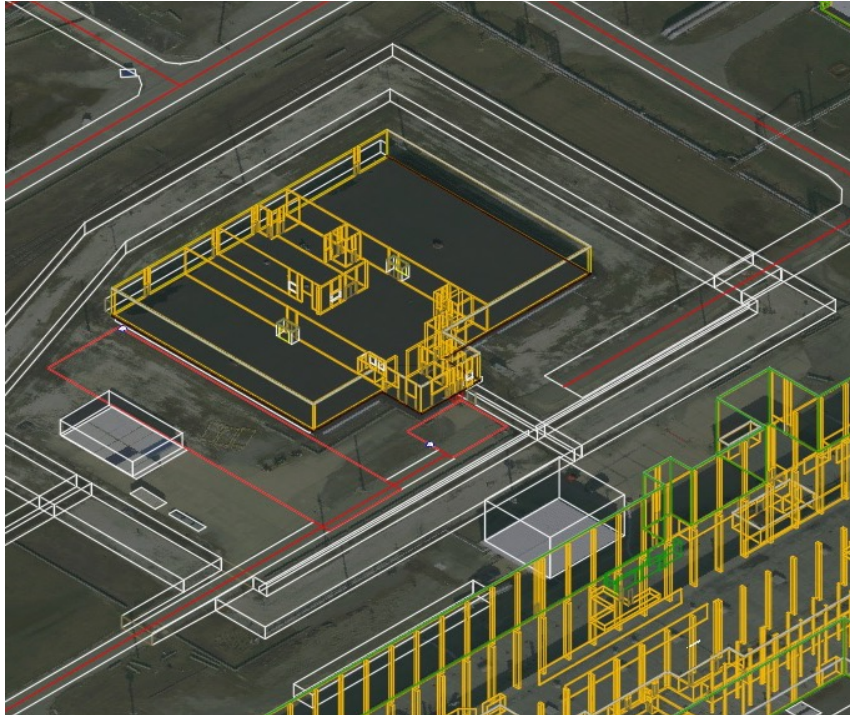


# The Role of Modeling and Simulation Tools for Security Exercise Design and Implementation



**Presented by:**  
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**Presented at**  
WINS Workshop on The Role of  
Security Exercises in Performance  
Testing a Guard Force  
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*<http://www.rhinocorps.com>*

# Overview



- Security Modeling and Simulation (MODSIM)
  - Computer-Based Tools for Analyzing Security Strategies
  - RhinoCorps Provides Simajin / Vanguard
- Security Exercises
  - Live Events for Exercising the People and Strategies
- Tabletop Exercises
  - Live Events for Exercising Leadership and Stakeholders

Complementary Methods for  
Security Analysis and Training

# Simulations



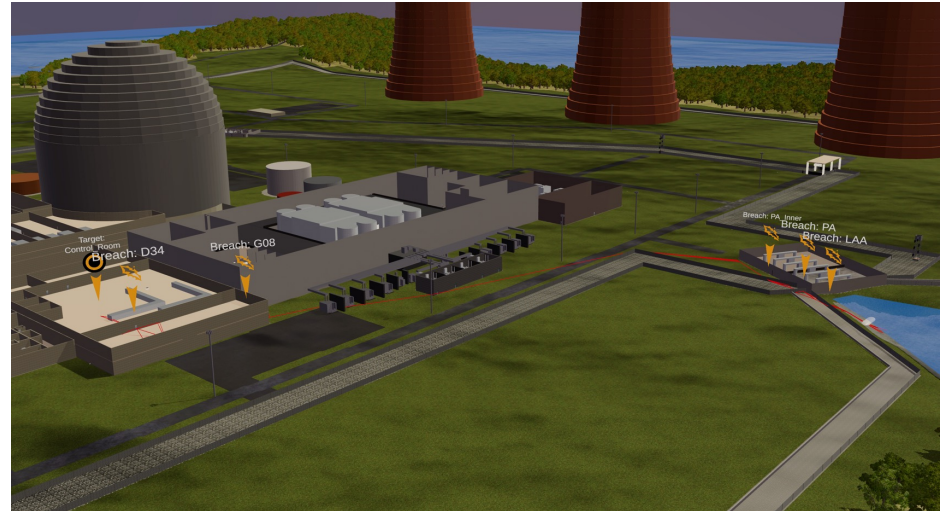
- It is important to note that all simulations (e.g., force-on-force exercises, human-in-the-loop, agent-based) approximate the real world and include assumptions about how the world and interactions between entities are represented
  - MODSIM (e.g., Simajin) balances fidelity and efficiency to provide a practical representation of combat in urban and industrial sites
  - Force-on-force exercises and limited scope performance testing are important tools that complement the use of combat simulation

The crux is often knowing what the “right” amount of detail is for the representation of models and processes within a simulation

# Security MODSIM



- Support Analysis of Physical Protection Strategy
- Used to Evaluate System Effectiveness
- Simulated Attacks Against a Facility and Protection Strategy
- Simulation-Enhanced Tabletop Exercises Evaluate Leadership
- Provide Platform for Integrated Exercises Across Roles



