



BATTLESPACE SIMULATIONS INC.

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## MACE User's Group (MUG) Course Schedule





## **MACE User's Group Schedules**

The MACE User's Group (MUG) is an annual in-person training opportunity held in Fort Walton Beach, Florida. The courses offered at the MUG are tailored to specific user communities – Scenario Development, Joint Fires, Air-to-Air with an emphasis on LVC, and Advanced Research-based communities. Users can attend whichever courses they deem suitable for their use cases. The courses offered within each community workflow are as follows:

Configure MACE for Classes (All) will occur in the main briefing room or once you arrive at the individual classroom.

If an attendee has a Laptop (not required), BSI instructors will help configure all the settings and data paths to enable MACE and ARMOR (if the laptop has good enough specs). Attendees will be shown how to link to maps, charts, elevation data, imagery, and OSM.

We're excited to announce the newest addition to our services at the MUG: the Tutor Room. This dedicated space is designed to provide personalized support and guidance for those seeking assistance or wanting to explore specific features of MACE and ARMOR. Whether you need one-on-one training or looking to delve into the intricacies of our software, the Tutor Room is here to help. Sign-ups are only available at the MUG, allowing you to reserve 20-minute blocks tailored to your schedule and learning needs. Step into the Tutor Room and unlock the full potential of your MACE and ARMOR experience.



## Scenario Development

### **MSD-101 – MACE/ARMOR Basics**

This class serves as a high-level overview of MACE's capabilities and integration with ARMOR. Participants will walk through the various MACE menus, gain an understanding of managing a scenario in MACE, and be exposed to the breadth of capabilities MACE covers. Users will also get an overview of ARMOR, how terrain is built and mapped, and the various visualization modes supported by ARMOR.

### **MSD-102 – Mission Building/Execution**

During this lesson, students will be shown how to perform the basic operations to build a mission, such as adding and removing entities, building routes and formations, and programming actions. Students will also have an opportunity to create a basic mission individually.

### **MSD-103 – Basic Joint Fires & EZ Buttons**

This course will cover the basics of the 9-line form, 5-line form, Integrated Air Defense Systems in MACE, and the 'EZ-buttons' for quick mission building

### **MSD-104 – Additional Tools**

During this lesson students will learn about BSI's OSM/Data Drive, and how to modify or extend the data in MACE with the Mission-Object Configuration Tool. They will also learn about adding shapes and boundaries with MACE's shape tools and how to generate ARMOR terrain from within MACE.

### **MSD-105 – Scripting I**

This course will cover the basics of scripting behavior in MACE with the built-in scripting tool

### **MSD-106 – Scripting II**

This course will cover more of the basics of scripting behavior in MACE with the built-in scripting tool

### **MSD-107 –Advanced Scripting I**

This course will cover intermediate scripting skills such as using scripting variables and expanding the UI in MACE with the built-in scripting tool

### **MSD-108 – Advanced Scripting II**

This course will cover advanced scripting techniques such as script reactions and 'BASIC' logic control structures. (If-Then statements, while loops, etc.)

### **MSD-109 – Scenario Building / Practice**



Students will get time to create a scenario using all the techniques learned over the course. Instructors will help and answer questions.

**MSD-110 – Wrap Up**

A summary session to cover any track content.



## Joint Fires

### **JF-101: MACE and ARMOR Basics**

This class serves as a high-level overview of MACE's capabilities and integration with ARMOR. Participants will walk through the various MACE menus, gain an understanding of managing a scenario in MACE, and be exposed to the breadth of capabilities MACE covers. Users will also get an overview of ARMOR, how terrain is built and mapped, and the various visualization modes supported by ARMOR.

### **JF-102: Mission Building and Execution**

During this lesson, students will be shown how to perform the basic operations to build a mission, such as adding and removing entities, building routes and formations, and programming actions. Students will then be shown how to “run” a MACE mission and dynamically control various parts of the mission. Students will control individuals and groups of entities. This lesson will also explain the various tools and information available during mission execution such as heading lines, health bars, detection indications, delta states, orbit tool, etc.

### **JF-103: CAS Mission Building (SAM/AAA), Pattern of Life**

This lesson focuses on building a typical Close Air Support mission, integrating SAMs and AAA, and scripting pattern of life behaviors in the scenario.

### **JF-104: 9-Line/5-Line (Keyhole, Laser)**

This lesson will cover the basics of the 9-line and 5-line forms including Keyhole CAS and Terminal Guidance Operations (TGO).

