

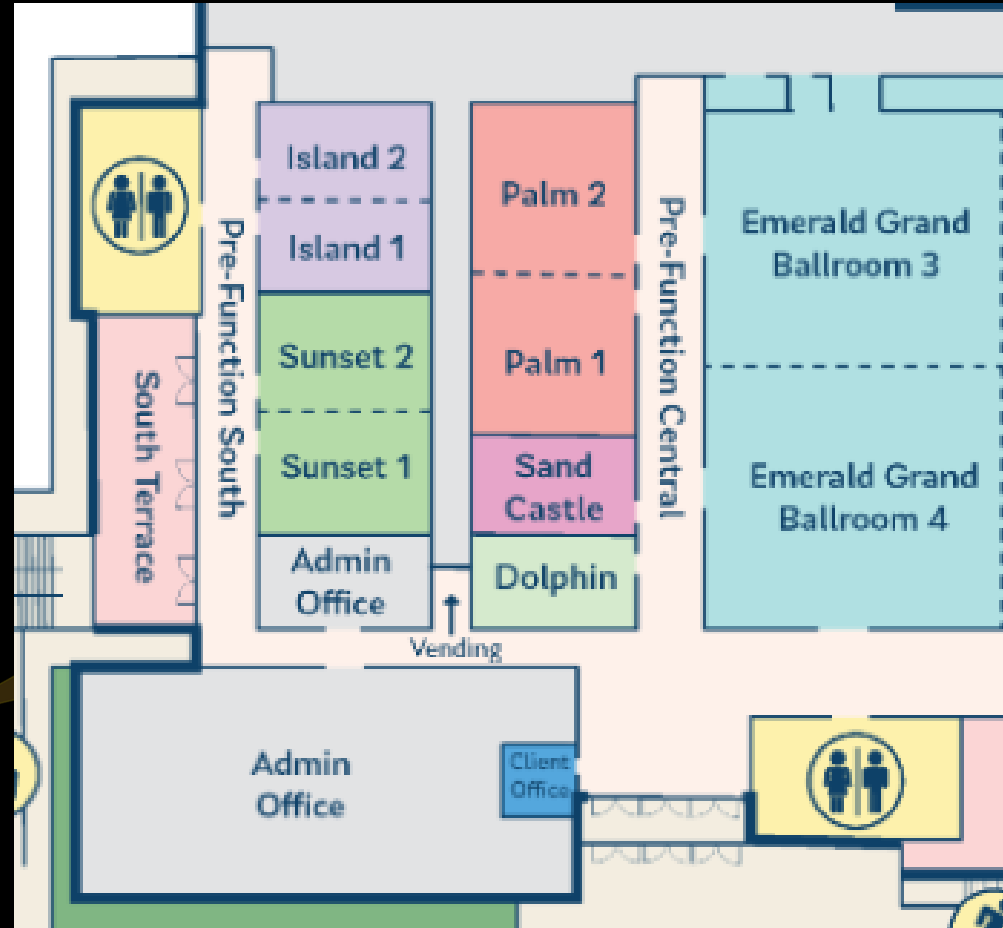


MUG 2025



# Admin

- + No Outside Food or beverage
- + Tables on the South Terrace





# Schedule

		MACE Scenario Development (Tyler)	Joint Fires/CAS Focus (Steve)	Mission Planning, Analysis & Rehearsal (MPAR) (Greg)	EW Focus (Fred)	Developer Courses (Nick)	Meeting Rm (Gary/Cord)	MACE Scenario Development (Jeremy)
ROOM		Ballroom 3	Island I/II	Palm 2	Sunset II	Palm 1	Dolphin	Sunset I
Tuesday 22-Apr-25	0830-0900	Inprocessing/Configure MACE for Classes (All)						
	0900-1030	MACE/ARMOR Overview, Roadmap & Setup (Gary) FAAC introduction						
	1030-1130	Guest Speakers (160th, USAFA)						
	1130-1300	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch
	1300-1430	MSD-101: MACE / ARMOR Basics (Tyler/Hunter)	JF-101: MACE / ARMOR Basics (Steve/Mateo)	MPAR-101: MACE/ARMOR Basics (Greg/Jason)	EW-101: MACE / ARMOR Basics (Fred)	Dev-101: API Overview (Nick)	BSI Meeting Room	ARMOR-101: Overview & Settings (Jon/Lennart)
	1430-1600	MSD-102: Mission Building/Execution (Tyler/Hunter)	JF-102: Mission Building/Execution (Steve/Mateo)	MPAR-102: MACE/ARMOR IADS Mission Building Mission Rehearsal Toolbox (Greg/Jon)	EW-102: EW (EA, ES) Mission Building/Execution (Fred/Jason)	Dev-102: Setting Up Dev Environment (Nick)	BSI Meeting Room	Open

<https://www.bssim.com/mug/>



# MUG Data Drives

ARMOR_Terrain	4/2/2025 11:12 AM	File folder
BSI_Videos	4/13/2025 8:07 AM	File folder
Class_Data	4/13/2025 8:07 AM	File folder
Documentation	4/13/2025 8:07 AM	File folder
Elevation_Data	4/2/2025 11:38 AM	File folder
Installers	4/20/2025 8:45 PM	File folder
Missions	4/2/2025 11:45 AM	File folder
Sectional FAA VFR	4/13/2025 8:08 AM	File folder
System Volume Information	4/5/2025 4:31 PM	File folder
Terrain_Generation_Files	4/13/2025 9:34 AM	File folder
USA_4Meter	4/2/2025 1:21 PM	File folder