# Security Exercises

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- Provide Valuable Training and Evaluation of Security Forces
- Includes Full and Limited-Scope Exercises
- Can Integrate Emergency Management and Other Stakeholders
- Are Themselves a Form of Simulation
- Represent an Important Accreditation for MODSIM

# Analysis with Security MODSIM

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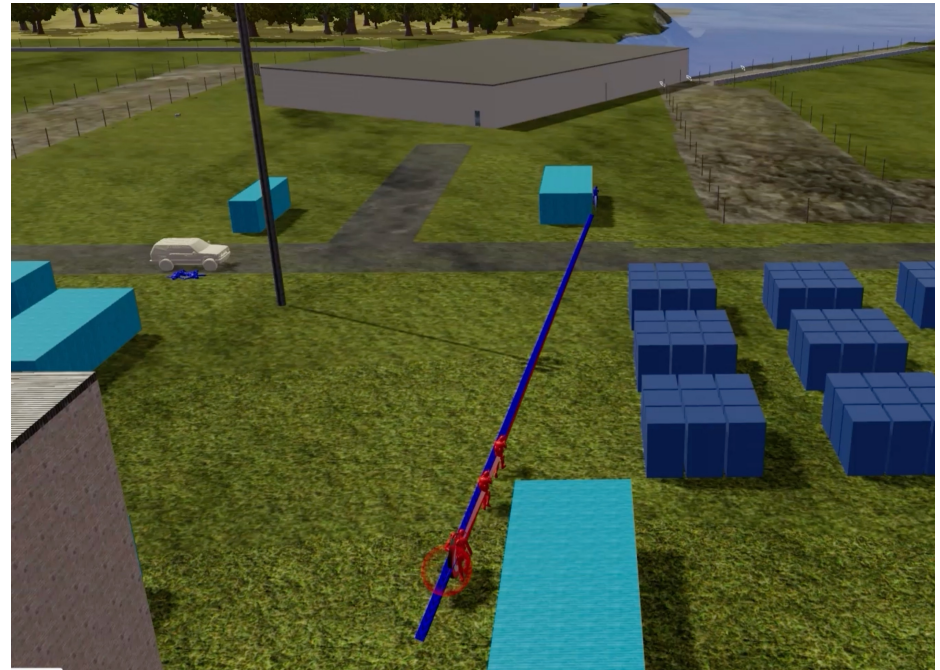


- MODSIM Attempts to Mirror Site Security
  - Create 3D Model of the Site and Facilities
  - Create Attack Scenarios
  - Model Defensive Strategy
- Thousands of Simulations Executed
  - Monte Carlo Simulation
  - Represents Defense Response Plan
  - Accredited from Force-on-Force Exercises
  - Provides System Effectiveness Measurement

# Pre-Exercise



- Planning Exercises
  - Scenario Selection for Live Exercises
  - Virtual Facility Tour for Planning
  - Develop Scenario Brief for Exercise Participants
- Site Familiarization



# Post-Exercise



- Visualizing After Action from Exercise Data Capture
  - Instrumented Weapon Systems
  - Capture Position and Weapon Fire
  - Capture Near Misses and Hits
- Informs Modeling as Strategy Evolves
- Valuable Source for Performance Data

# Tabletop Exercises

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- Subject Matter Experts and Stakeholders
  - Controllers Organize and Manage Interactions
  - Each Side Participates Independently
- Uses Mockup of Facility
  - Paper Maps or Mockup of Site
  - Game Pieces and Model Vehicles
  - Controllers Roll Dice to Decide Engagements
  - Events Recorded Manually

# Simulation-Enhanced Tabletops

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- Simulation Represents the World
  - Adjudicates Engagements
  - Provides 2D / 3D View of the World
- Focus on Leadership Roles
  - Allows Leader to Direct Resources
  - Uses Automated Behavior of Players in Simulation
  - Orders Operate at a High-Level
- Leverages Prior Modeling Efforts

# Designed for Leadership Roles



The graphical interface was specially designed to work with a touchscreen display so that users can make decisions and give orders with minimal interaction.

# Stakeholder Integration

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- Tabletops Can Integrate Multiple Roles
  - Emergency Response
  - Safety
  - Plant Operations

# Tabletop Benefits with MODSIM

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- Does Not Require Extra People to Conduct Exercise
- Increases Frequency of Training
  - Live Exercises Are Expensive and Time Consuming
- Explore Emerging Threats and Technologies
  - Can Be Difficult to Include in Live Exercises
- Provides Progression of Increasing Challenge
  - From Simulations to Live Exercises
  - Prepare People for the Higher Stakes in a Live Exercise

# Simulation as a Framework

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- Simulation-Enhanced Tabletop Exercises
- Live and Virtual Integration
- CAS Simulator Integration
- Weapon Skill Training Systems

Important to Have Consistent  
Facility Representation

Thank You

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Questions and Comments