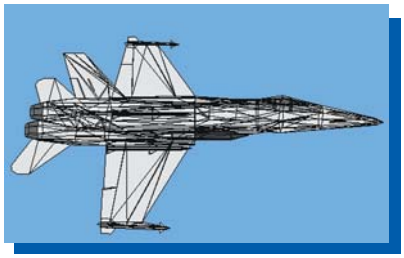
NORTHROP GRUMMAN

RISS Database and Scenario Development

An interactive environment for developing, editing, scripting and visualizing test scenarios

RISS: Real-time IR/EO Scene Simulator



RISS Scenario Development Tools

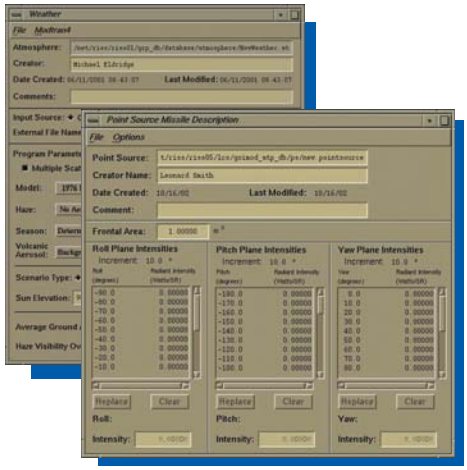
An integrated software suite for managing EOIR object and terrain databases, executing validated signature models, and building operational test scenarios.

RISS Model Builder is an interactive environment for building, attributing, and visualizing three-dimensional target, object, and terrain models. It provides tools for building physical models with radiometrically accurate material properties. The model-building environment combines commercial off-the-shelf (COTS) modeling tools with extensible file formats and interfaces for EO/IR material and texture attribution. Open database standards are used both for importing existing models and for output of run-time databases. Features of the application include:

- Compatibility with MultiGen® CreatorPro modeling environments
- Integrated material and texture palettes for facet and vertex attribution
- Model visualization
- Open database standards for terrain object import and database development

RISS Model Toolkit is an integrated tool set for building real-time databases from validated, EOIR signature and phenomenology models. The toolkit is a set of applications developed to import and preprocess high-fidelity, first-principles models for use in real-time scene generation. Supported models include predictive signature codes, atmospheric effects, and texture generators. Features of the toolkit include:

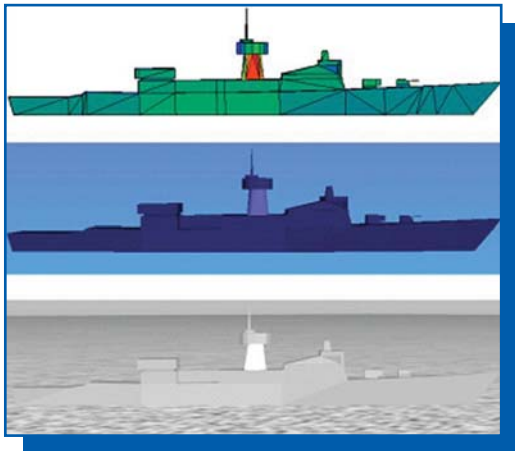
- Compatibility with a wide range of high-fidelity phenomenology models
- Plug-in interface for integration of user-developed models and real-time model interaction
- Graphical User Interfaces for easy execution of models
- Open database standards for model import and database development



Supported Models

RISS Model Toolkit meets the fidelity and validation objectives unique to each facility by supporting import and translation of many external models. Additional model interfaces can also be developed and integrated with the toolkit to address new customer requirements. Currently, supported models include:

- MODTRAN (atmospheric effects)
- PRISM (ground target signatures)
- MuSES Pro, RadThermIR (air, sea, ground targets)
- IRENE (ship targets and sea surface textures)
- SPIRITS (airborne target signatures)
- MOSART/TERTEM (weather, terrain thermal effects)
- SPF/SIRRM/SPURC (IR plume flowfield)



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RISS Database and Scenario Development

An interactive environment for developing, editing, scripting and visualizing test scenarios

RISS Scenario Builder is an interactive environment for constructing, editing, and scripting operational test scenarios. It provides graphical user interfaces for event sequencing, gaming area and event visualization, and test animation. RISS Scenario Builder offers a number of unique features, including:

- Interactive situation display for threat/object placement
- Graphical sequencer for interactively scripting and visualizing engagement events
- Scenario animation tool previews scripted test scenario events
- Interactive waypoint entry and trajectory generation
- Efficient interface for quickly modifying scenario gaming area parameters

Situation Display

An interactive situation display provides a graphical scenario-building and display capability. It allows interactive control of viewing geometry, symbology, and scenario components. Other features of the situation display include:

- Three-dimensional interactive view of the terrain database
- Player and site symbology and trajectories
- Eye point selection
- Controls for scaling, zooming, and rotation
- Visualization of the unit under test FOV

Scenario Animation

During the scenario development process, the scenario can be previewed using the scenario animator. This feature allows the operator to pre-run the test engagement and evaluate scenario events against the simulation timeline. The scenario gaming area, player motion vectors, and unit under test FOV are visualized in the situation display. Simulation clock controls are provided to stop, start, and pause the scenario.

Sequencer

An interactive scenario sequencer enables user to set up scenario parameters and script scenario events. Used in conjunction with the situation display, the sequencer provides an efficient environment for building, editing, and previewing test scenarios. Supported scenario construction capabilities include:

- Terrain database selection
- Specification of weather conditions and solar positioning
- Unit under test characterization
- Event creation and scheduling (e.g., player creation/activation, threat mode changes)
- Trajectory generation using COTS/GOTS models
- Player external control assignment

For more information, please contact:

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