

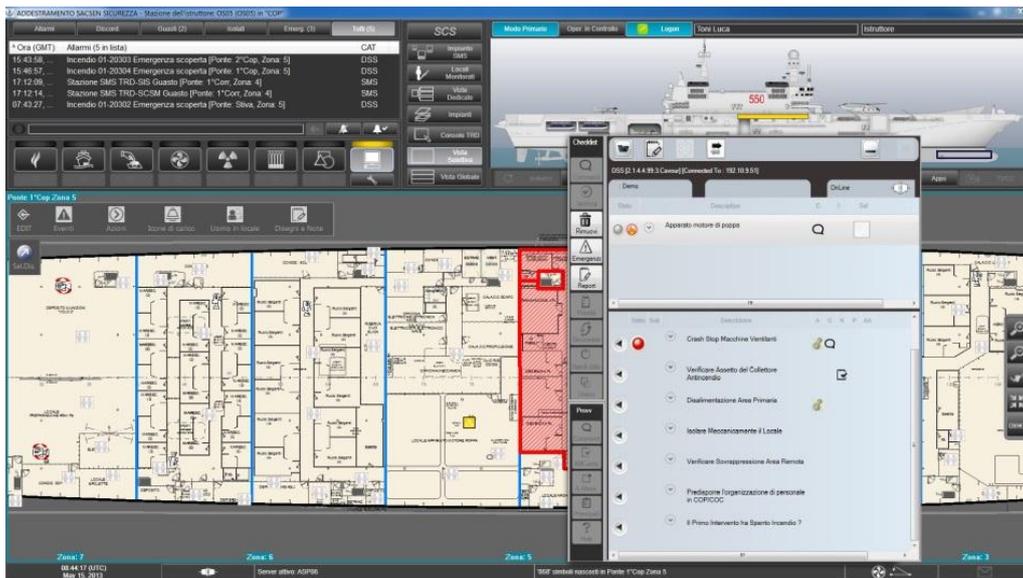
Decision Support System

Decision Support System (DSS) is a software tool which supports the damage control officer in managing emergency conditions on board.

DSS is integrated in the BDCS environment, exchanging with it data and commands and displaying the DSS graphic interface on BDCS workstations.

The main functions provided by DSS are:

- ✓ Damage control operator support in emergency procedure execution (Check List).
- ✓ Automatic Check List selection according to:
 - Emergency type (fire, flooding, harmful fluids leak, NBCD, etc).
 - Ship's area (engine rooms, galleys, etc.).
 - Optionally, ship's operational role (combat, navigation, harbour, etc.).
- ✓ Automatic link to BDCS actions.
- ✓ Controlled flow chart execution.
- ✓ Reporting.

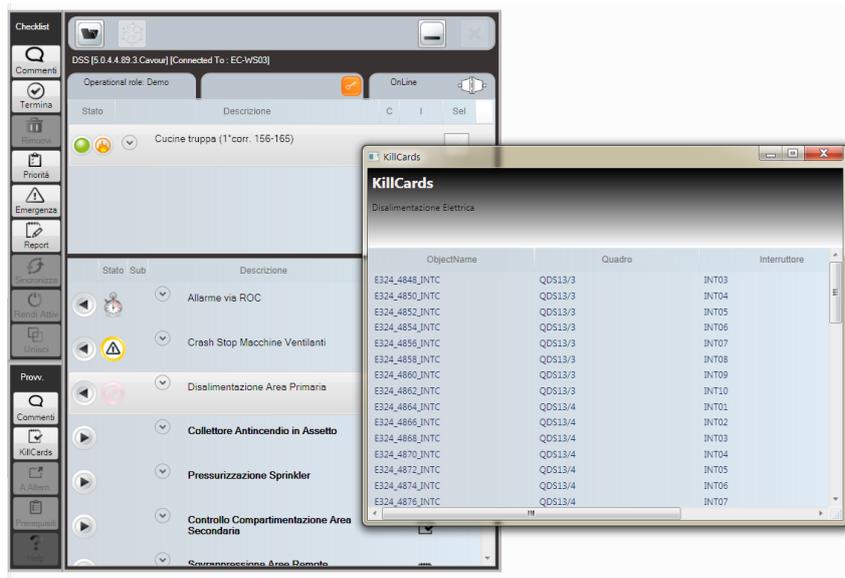
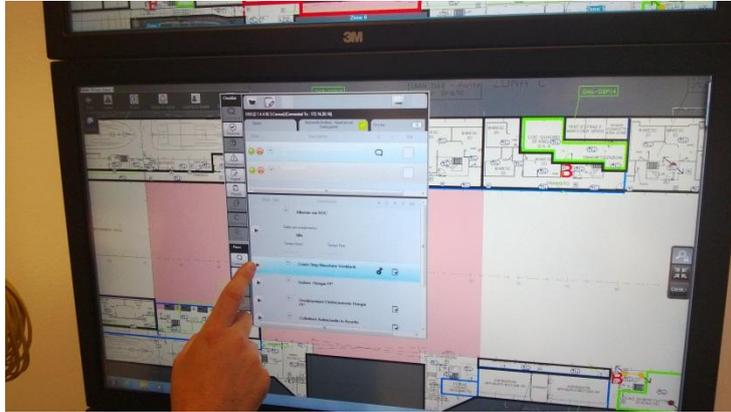


The DSS provides a coded aid in fighting an emergency situation onboard, presenting to the damage control operator the most appropriate operational procedure for the specific emergency condition and supporting him in the execution of the procedure.