# MACE 2025R1

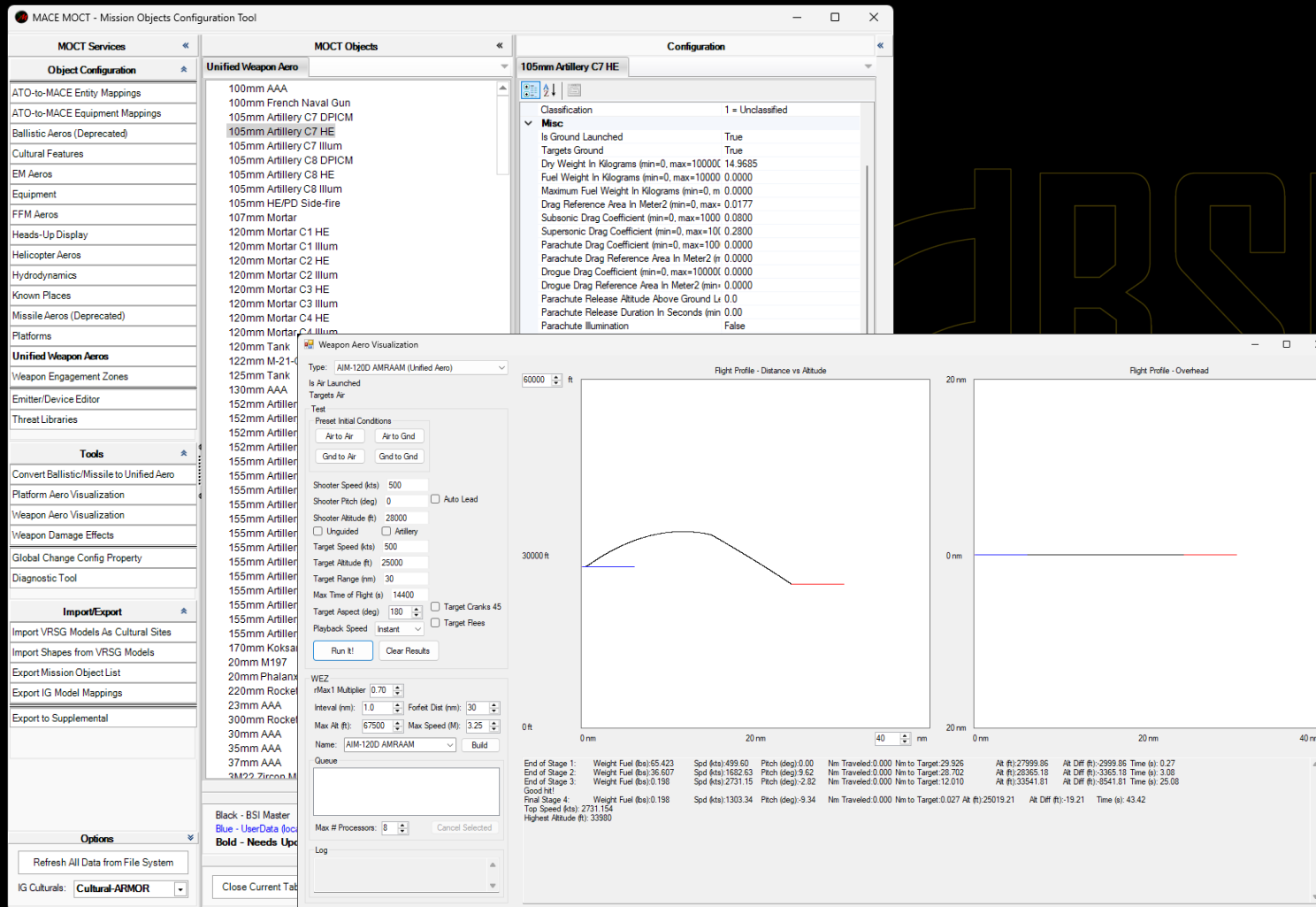
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# Updated Platform Icons



# Unified Weapon Aero



- + Deprecated Ballistic & Missile Aeros, replaced by Unified Weapon Aero
- + All Metric Units
- + Code Consolidation
- + Easier to Improve

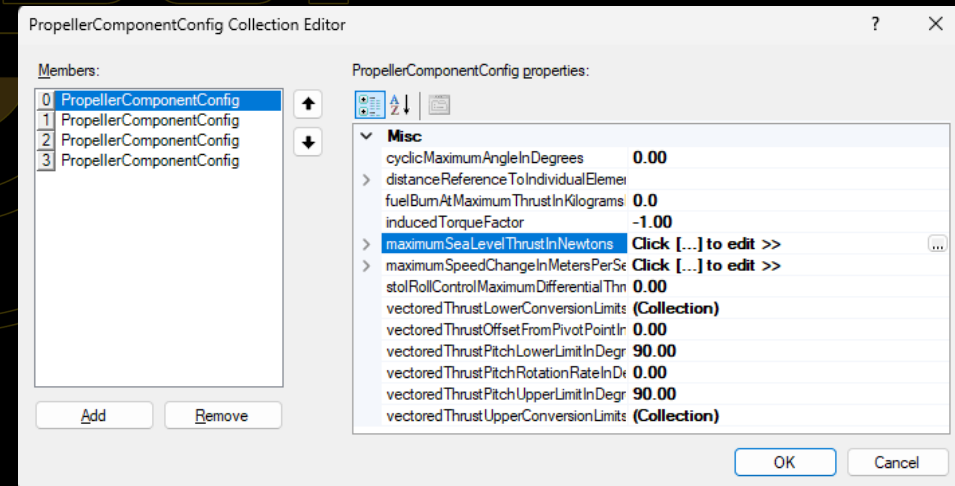
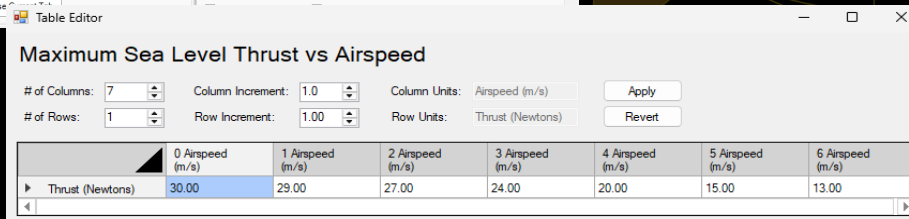
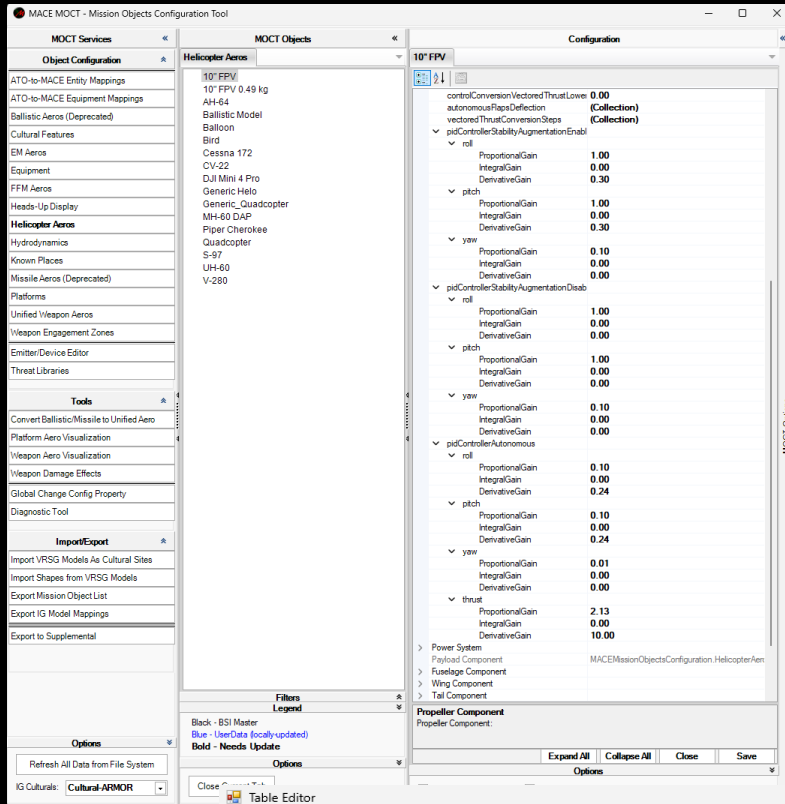
Your existing  
ballistic/missile aeros  
will continue to work!





