



UT-Austin Sensible Agents Participation in CoAX 2002

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Coalition Force Command requests Adaptive Agent Organizations (AAO) services through IX process panels

AAO evaluates potential additional partners for monitoring Agadez sub, preferring Arabello based on available sensor grid

Adaptive Agent Organizations (AAO)

Goal: Monitor Submarine Position (Agadez)
 Resource Type: ASW Sensor
 Organizational Specification: *

Resources with Max Utility
 Status: Results shown below
 ASW Sensor List
 Utility (0-1) Sensor
 0.5 Arabello Sensor Grid
 0.4 Australian Off-Ship Sensor
 0.3 USA Sensor
 0.2 Intelligence feed
 0.0 Australian On-Ship Sensor

Org. Configurations with Max Utility
 Status: Results shown below
 Decision-Making Control:
 Consensus Org (CFC, US, <Sensor Type>)
 Information-Sharing Network:
 CFC, US, <Sensor Type>

Selected Max Utility Organization Configuration with Members
 Status: Results shown below
 Decision-Making Control:
 Consensus Org (CFC, US, Arabello Sensor Grid)

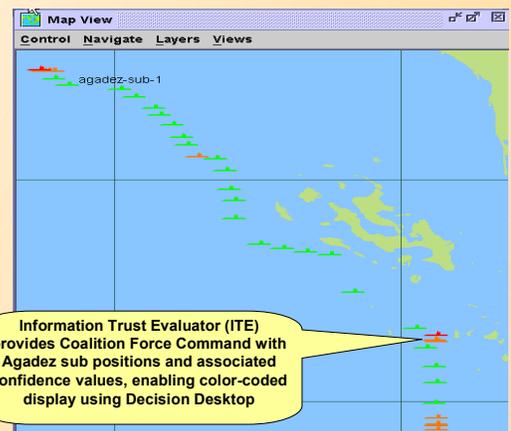
AAO recommends "consensus" as best organizational structure to accomplish monitoring task

Description:

- Sensible Agents provides advanced software agent capabilities designed to help the warfighter manage uncertainty and collaborate with others to accomplish goals:
 - Adaptive Agent Organizations

For accomplishing a given goal, finds and evaluates potential partners and determines the "best" organizational configuration among selected partners based on the current situation
 - Trustworthiness Evaluation

Manages the inherent uncertainty associated with assessing the situational picture by asserting the perceived trustworthiness of information sources and their data



Results:

- Demonstrated Adaptive Agent Organizations in the CoAX scenario:

Helped Coalition Force Command manage resources for monitoring the Agadez submarine by identifying Arabello as a preferred new partner and recommending a consensus organization composed of Arabello and current coalition members
- Demonstrated Trustworthiness Evaluation in the CoAX scenario:

Assisted the process of managing incoming information about the Agadez sub by maintaining sensor reputations and determining confidence in sub positions

Future:

- Applying Sensible Agent capabilities to aid decision-makers in military domains:
 - Dynamically adapting organizational structure and filtering information inputs to reduce decision-maker cognitive load
 - Managing intelligent agents on the battlefield
 - Improving early warning in biosurveillance activities, increasing potential for early response to public health threats and chem-bio incidents
- Conducting experiments to better understand the role of agent-based solutions for solving complex problems:
 - Determining the problem classes against which agent-based solutions offer superior performance