The operational procedure, named Check List, is selected taking into account the following information:

- ✓ The kind of emergency. Fire and flooding and NBCD are considered as typical emergency conditions, but the system can be user configured for any type of condition where an operational procedure is defined (as an example, ship evacuation procedure).
- ✓ The location of the emergency on board. The procedure can be tuned to the type of area (i.e. passenger cabin requires a different approach than the galley) and even to its specific location on the ship (as an example special actions should be envisaged for compartments near ammunition or missile lockers).
- ✓ The operational mode of the ship, as for example: harbor, navigation, combat. This is an optional parameter, which may be considered in the DSS configuration.

The interaction between operator and DSS takes place via a dedicated window, displayed on the BDCS workstation, showing the suggested check list.



A Check List is a flow chart containing a set of actions to be executed to fight the emergency, plus additional questions to guide the execution in accordance to the emergency evolution.

Check Lists may be designed by the Navy itself (according to its own standard) with a special software tool.

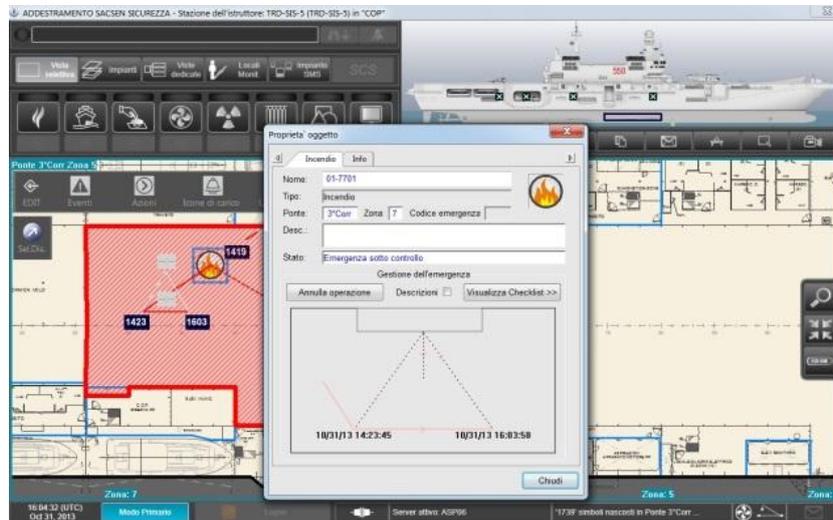
Actions can be classified as:

- ✓ BDCS Actions: when upon operator's selection, the DSS executes them by triggering a specific BDCS action. Typical examples are *"Close Fire Screen Doors of the area"* or *"Ventilation crash stop"*. DSS will send the command to BDCS and checks for proper command execution.
- ✓ Manual Actions, not implemented in the BDCS (like *"Call the Fire Patrol"*). In this case, DSS provides instructions to execute them, it records action starting, action ending and action results (completed, failed).

Whenever an action implies knowledge of the specific area where the emergency is active, the DSS supports the operator by providing timely information, named **kill-cards**. Kill-cards will show the topographical location of the items on the general arrangement plans and/or on its subsystem one-line diagram with a single mouse click.

At the end of the emergency, a complete report of the Check List execution is provided, showing all the actions and decision taken, with time stamps, user name and comments.

During the checklist execution the emergency triangle is automatically updated on each BDCS workstation.



Off-line usage

DSS is designed as a server-client application, in order to share the checklist among all the workstations in the network. If needed, for example when operating on a tablet with no network coverage, a checklist can be executed locally and synchronized as soon as the tablet is reconnected to the network or comes under the wi-fi network (if applicable). **This optional function allows to the team leader to be present on the emergency scene without the need to rely on anyone else report and, later on, to share and synchronize the incident reporting with all the workstations of the ship.**

System benefits

- Tailored in accordance to the Customer requirements
- Based on a extensive application experience of safety management systems
- User friendly operation
- Suitable for future expansion
- Improves the overall operational safety concept of the vessel
- Checklist are fully customizable by the end user by means of the Checklist Editor

Fields of applications

DSS is a decision support system able to interact with Martec BDCS. This makes Martec DSS the best choice in all of the scenarios where safety has to be guaranteed through proper procedures that are "zone dependent", "emergency-type dependent" and "ship role dependent".

Naval vessels, Cruise vessels, and offshore vessels/platforms are typical scenarios where DSS can be successfully applied.

Main final Customers:

Italian Navy, Indian Navy, Princess, CCL, P&O, Seabourn