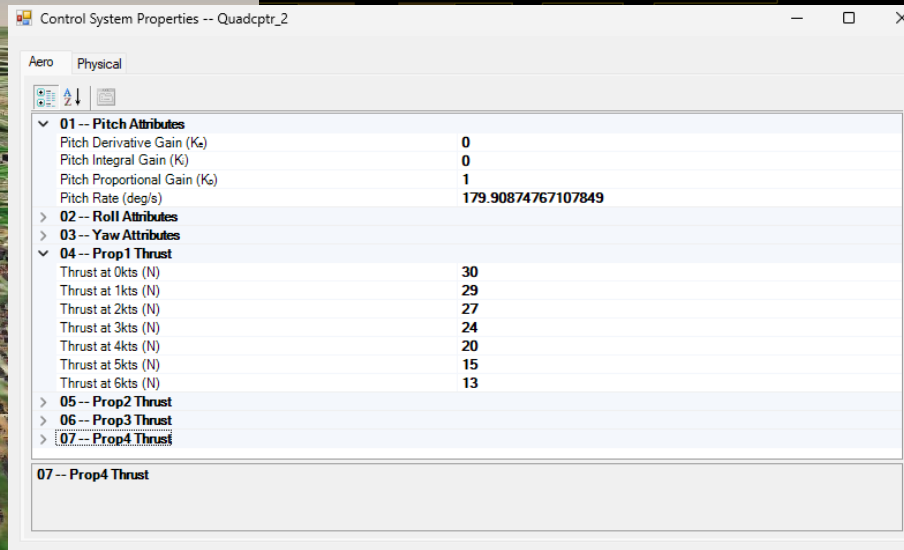
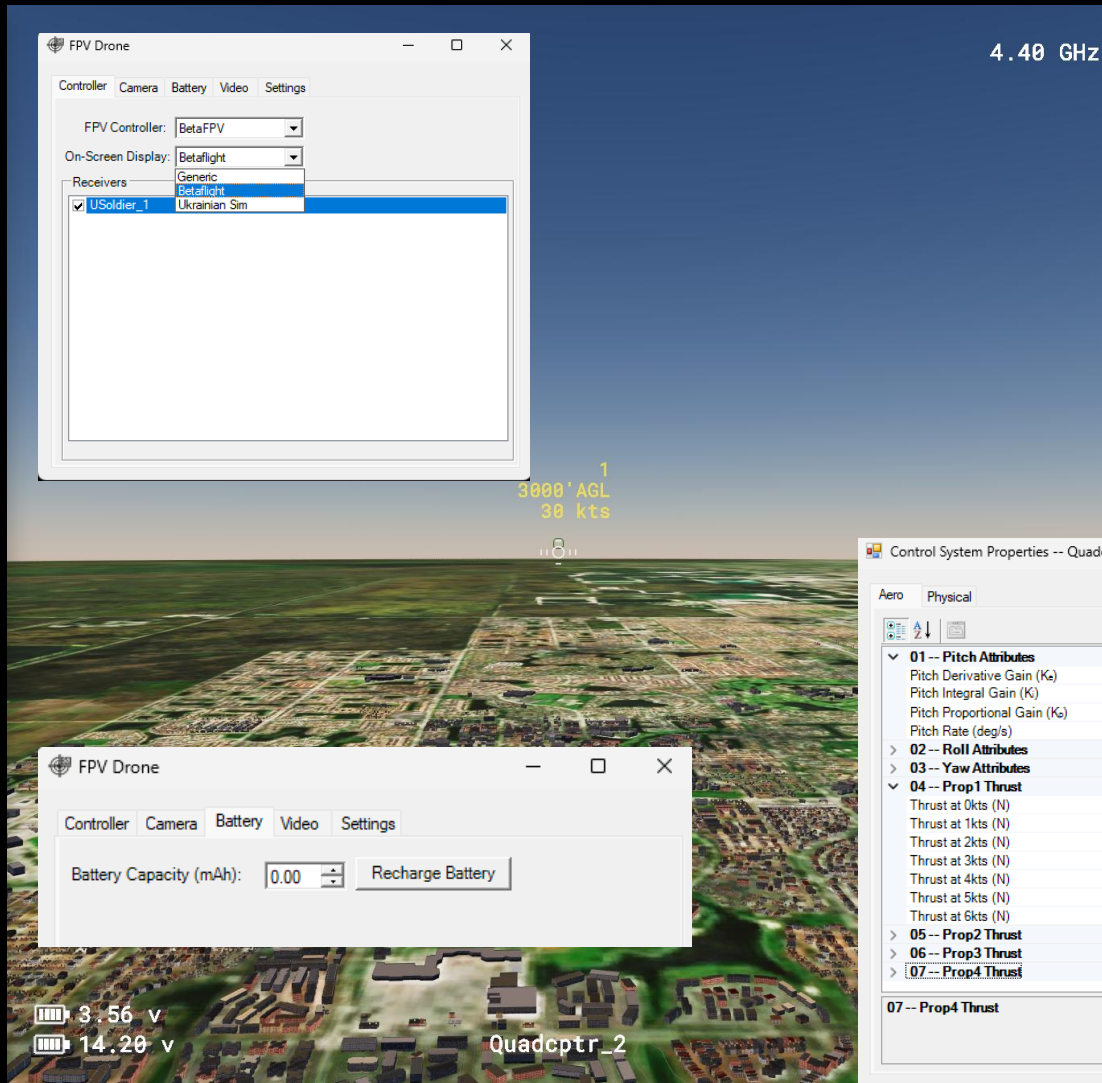
# Quadcopter Flight Model