### **JF-105: CFF/Fire Plan**

This lesson builds on JF-104 and familiarizes users with the Call for Fire (CFF) and Fire Plan GUIs. Users will be able to plan and execute joint fires missions using the Fire Plan.

### **JF-106: Scripting**

Basic script management and structure. Starting and stopping them, triggers, actions, and completion state.

### **JF-107: Advanced Scripting / Buttonized Scripting**

Using advanced scripting techniques to use variable callsigns to make scripts generic and reusable across many entities and missions. Also, use the buttonized scripts as platform reactions.

### **JF-108: Advanced Scripting / Basic Statements**



Expanding scripting from simple linear execution to include BASIC programming statements such as If/End If, While/End While, and Goto Action.

**JF-109: Joint Fires Scenario Building and Practice**

This lesson allows users to practice building and executing joint fire missions.

**JF-110: Wrap Up/Questions**

Final questions and comments.



## **Live-Virtual-Constructive, Distributed Mission Operations, Mission Planning**

The air-to-air and live-virtual-constructive course is meant for more advanced MACE users who possess a solid baseline on MACE fundamentals and who operate with a focus on Air-to-Air employment and tactics and the integration with live participants.

### **MP-101: MACE/ARMOR Basics.**

This class serves as a high-level overview of MACE's capabilities and integration with ARMOR. Participants will walk through the various MACE menus, gain an understanding of managing a scenario in MACE, and be exposed to the breadth of capabilities MACE covers. Users will also get an overview of ARMOR, how terrain is built and mapped, and the various visualization modes supported by ARMOR.

### **MP-102: Air-to-Air Mission Building and Execution**

In this class, users will learn how to:

- Add entities to the scenario
- Add weapons
- Add waypoints and routes
- Use delta and intent maneuvering
- Modify maneuvering properties
- The difference between virtual vs. constructive aerodynamics
- Assign Formations
- Add dynamic participants/deck launch intercepts
- Control DIS presence
- Set up entity tactical datalink properties and communications
- Use the MACE group add tool to quickly build an Air-to-Air mission

### **MP-103: Red Air and IADS**

Participants will learn how to add opposing air forces and integrated air defense systems within an air-to-air mission context, and learn how to control their behavior, their reactions, their weapons, and coordinate their engagements.



### **MP-104: Datalinks and Live integration**

This class will focus on setting up and managing datalinks inside of MACE, for both blue and red forces. It will primarily focus on Link 16 message exchange and will cover J2s, J3s, and Network Enabled Weapons/J11 messages. It will conclude with exposure to using the Link 16 Entity Creator plugin to create entities from incoming live participant track data, modeling missile engagements, and triggering weapons flyouts for live entities.

### **MP-105: Advanced Mission Planning I**

This course covers basic radar analysis using MACE's default radar masks. The course will also cover ARINC data, how to update it, and the types of data that are referenced and used inside of MACE. The class will conclude with ACO and ATO import, the creation of custom shapes, and how to use shapes as control elements inside of MACE scenarios.

### **MP-106: Advanced Mission Planning II**

This course will cover coordinated timing of platform navigation using route speeds and planned arrival times as well as weapons that use waypoint-based navigation like surface-to-surface cruise missiles.

### **MP-107: Mission Rehearsal Tool**

Overview and use of MRT. Students will be using MRT to generate visual, radar, and radio plotting (with comm jammer interference). Students will build and evaluate a route and test with missile flyouts.

### **MP-108: Advanced Topics - MACE Assisted Route Creation**

Students will learn and practice using the MARC in MRT to generate routes. Various combos of route parameters will be used to see the effect on the suggested route generation. Students will convert routes to MACE waypoints and use MARC to plan both ingress and egress in stages.

### **MP-109: Open Session**

Students can use this time to practice the tools and techniques that were demonstrated during the courses. Instructors will be on hand to give guidance and feedback.

### **MP-110: Wrap up/Questions**

A summary session to cover any track content.





## **Electronic Warfare**

### **EW 101: MACE and ARMOR Basics**

This class serves as a high-level overview of MACE's capabilities and integration with ARMOR. Participants will walk through the various MACE menus, gain an understanding of managing a scenario in MACE, and be exposed to the breadth of capabilities MACE covers. Users will also get an overview of ARMOR, how terrain is built and mapped, and the various visualization modes supported by ARMOR.

