

An example of Air Force supported SBIR/STTR technology that has been transitioned into an Air Force or other DoD system or subsystem or used by Air Force test ranges and facilities or maintenance depots.

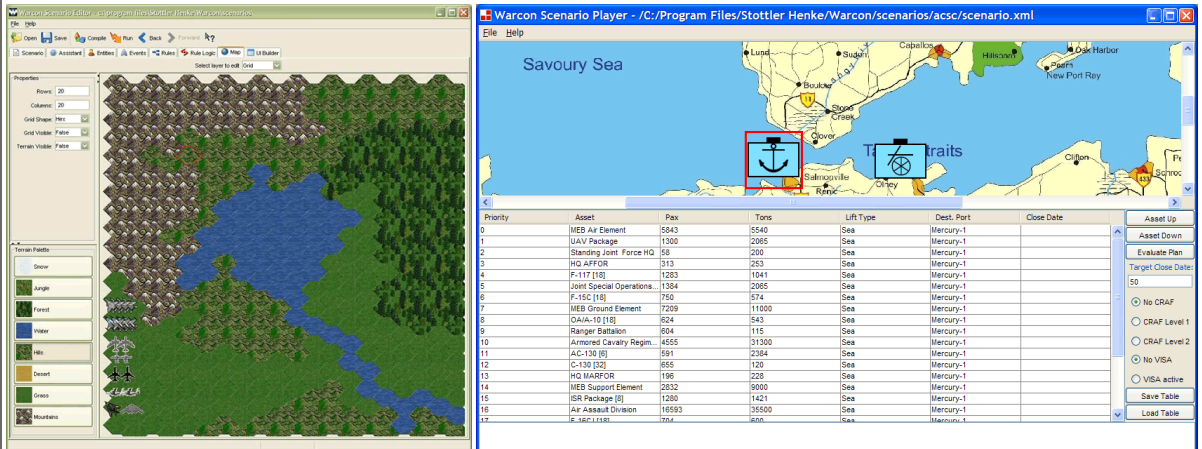
**SBIR Topic Number:**  
AF03-094

**SBIR Title:**  
Innovative Information System Technologies

**Contract Number:**  
FA8750-04-C-0085

**SBIR Company Name:**  
Stottler Henke Associates, Inc.,  
San Mateo, CA

**Technical Project Office:**  
AFRL Information Directorate, Rome, NY



**Left: Authoring tool.** Screenshot shows a “map builder” pane where the author can import a graphic and place assets down. **Right: The ACSC wargame** showing a map on the top pane, prioritized list of assets to the bottom left, and controls and designators for each asset on the bottom right.

## Advanced Wargame Simulation

- The Air Force needs wargame simulations that are easier to use and faster to construct for its professional military education curricula
- Stottler Henke developed WARCON (a WARgame CONstruction toolset for military simulations) which has a set of software authoring components that enables developers to quickly synthesize wargames for present-day Air Force curricula needs
- WARCON enables subject matter experts to fine tune entity behaviors using a simplified authoring interface
- WARCON’s features include visual authoring, a collaborative authoring assistant, and intelligent entity simulation
- WARCON is currently used at the Air Command and Staff College (ACSC) for teaching logistics mobility planning

## Air Force Requirement

An important aspect of the Air Force professional military education (PME) curricula is the use of simulations, some in the form of wargames, to emphasize learning objectives. Because warfare can change so quickly, the Air Force's curricula must change just as swiftly.

The requisite changes to curricula mandate that wargames be more easily used and faster to construct.

## SBIR Technology

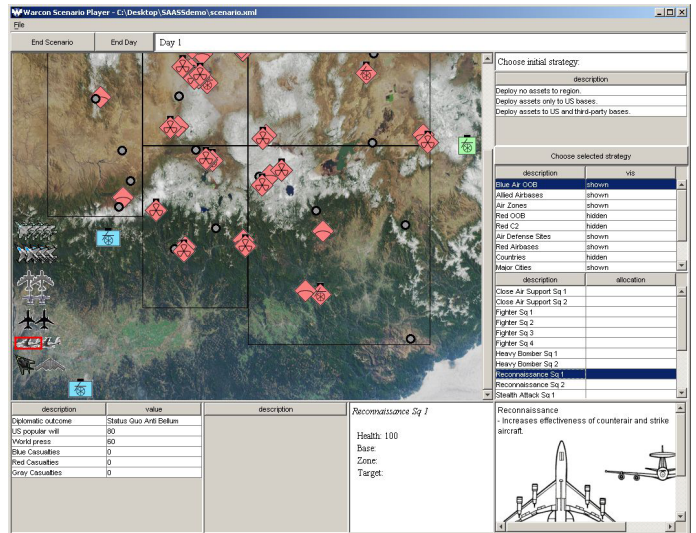
Stottler Henke developed WARCON: a WARgame CONstruction toolset for military simulations. Its commercial name is SimVentive. This toolset features a set of software authoring components that enables developers to quickly synthesize wargames for present-day Air Force strategies. There are three important features:

1. Visual authoring. A subject matter expert (SME) can author scenarios largely independent of a programmer. Typically, SMEs are not technical personnel; thus they must educate a programmer which introduces a significant lag in the development process. SMEs are empowered to construct their own scenarios.
2. Collaborative authoring assistant. This mixed-initiative component monitors the author and provides help and guidance to the user. Employing different modalities, the assistant will be able to conjure tutorials, pace the user through question-answer forms, and provide in-depth information.
3. Intelligent entity simulation. After a SME has created a scenario with initial conditions, what remains is the doctrinal behavior of all forces involved. Once completed, it is up to the WARCON system to make the simulation "come alive." The WARCON system features a simulation system capable of handling a complex scenario with several hundred entities. At the heart of the component is SimBionic, an AFRL-funded piece of software that will faithfully simulate strategies and automate the behavior of various forces. Students will be able to change doctrine easily and watch the effects.

## Transition Impact

WARCON is currently used at the Air Command and Staff College (ACSC), Air University, Maxwell AFB, Alabama for teaching logistics mobility planning. The wargame provides

an example of how a Joint Force Commander's (JFC) staff needs to understand the tradeoffs between requirements and prioritization of scarce lift and logistics assets. Students grapple with the challenges of limited lift capability while providing force flow (military capabilities) to meet JFC requirements in a notional scenario. This wargame demonstrates the importance of integrating logistics requirements with operational planning objectives.



**Figure 1: A coercive diplomacy wargame to teach instruments of national power.**

The WARCON toolset provides a way for a consolidated wargame curriculum that provides SMEs and developers methods to quickly synthesize tomorrow's wargames. Overall functionality can be increased through the use of tools that students themselves may use to explore possible scenarios, or test their own theories.

## Company Impact

The SBIR program is significant to Stottler Henke's product development, generating approximately \$400,000 in annual product sales the last few years.

Founded in 1988, Stottler Henke applies artificial intelligence and other advanced software technologies to solve problems that defy solution using traditional approaches.



# SBIR/STTR

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