- + Quadcopter virtual and constructive flight behavior can be customized using PID gains
- + Two available virtual flight modes, Stability Augmentation Enabled and Disabled
- + Propeller specific thrust profiles



# FPV Plugin

- + Capabilities to change PID flight gains and propeller thrust curves during mission runtime
- + Different FPV Controller and On-Screen Display options
- + Battery thrust modelling
- + RF propagation modelling for controller



# Mission Builder

- + Platform Descriptions and Images
- + Equipment Descriptions

Name	Auto / Enabled	Weapon
100mm AAA	<input checked="" type="checkbox"/>	AGM-65 MAVERICK (Entity 1010)
100mm AAA Naval	<input checked="" type="checkbox"/>	AGM-65 MAVERICK (Entity 1011)
100mm French		
100mm Tank		
105mm DPICM		
105mm HE		
105mm HE Ra		
105mm HE/PC		
105mm HE/PP		
105mm Illum		
105mm IR Illum		
105mm Tank		
105mm WP		
107mm Mortar		

100mm AAA Naval  
Air Weapon  
Guidance: Unguided  
Description: The 100mm naval anti-aircraft artillery system represented a crucial component of naval air defense during the mid to late 20th century. Most notably deployed on various destroyer and cruiser classes, these dual-purpose guns could engage both surface and aerial targets effectively. The naval variant typically achieved a rate of fire of 15-20 rounds per minute, with an effective ceiling of approximately 15,000 meters against aerial targets. The system incorporated advanced fire control radar and stabilization mechanisms to maintain accuracy despite ship movement. One of the most prominent examples was the Soviet AK-100 system, which saw widespread deployment across multiple vessel classes and continued service well into the modern era. These weapons proved particularly valuable in providing medium-range air defense coverage for naval task forces.

Flare (MJU-7)





# Shape Tools and ACO Export

The image displays two software interfaces. The left interface is the ShapeDrawingPlugin, which includes an 'Export' panel with drawing tools and an 'Edit Shape' dialog box. The 'Edit Shape' dialog shows properties for a shape named 'Orbit', including 3D properties, ACO settings, appearance, dimensions, location, and miscellaneous information. The right interface is the MACE software, showing a map view with a red oval shape overlaid. The MACE interface includes a 'MACE \*\*\* UNCLASSIFIED \*\*\* - \* PRIMARY \*' title bar and a 'Tools' menu with options like 'AGL', 'Target', 'Draw', and 'Erase'. The 'Entity Controls' panel shows settings for 'RCS: 5.00000', 'Altitude: 10000', and 'Color By Radar Type'. The 'Analysis' panel shows 'Mask Analysis' settings. The 'View' panel shows 'Style' settings. The 'Clock' at the bottom indicates '17:00:00 Apr 21'.

**ShapeDrawingPlugin**

**Export**

**Edit Shape**

**3D Properties**

- Lower Altitude (ft): 1000 ft
- Lower Altitude Datum: MSL
- Upper Altitude (ft): 15000 ft
- Upper Altitude Datum: MSL

**ACO**

- ACO Effectiveness: BRFL
- ACO Shape: ORBIT
- ACO Type: ROZ
- ACO Usage: AAR
- Control Authority: 123.0 MHz
- Control Frequency: 4/21/2025 10:08 AM
- From: 4/22/2025 10:08 AM
- To: 4/22/2025 10:08 AM
- Use in ACO: True

**Appearance**

- FillColor: 127, 255, 0, 0
- Opacity: 0.50
- Stroke Color: Red
- StrokeStyle: Solid
- StrokeWidth: 2

**Dimensions**

- Length (nm): 11.93 nm
- Width (nm): 3.60 nm

**Location**

- Offset: Center
- Point 1: Latitude: 43° 37' 17.28" N Longitude: 43° 36' 35.40" N Longitude
- Point 2: Latitude: 43° 36' 35.40" N Longitude

**Misc**

- Name: Orbit

**ACO Effectiveness**

**Vertices**

Name	Latitude	Longitude
	43.649629357341468	-116.39536404586821
	43.641588613785395	-116.20427457785635
	43.641596273874846	-116.2044677837945
	43.640871478491889	-116.19734496246694
	43.639262189493465	-116.19050458952793
	43.636817372714283	-116.18415476615176
	43.633611409130587	-116.17848860799349
	43.6297418231752	-116.17367835581088
	43.625326305874466	-116.16987013271141
	43.620499124907781	-116.16717950843659
	43.61540703235503	-116.16568800494156
	43.6102047959932	-116.16544064736159
	43.605050491090758	-116.16644463138576
	43.600100696434453	-116.16866914324189
	43.595505740661864	-116.17204633310186
	43.591405142861426	-116.17647340785965
	43.5879233849751	-116.18181577594802
	43.585166143055268	-116.18791114606817
	43.5832170902517	-116.19457445419987
	43.582135366996837	-116.20160346969742
	43.581953793748433	-116.20878491218366
	43.5818463468682	-116.2089750808058
	43.589887090424284	-116.40006517738843



