7SHIELD

MODULES

- ENGAGE Converged Security Information Management (CSIM)
- Cyber-physical Threat Monitoring (CPTM) Dashboard

SCOPE

Both the ENGAGE CSIM and CPTM Dashboard are providing a **situational awareness of the critical infrastructure security** against **cyber, physical or even complex cyber-physical attacks**.

They are integrated with the event correlator modules developed in 7SHIELD project supporting the response and mitigation functionalities (ENGAGE) and prevention tools (such as risk and vulnerability assessment) providing with a centralized access accessible via a secure authentication mechanism to support Ground Segment operators during the decision-making phase, combining security threat monitoring and event management (CPTM Dashboard).

Decision Support Systems

Crisis Management

Situational Awareness

PARTNERS

Satways LTD (STWS) developed the ENGAGE CSIM Edition based on the **ENGAGE Incident Management System** (IMS) / **Computed Aided Dispatch** (CAD) software, a commercial product that is already available on the market and is developed.

SATWAYS
Greece

Engineering Group (ENG) is a global player in the digital transformation sector, with relevant expertise in business integration and Critical infrastructure protection against cyber and physical attacks.

ENGINEERING
Italy

CONTRIBUTION

STWS has long and documented experience in developing **C2 systems**. ENGACE IMS/CADis an Incident Management & Computer Aided Dispatch Solution used by public & private safety organizations. Based on a highly modular and reconfigurable S/W platform and a reliable, distributed Event Driven architecture, ENGAGE supports comprehensive incident control and dispatching for Public Safety, offering an unmatched combination of speed, reliability, and features adaptive to highly complex communication environments. STWS' expertise in creating safety solutions based on an enhanced Common Operational Picture, has led to the development of a highly advanced C2 system specifically for Critical **Infrastructure protection** of the space-ground segment in the 7SHIELD Project.

ENG designed and developed the CPTM Dashboard based on its knowledge and skills in the field of security and protection of critical infrastructures, making available resources related to **integrated cyber-physical situational awareness**, threat intelligence. ENG supports the specification and integration of the system and this is precisely the reason why it is their responsibility to implement a centralized module.

STAKEHOLDERS

ENGAGE CSIM is a software solution that offers a complete situational picture in a friendly User Interface, that displays real-time information from multiple sources and components. The solution provides support to the users in order to prepare in time and also assistance in the decision-making process, in order to support the command center in managing each situation accordingly. Its main goal is to protect CIs, but by doing so, organizations and data are simultaneously protected and preserved. ENGAGE CSIM can be used by both the public and private sector, namely the **space sector, satellite ground segment agencies, defense and security government agencies, and mobile network companies**.

PURPOSE

The User Interface-Common and Control (C2) is composed by two main interfaces available for the Critical Infrastructure operators: ENGAGE CSIM and the Cyber-physical Threat Monitoring (CPTM) Dashboard.

ENGAGE Converged Security Information Management (CSIM) Edition is designed to assist in protecting critical infrastructures of the space-ground segment providing a **real-time situational picture** displaying data gathered from multiple components. Events are listed and prioritized based on severity, location, type, and the infrastructure general status.

The **Cyber-physical Threat Monitoring (CPTM) Dashboard** can display the evolution of cyber and physical threats affecting the Ground Segment (GS). GS operators can analyze single threats by accessing correlated data representing potential complex scenarios. A visual map of the site presents all the available information about Geographical areas and infrastructure assets as well as simple and complex threats.

The CPTM Dashboard can be adopted by **Critical Infrastructures** belonging to many sectors (public and private), providing a great advantage adopting latest technologies and being able to interface with a **high variety of devices to monitor** for constantly always be aware about the situational picture or take mitigation actions in case of critical events.

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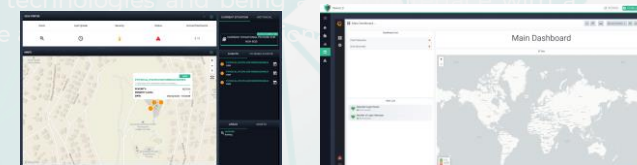
TECHNOLOGY

Both The ENGAGE CSIM system is a legacy command and control system which integrates multiple components and services into a single software environment. ENGAGE CSIM is based on a **modular architecture**, providing the flexibility to suit the needs of any security environment. All modules are combined into a common software platform based on a multilayer architecture (n-tier) with a plurality of interfaces (connectors) and communications according to customer requirements.

The CPTM Dashboard has been developed as a web interface. Standard Web 2.0 technologies, including HTML 5, CSS (The Material UI library is used), and JavaScript (The ReactJs framework is used) have been used to ensure the **adaptability** of the interface. Any data present on the map will be accessible through the Geographic Information System (GIS) technology provided in Geo-JSON form.

FUTURE IMPROVEMENTS

In order to broaden the scope of the ENGAGE CSIM system, the solution can be enhanced so that it can be used by different Critical Entities, like telecommunication companies, by: i) developing dedicated **plug-ins** to incorporate the different asset types and ii) by adapting the Emergency Response Plans (ERPs), so that they can support the **new Critical Entities' Standard Operating Procedures**. In terms of collaboration with the external stakeholders, by adapting ENGAGE legacy modules - existing in different versions of the commercial software - , which can provide the users with **collaboration capabilities**, such as: selective operational picture sharing, exchange of data and media files, live instant messaging with authorities involved in the crisis management.

The CPTM Dashboard could provide a **Managed Layers system** (including draggable/addable widgets), which would allow the SGS User to manage the Layer into the Map of the CPTM Dashboard.

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