### **EW-102: EW Mission Building and Execution I**

### **EW-103: EW Mission Building and Execution II**

### **EW-104: Building Emitters/Sensors**

This class covers creating new EW devices such as RADARs, Radios, Jammers, IRSTs, Flares, and other IR signatures, visual devices, and cameras. In addition, the course covers a basic overview of how emitters are processed in MACE.

### **EW-105: Advanced Weapon, Sensors and Jamming**

The class will cover how to set up and use complex weapons in a mission. Topics covered will be multi-mode seeker weapons, IR weapons, Active RADAR, SARH, Passive EW, and waypoint following weapons.

### **EW-106: Deconflicting EW in Missions**

Debugging EW in Missions. This class covers best practices for debugging problems in a mission. Issues covered are sensors failing to detect, sensors failing to track, weapons failing to fire, and weapons failing to hit targets. The instructor will go over several of the most common issues and how to resolve them using the tools in MACE. Several actual problem missions will be discussed.

### **EW-107: Wrap up/Questions**

A summary session to cover any track content.



## **Advanced MACE Users (MACE developers and research users)**

The advanced MACE Users' course is primarily intended for those who use the MACE/ARMOR framework in their research or product development efforts.

### **AD-101: Introduction to ARMOR and ARMOR Terrain Building**

In this class, participants will gain a comprehensive understanding of using ARMOR as a 3D visualization tool for MACE missions. The curriculum will cover the configuration of MACE to generate ARMOR terrain for any location worldwide using the BSI-provided dataset. Attendees will learn how to visualize their missions in 3D from various perspectives, utilizing screen views, virtual reality, or tabletop vantage points.

The course will also provide an overview of the diverse overlays that can be displayed, including platform labels, radar beams, weapon engagement zones, control zones, waypoints, and more. By the end of this course, participants will be well-equipped to utilize ARMOR's powerful features to enhance their mission planning, training, and debriefing experiences.

### **AD-102: Building/Execution for Mission Rehearsal**

This class introduces the student to the Mission Rehearsal Tool plug-in and covers LOS, RADAR, and radio splatmaps, route planning, missile flyouts, and distance graphs.

### **AD-103: Instanced Weapons, Weapon Commands, Weapon Tuning, building WEZs**

The class will cover managing instanced weapons in missions (unique targets, waypoints, impact times), how weapon commands can be assigned and configured, how weapon performance can be adjusted, and finally building Weapon Engagement Zones.

### **AD-104: Code Scripts**

This class will focus on using codescripts to augment MACE. Participants will learn when codescripts are an appropriate choice and how to create basic codescripts as well as codescript actions and triggers to augment MACE's scripting engine.

### **AD-105: Custom Commands**

Custom Commands will cover the creation of custom platform and weapon commands to override MACE's generic engagement logic and more closely emulate real world platform/weapon specific engagement TTPs.

### **AD-106: Building a MACE Plugin**

This class will walk participants through the basics of building a MACE plugin, from installing the Visual Studio template to compiling, running, and debugging their plugin implementation.



**AD-107: EW MACE API Q&A**

**AD-108: Wrap up/Questions**

A summary session to cover any track content.



## **Miscellaneous Courses**

### **DA-101: DACAS I - ATAK w/BADL**

This lesson will demonstrate the integration between MACE and Battlefield Airmen Datalink (BADL) and show both Link16 and VMF messaging. Students will also be shown a VMF 9-Line and CAS execution.

### **DA-102: DACAS II - ATAK w/JECL**

This lesson will demonstrate the integration between MACE and Joint Effects Coordination Link (JECL) and show both Link16 and VMF messaging. Students will also be shown a VMF 9-Line and CAS execution.

### **DA-103: DACAS III - WinTAK w/Warhawk**

This course will demonstrate the integration between MACE and Warhawk and show both Link16 and VMF messaging.

### **DB-101: MOCT - Building Platforms, Weapons, & Aero Models**

The class will cover building new platforms, equipment, platform aerodynamics, and weapon aerodynamics in the MOCT. Details include selecting DIS types, building out hard points, assigning weapons, and testing flyouts.

### **NT-101 MACE Interoperability (VMF Gateway, JREAP-C, ASTERIX, Master IOS, Web UI)**

The class will cover MACE communication with other software over a network: Datalinks via the VMF Gateway and JREAP-C, RADAR communication with ASTERIX, MACE remote control with the Master IOS, and the new Web UI for MACE.