# ATO Export

The screenshot displays the MACE Script Editor interface, which is used for creating and managing mission scripts. The main window shows a map of the United States with various mission points and routes. The 'Export' menu is open, showing options like 'Air Tasking Order (.ato)', 'Common Route (.crd)', 'Cultural Shapes (.shp)', 'EOB 318 (.bt)', 'EOB PCI (.pci)', 'Group Template (.xml)', 'GPS Exchange File (.gpx)', 'MACE Route(s) (.xml)', 'Master Entity List (.csv)', 'Mission as MSOL (.msd)', 'Mission as XML (.xml)', 'Mission Roster (.bt)', 'Mission w/External Entities', 'Nav Point Entities (.xml)', 'Scripts (.xml)', and 'VRSG Cultural (.clt)'. The 'MACE Script Editor' window is open, showing a list of scripts with columns for Index, Name, Time Trigger, Triggers Enabled, Executing, and Last Time Executed. The 'SELECTED SCRIPT' window shows the configuration for 'Refuel FALCON11', including the trigger 'Platform FALCON11 arrival of 20:00:00 Mar 27, 2025 to EXON11' and the action 'Set refueler of FALCON11 to EXON11'. The 'SCRIPT COMPLETION' window shows the status of the script execution. The 'Properties' window shows the configuration for the 'FALCON11' descriptor, including the 'Descriptor Count: 2' and the 'Engagement Posture' set to 'Normal'. The 'Descriptor Editor for FALCON11' window shows the configuration for the 'FALCON11' descriptor, including the 'Command: GenericEngagement' and the 'TASKUNIT' set to '51SQDN'.

- + Create a route with loiters to setup missions.
- + Script trigger time and set refueler to assign refueling.
- + Use Descriptors to further refine

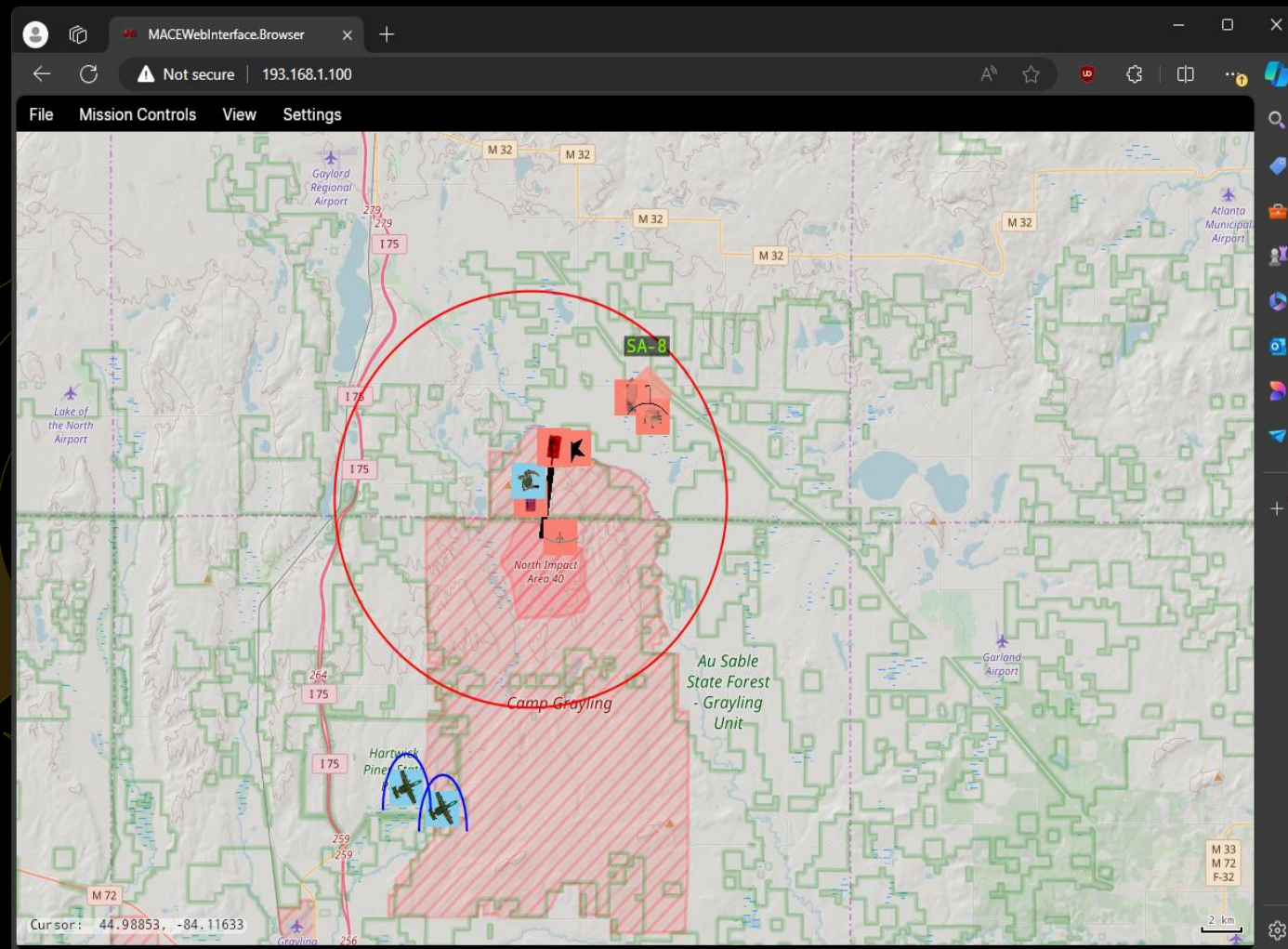
# Additional MACE Improvements

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- + Helicopter Formation Improvements
- + Autonomous Dropped Munitions (from Quadcopters)
- + Quickly manually create J3 tracks from the map.
- + MARC for Surface Vessels
- + RF Noise/Clutter from Sea States
- + Satellite improvements
  - + [YouTube Video](#)
- + Many, many, more...

