

SE-Workbench™

Integrated tools-suite for Multi sensors Scene Generation

Multi sensors scene generation tools

The **SE-Workbench™** is an efficient and professional workshop for synthetic environment data modelling and exploitation in a study or training simulation.

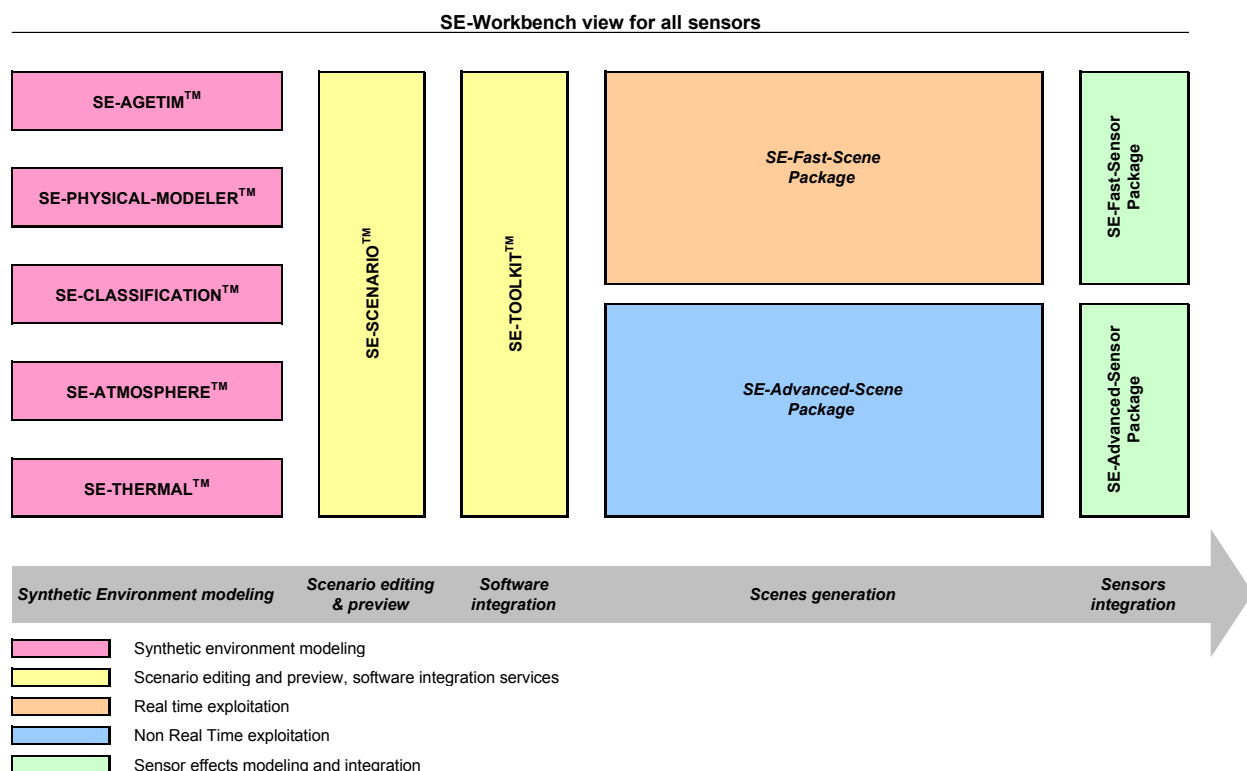
The **SE-Workbench™** provides all the simulation services of the perception of a visible infrared (IR), intensification of light (NVG), electromagnetic (EM) and acoustic (AC) sensor immersed in a complex synthetic environment.

The figures belows described the main tools and tools packages integrated in **SE-Workbench™** depending on the different sensors domains (views).

For a complete overview of **SE-Workbench™** products, **please see the OKTAL-SE products catalog.**

User's tasks

- **Model synthetic environment:** Generate a 3D terrain, model 3D targets, characterize physically all the objects, define atmospheric conditions, compute temperatures if required.
- **Integrate scene generators in host application if required:** use a powerful development toolkit to interface host application with OKTAL-SE tools.
- **Edit a scenario:** Combine different elements of synthetic environment on a static or dynamic manner and define a sensor to immerse in the scene.
- **Exploit synthetic environment:** Render the scene in a fast mode (OpenGL) or advanced mode (ray-tracing)
- **Integrate sensor:** develop a specific sensor from first level sensor libraries.



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SE-Workbench main products in multi sensors view

Terrain modelling line

SE-AGETIM™

Synthetic Environment-Multisensor Terrain Generation Tool:

Integrated software enabling generation of 3D synthetic environment with a user- specified resolution and realism. Unique solution for geographical data integration and production of a full and coherent 3D terrain completely re generable. It is based on a GIS (geographical information system) for its GUI and its loading capacities of the main geographical data formats.

Physical data modelling line

SE-PHYSICAL-MODELER™

Synthetic Environment-Physical-Modeler:

Physical modelling tool enabling materials physical parameters and texture edition, association of materials and texture to polygons, visualization of physical parameters on a 3D database (temperatures ...)

SE-CLASSIFICATION™

Synthetic Environment-Classification:

Photo interpretation software dedicated to texture classification. Each image pixel is associated to a physical material.

Atmosphere modelling line

SE-ATMOSPHERE™

Synthetic Environment-Atmosphere:

Atmospheric modelling tool dedicated to the computation of generic data for atmosphere effects modelling, while taking in account parameters such as earth position, elevation, weather condition, hour, date...). The software basis consists in an empiric propagation model and

can interface with others propagation codes.

Thermal modelling line

SE-THERMAL™

Synthetic Environment-Thermal:

Software dedicated to the pre-calculation of all the possible temperature states of a scene at a given time of the day for a given atmosphere. It takes in account the history of thermal and atmospheric background, and also the shading effects.

Scenario edition line

SE-SCENARIO™

Synthetic Environment-Scenario:

Software dedicated to scenario preparation managing 3D physical terrain, 3D objects, atmospheric conditions, targets, sensors with their properties and trajectories for OKTAL-SE scene generators.

Host application integration line

SE-TOOLKIT™

Synthetic Environment-Toolkit:

Set of libraries enabling the integration and the control of scenarios from a host application. A single API controls scenario both for advanced and fast mode. Enables typically the OKTAL-SE scene generators in « SoftWare In the Loop » et « HardWare In the Loop » application.

Fast scene generation line

SE-FAST-SCENE™

Synthetic Environment-Fast-Scene:

Software and libraries package dedicated to fast time scene generation for different sensors.

Advanced scene generation line

SE-ADVANCED-SCENE™

Synthetic Environment-Advanced-Scene:

Software and libraries package dedicated to advanced scene generation for different sensors.

Sensor modelling and integration for fast scene generation line

SE-Fast-Sensor

Synthetic Environment-Sensors:

First level modelling library of a sensor technology. Ease the development and the integration of a sensor in the OKTAL-SE fast scene generator.

Advanced sensor modelling and integration line

SE-Advanced-Sensor

Synthetic Environment-Sensors:

First level modelling library of a sensor technology. Ease the development and the integration of a sensor in the OKTAL-SE advanced scene generator.

The following figures present views of the SE-WORKBENCH adapted to the different sensors domains.