



CIMSuite software is a system that allows decision makers to build infrastructure models on-the-fly. The user-centric system accommodates event planning, simulation and response.

CIMSuite: Critical Infrastructure Modeling

Providing Infrastructure owners and decision makers a tool for consequence management and planning.

Preparing for, preventing, and recovering from emergent events requires decision makers to understand and visualize the interconnectivity and dependency that each system has on one another. Failing to recognize network interactions can lead to independent decisions that have unforeseen, possibly catastrophic results.

The National Academy of Science recommended that DOE national laboratories improve simulation-design tools for modeling the protection, response, and recovery of energy

systems, including analyzing the vulnerabilities of interdependent infrastructures.

The Critical Infrastructure Modeling Suite (CIMSuite) is INL's response to this challenge, providing emergency decision makers with a powerful but easy-to-use tool enabling them to better prepare for and respond to both man-made and natural disasters.

Making Critical Connections

Commercial infrastructures have become increasingly automated and

electronically interconnected. In fact, most infrastructures are composed of a collection of networks each relying on the other to function properly.

The extent of these networks is not obvious until all/part of one fails, often triggering a cascade of events like falling dominos.

If a deliberate attack, natural disaster, or



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accidental system failure occurs at a power plant, for example, the result may be a complete or partial shutdown of not just the power plant, but other infrastructure systems like emergency services, communication and transportation systems across an entire region.

CIMSuite software provides the right information

During an incident, the only information a decision maker may need to know is that electrical power is on or off, not how the building is wired. CIMSuite software takes a systems command level approach to provide decision makers with the information they need without bogging them down with engineering-level detail.

CIMSuite software allows users to virtually create interrelationships and interdependencies between infrastructures. The software can then model the emergent system behaviors that develop when one or more parts within the system are damaged or destroyed.

With CIMSuite software, decision makers have an effective tool for predicting, planning and responding to emergent events.

User-focused Interface

At the heart of CIMSuite software is a highly user-centric interface that allows decision makers to build models on-the-fly from sparse information. An infrastructure model can begin with a simple map or aerial photo. Information can be added as it becomes available, creating an up-to-date view of dynamic environments as they unfold. External data sources such as web links or direct sensor feeds can supplement static data elements.

Developed with a simulation and gaming approach to modeling

After building the model, populating it with information and interactions, the user can unleash the power of sophisticated artificial intelligence code that allows a “gaming” approach to emergency management. The

planner can input different disaster scenarios and watch how events unfold. Planners can try out various response and prevention scenarios to gauge their effectiveness.

Like other simulation software, CIMSuite software enables users to run different scenarios showing the cascade of events that is likely to occur based on infrastructure relationships. However, through a variety of algorithmic treatments incorporating random and probabilistic simulations, CIMSuite software goes beyond the competition by incorporating the human response element into the physical infrastructure model.

Powerful, yet easy to use

CIMSuite software is easy to use (does not require a computer expert), flexible (level of detail is adjustable to planner needs), and can be used with nearly any operating system (Windows, LINUX, UNIX, OSX).

CIMSuite software gives decision makers the ability to:

- Model and visualize interdependencies
- Quickly construct infrastructure models using maps, satellite photos, and electronic images
- Drill down and extract/change properties of individual infrastructure elements
- Tie model behavior directly to live sensor input
- Link active information to simulated entities
- Visualize consequence and damage effects of events.

For more information

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CIMSuite software provides the simulation tools to analyze the vulnerabilities of interdependent infrastructures.