# Web UI

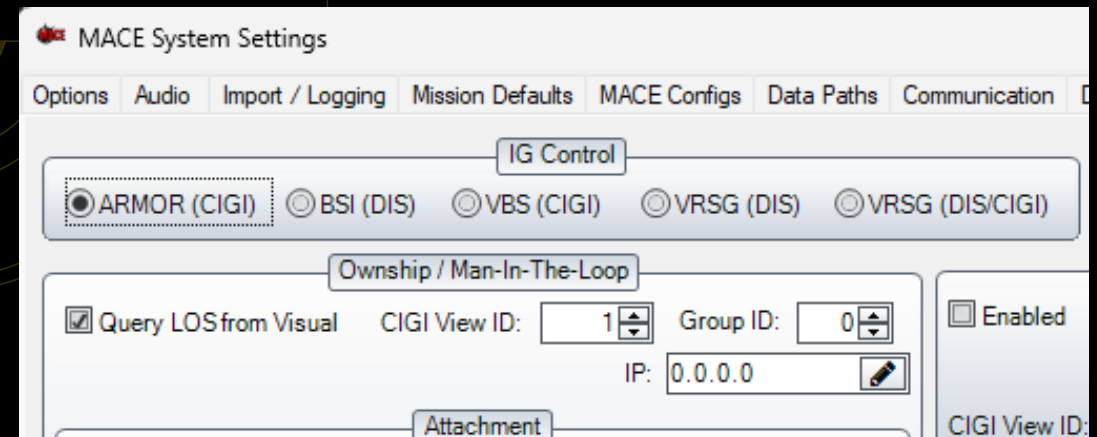
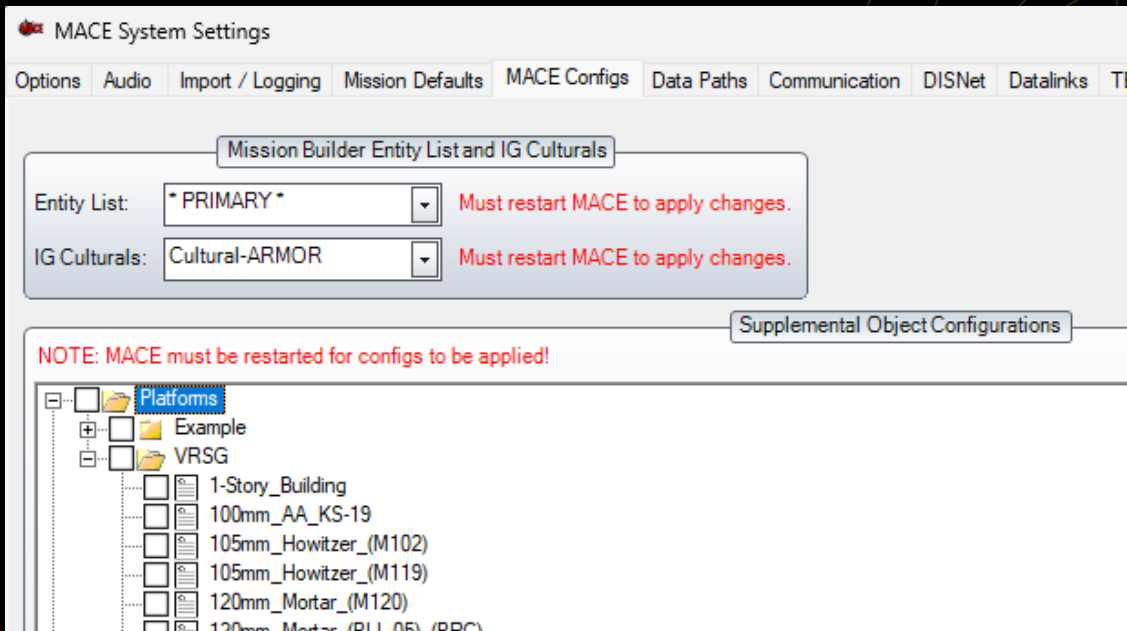
- + Draw Platforms / Weapons / Aggregates / Datalinks / WEZs / Laser Designations
- + Basic entity control.
- + Configure weapons.
- + Set platform properties.
- + 9-Line
- + 5-Line
- + CFF





# Default to ARMOR IG

- + Defaulted cultural list to “Cultural-ARMOR”
- + Defaulted IG Control to “ARMOR IG”
- + Base Configs are now synchronized with ARMOR.
- + Use Supplementals for VRSG

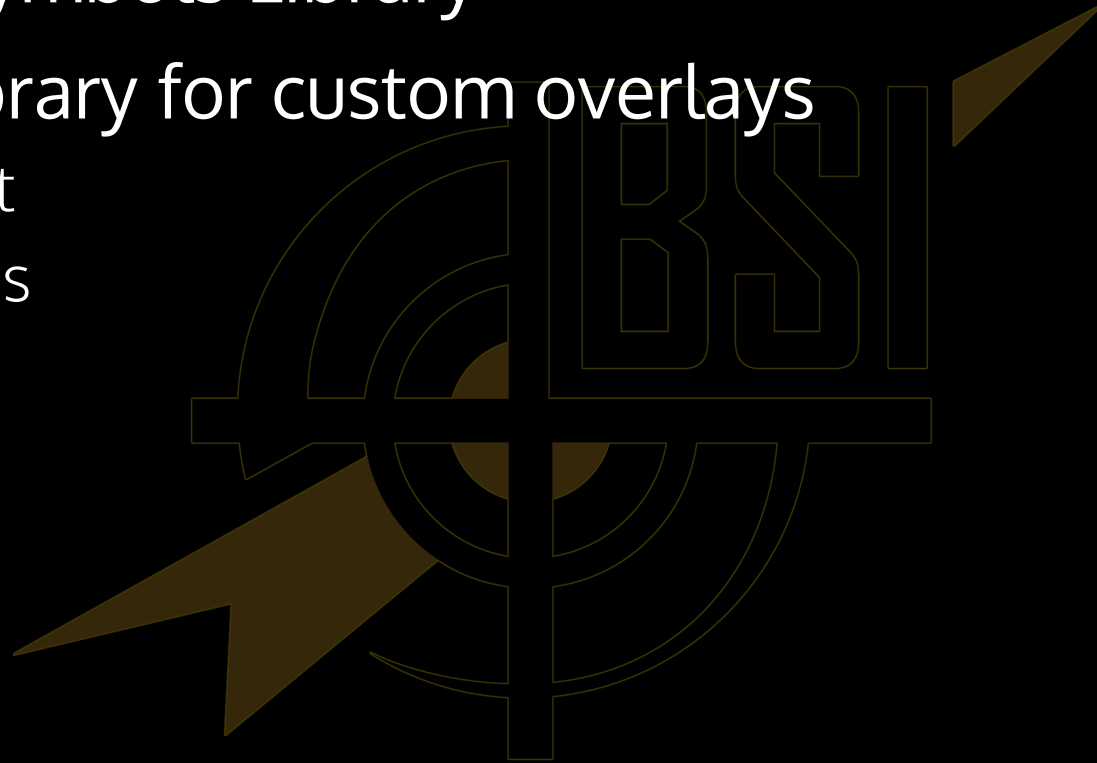




# API Enhancements

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- + MIL-STD-2525 Symbols Library
- + CIGI Symbols Library for custom overlays
  - + CIGI v4 compliant
  - + Supports textures

