairways. These components are linked together to form a flow diagram that reflects the possible routes that personnel may take within the ship. The properties of these components can be tailored for each node or linked to the template database contained within S-CAPE. Basic data such as the speed with which people move through different components can also be adjusted to suit different personnel groups.

S-CAPE's flexible user interface allows the user to create models in a style to suit their own needs. Multiple scenarios can be developed based on the same model, for example a normal day-time patrol routine, a midday meal routine with personnel in dining rooms, a night-time routine with most personnel asleep in their cabins and a high state of readiness routine (e.g. action stations).



Evaluating the analysis

The purpose of the analysis is to identify which routes have the longest flow time, which components cause queues and where congestion forms. This provides the information that is required to gain a full understanding of the characteristics of the ship and hence learn where improvements need to be made. Understanding these characteristics, the causes of long flow times and congestion, and the implications of modifications is where BMT Defence Services (Australia)'s experience will benefit the completion of efficient escape analyses.

S-CAPE provides a graphical, interactive output display that enables the user to study the behaviour of the model, enabling a clear understanding of the results to be gained. It also includes a tabular output option, suitable for inclusion of results in reports.

S-CAPE has proven to be an invaluable tool for assessing the escape performance of new designs and in-service platforms. The speed with which analyses can be performed and the flexibility of the tool to allow modifications to the escape route arrangement are both key to the success that it has experienced.



Certified Quality Management System



BMT Defence Services (Australia) Pty Ltd
Level 5, 99 King Street, Melbourne, VIC 3000, Australia
Telephone: + 61 (0)3 8620 6180 Fax: + 61 (0)3 8620 6105
Email: info@bmtdsl.com.au Website: www.bmtdsl.com.au

