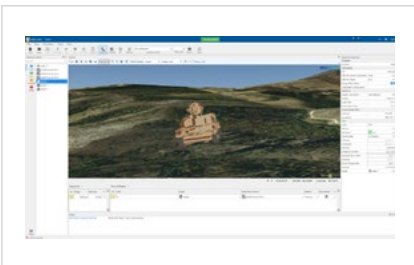


# JETS Graphical User Interface

## For Mercury Advanced Radar Environment Simulators (ARES)

Generate real-world flight scenarios for radar testing in minutes

- User-friendly software interface with 20+ years proven performance
- Customizable data-logging rates and data parameters
- Autocalibration for lab, open range, and other SUT testing environments
- Resource library to save scenarios, platform/radar settings
- Built-in test to help troubleshoot and identify hardware issues
- Windows compatible



**JETS (Jam Editor and Threat Simulator)** is a Windows-based software interface used to configure, test, and visualize real-world mission scenarios on Mercury Advanced Radar Environment Simulators (ARES).

### HIGHLIGHTS

- Real-time data display to dynamically observe radar performance and make instant adjustments during live emulation
- Built-in test (BIT) feature for thorough system checks and malfunctioning hardware identification for reliable and accurate emulation
- Data-logging rates and data parameters configuration to streamline data analysis and reduce file size
- Ability to import target and other parameters from a database
- Configure Doppler, range delay, pulse modulations for moving targets, atmospheric loss, ground and sea clutter, turbulence, weather and target reflections, RCS, glint, scintillation, multipath, target subscatters, electronic countermeasure techniques, and other simulation options to comprehensively test air-to-air, air-to-ground, and surface-to-air radar modes
- Define synthetic aperture radar (SAR) target locations and scene parameters on ARES-SAR systems to test ground moving targets (GMT) radar modes

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### ARES-SAR JETS GRAPHICAL USER INTERFACE (GUI)

Compatible with any Windows computer, the ARES-SAR software interface allows users to manage scenario resources, set scenario parameters, control a simulation, and view or export real-time data.

#### Define ARES-SAR Scenario Properties

Scenario Properties	
<b>Playback</b>	
Duration	30s
<b>Simulation</b>	
PRI	200 $\mu$ s
PDB Bin Count Calculation	Auto
PDB Bin Count	32 K
Range Attenuation	<input checked="" type="checkbox"/>
Integrated Configuration	<input type="checkbox"/>
<b>Aperture</b>	
Length Calculation	User Defined
Length	1,000 m
Lead Time	10 s
Overcollect Time	10 s
<b>Scene Center (SC)</b>	
Latitude	38.2864 °
Longitude	-76.4143 °
<b>SUT</b>	
Label	SUT
Vehicle	
Affiliation	F SUT
Coordinates	SC Relative
Latitude	38.3562 °
Longitude	-76.3756 °
Altitude	10,000 ft
Range (SC to MA)	4.32 nmi
Azimuth (SC to MA)	25.0 °
Heading	180.0 °
Squint Angle (MA)	25.0 °
Velocity	97.19 kn
Radar	radar 1

Specify simulation parameters including projection data base coefficient (PDB) set size

Auto calculate or specify SAR Aperture length

Specify scene center location

Specify synthetic aperture relative to image center

Specify relevant radar parameters

#### Define Radar Parameters

Radar	
Mode 3	
<b>Target Detection</b>	
Reference Range:	100.00 nmi
Reference Power:	-10.0 dBm
Reference RCS:	0.0 dBsm
<b>RF</b>	
Transmit Frequency:	7000.000 MHz
Bandwidth:	250 MHz
<b>Pixel Count</b>	
Range:	1000
Cross-range:	1000
<b>Pixel Resolution</b>	
Range:	1 m
Cross-range:	1 m

Specify ARES-SAR return power and target detection parameters

Specify relevant radar parameters.

Define SAR scene resolution and image size

### Define Scattering Centers for Automatic Target Recognition (ATR) Testing

Define target angle of arrival (AOA)

Import and edit scattering center database parameters

Define scattering centers positional data for overall target return

	X (m)	Y (m)	Z (m)	RCS (dBsm)
0	0	0	0	1
1	0	0	1	5
2	0	1	0	0
3	0	1	1	0
4	1	0	0	5
5	1	0	1	2
6	1	1	0	5
7	1	1	1	4
8	0	0	2	6
9	0	2	0	0
10	0	2	2	4
11	2	0	0	0
12	2	0	2	5

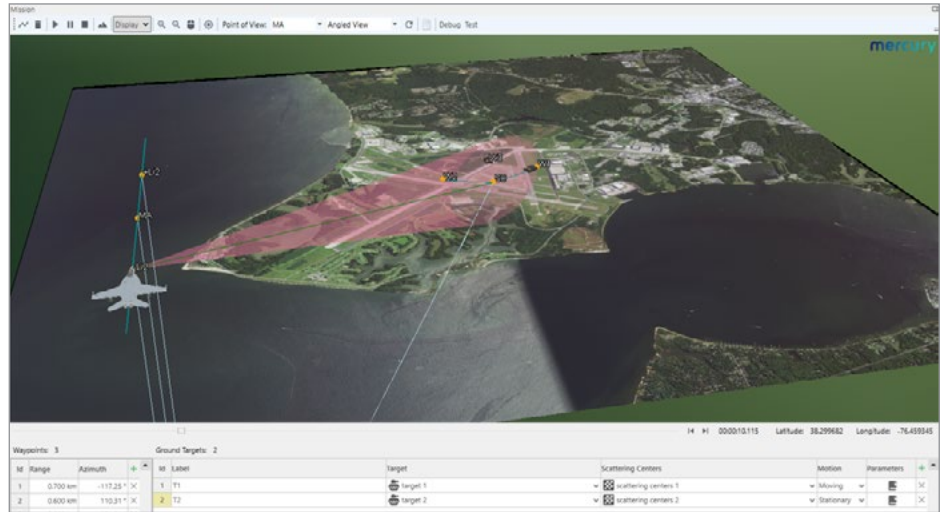
### Define Ground Target Trajectory

Display target trajectory maneuvers, duration, and kinematics

Id	Range	Azimuth	Alt	Elev	Target	Material	Resolution
1	4000.000	-122.000	0.000	0.000	Scattering Centers	None	None

**View Real-Time Simulation**

View simulation settings including terrain, dimensions, location, targets, aperture and other runtime parameters



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