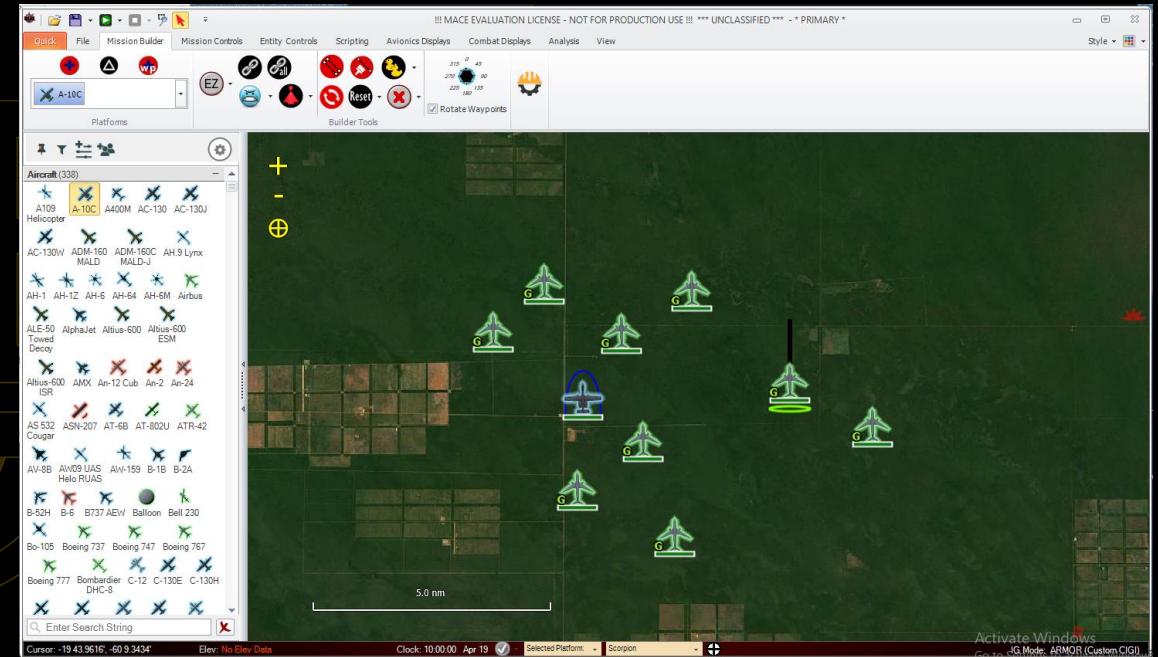
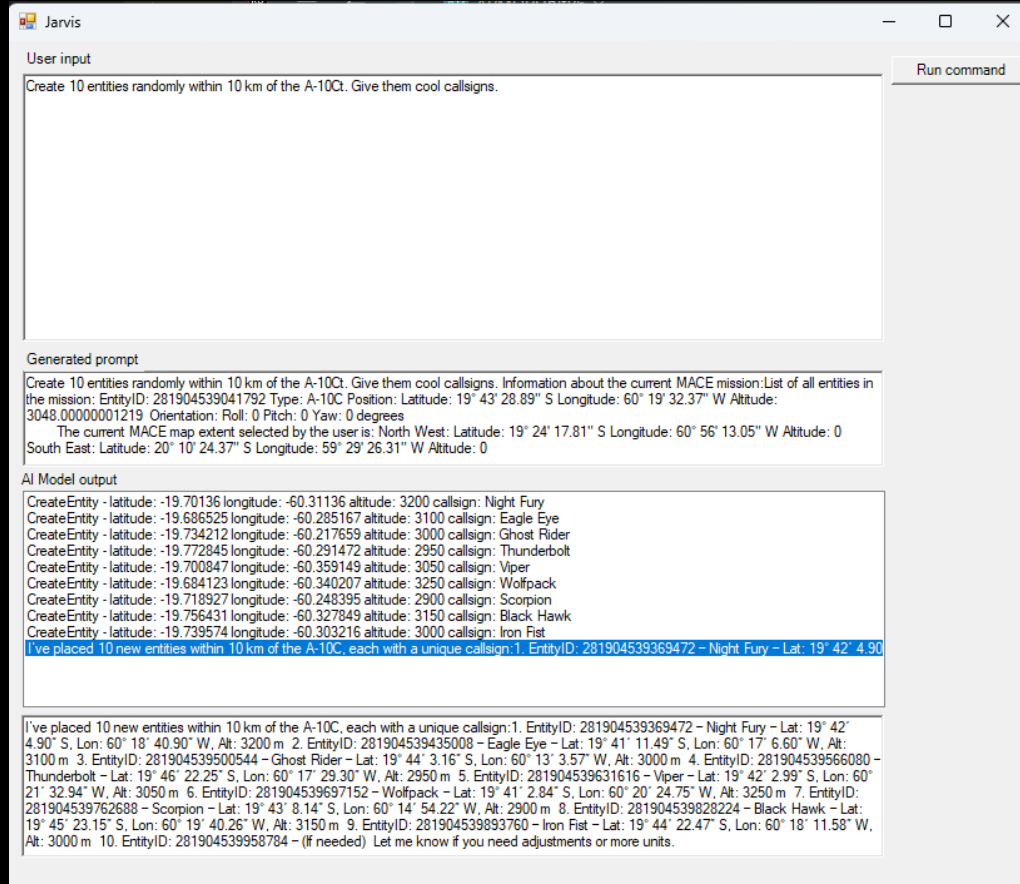


# Code Base

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- + Updated MACE to .NET 4.8.1
  - + New plugins will need to target .NET 4.8.1
  - + Eyeing .NET Core / true Cross-Platform capable future.
- + Code conversion to latest C# for long term sustainment.
- + Significant Refactor and Code Consolidation
  - + Will require plugins to be updated and recompiled.

# JARVIS



# JARVIS

Jarvis

User input

Set the map extent to New York, make sure we can see the entire city area. Set the time to January 1st 2022 at noon. GMT +1. Then Create a F16 there, have it flying north at 10000 feet. Add a russian jet 20 km in front of it flying in the same direction. Add 5 waypoints to the F16 entity from its location to the russian jet. Give them cool callsigns.

Run command

Clear

Add Image

Generated prompt

Set the map extent to New York, make sure we can see the entire city area. Set the time to January 1st 2022 at noon. GMT +1. Then Create a F16 there, have it flying north at 10000 feet. Add a russian jet 20 km in front of it flying in the same

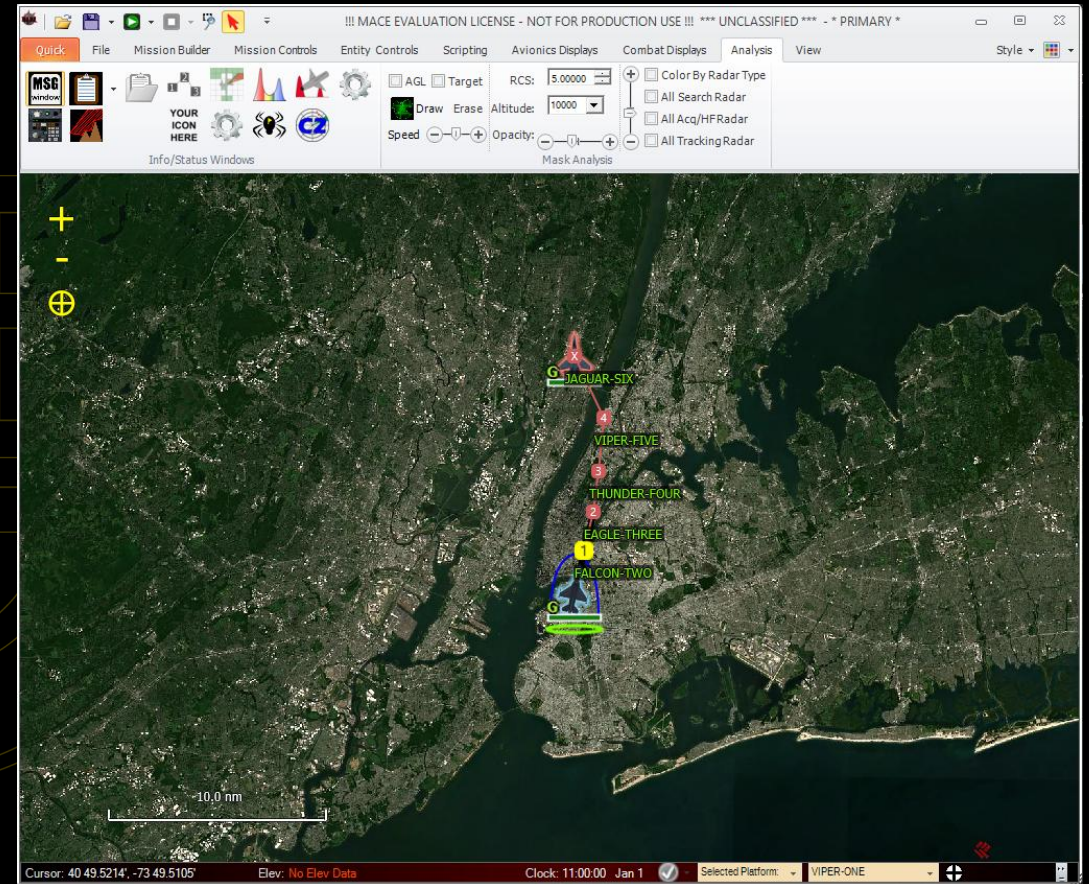
AI Model output

SetMapExtent - nwlatitude: 40.9176 nwlongitude: -74.2591 selatitude: 40.4774 s  
SetMissionTime - year: 2022 month: 1 day: 1 hour: 12 timezoneOffset: 1  
CreateEntity - latitude: 40.6976 longitude: -73.9797 altitude: 10000 type: F-16C  
CreateEntity - latitude: 40.8775823768174 longitude: -73.9797 altitude: 10000 ty  
AddWaypoint - entityid: 281904540221440 latitude: 40.7283 longitude: -73.97 al  
AddWaypoint - entityid: 281904540221440 latitude: 40.7584 longitude: -73.96 al  
AddWaypoint - entityid: 281904540221440 latitude: 40.7892 longitude: -73.955 ;  
AddWaypoint - entityid: 281904540221440 latitude: 40.83 longitude: -73.95 altitu

Selected AI Model

gpt-4.1

Start recording





# JARVIS

Jarvis

User input

Use the plan in the included image and make the mission. Move the map extent to the location. Each entity should have its own waypoints from the flight plan in the image. The mig is an enemy unit. Give them callsigns. |

Run command

ClearAdd Image

C:\AI\Plan1.png

ClearAdd text file

Generated prompt

Use the plan in the included image and make the mission. Move the map extent to the location. Each entity should have its own waypoints from the flight plan in the image. The mig is an enemy unit. Give them callsigns. Information about the

AI Model output

CreateEntity - latitude: 59.8 longitude: 10.75 altitude: 15000 type: FA-18C callsig  
CreateEntity - latitude: 59.79 longitude: 10.75 altitude: 15000 type: MiG-29 callsig  
AddWaypoint - entityid: 281904544284672 latitude: 59.8005 longitude: 10.75 alt  
AddWaypoint - entityid: 281904544284672 latitude: 59.803 longitude: 10.73 altit  
AddWaypoint - entityid: 281904545005568 latitude: 59.8 longitude: 10.75 altitud  
AddWaypoint - entityid: 281904545005568 latitude: 59.803 longitude: 10.77 altit  
AddWaypoint - entityid: 281904545726464 latitude: 59.79 longitude: 10.75 altitu  
AddWaypoint - entityid: 281904545726464 latitude: 59.795 longitude: 10.75 altit

Selected AI Model

gpt-4.1

Start recording

