MACE 2019 R1

What's New?

If you have questions or comments, please contact us at support@bssim.com**.**

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MACE 2019 R1 – What's New

Hello everyone! Today we are happy to announce that MACE 2019R1 is now available for download as an official release. Before we get into our summary of the new features, I would once again like to extend a sincere "thank you" to everyone who helps us continuously improve MACE. It is extremely fulfilling for us to see people using our software. If you are a MACE user and find yourself saying "if only these guys would add such and such a feature, it would make my life so much easier/help meet additional training objectives" – then please tell us! Many of the best ideas for MACE improvements come from you, our existing customers.

We'd also like to extend our thanks to everyone who came to our third annual MACE User's Group (MUG) a few weeks ago in Ft Walton Beach. We had a record turnout (over 80 people!) with attendees from the Air Force, Navy, Army, Guard/Reserve and of course our industry partners. Looking forward to next year!

There are many improvements in this version of MACE; this document contains a summary of those improvements, but if you encounter any changes to the MACE user interface not mentioned in this document, please reference the MACE 2019R1 User's Manual (which installs with MACE).

Performance Improvements

All drawing in MACE has now been moved to the GPU (older versions used GDI+ which was not hardware-accelerated). This has improved user interface (UI) speed dramatically – 3 times faster when running ~1000 entities. Overall, 2019R1 is capable of generating between 2,000 and 3,000 internal entities, depending on entity types and system hardware (the use of aggregated entities will improve performance, as there is much less to draw).

We highly recommend MACE be run on a hex-core CPU or better, and on an nVidia 1060 card or better.

'Sites' are now 'Platforms'

All entities that were 'sites' in older versions of MACE are now 'platforms'. MACE will make this conversion for you automatically when you load your older missions. We did this because over time, more richness had evolved around platforms than sites (such as the ability to group entities, create aggregates, and many commands on the script editor). Also, because our IADS logic revolved around sites (which were non-mobile) and because we wanted to allow for the creation of mobile IADS elements, we decided the time was right to make this transition. It also simplifies our code, and enabled us to upgrade the Mission Builder user interface.

New UI for Mission Building

There's now a 'drag-and-drop' capability from the Mission Builder tab to quickly find and add entities into your MACE mission, along with a radial selection menu, filters and a search field:

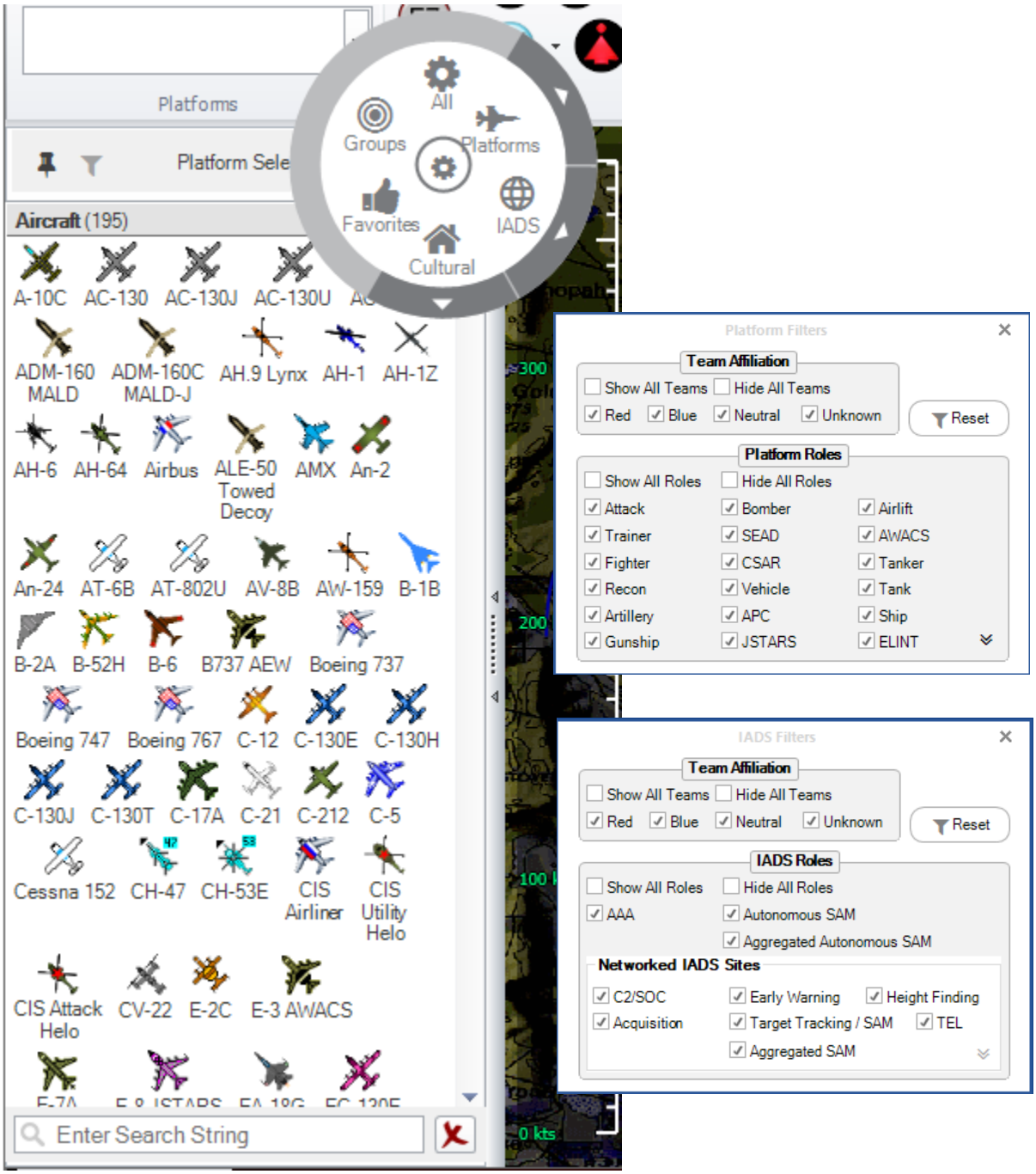

Figure 1: New Mission Builder UI

IADS and C3 Simulation Improvements

Many Surface-to-Air Missile (SAM) sites are now modeled as aggregates. When you add an aggregated SAM into MACE, you will get several entities. While the specific makeup will vary from type to type, in general you will see a C3 vehicle, one or more radar systems, and one or more missile launchers, as shown in the figure below:

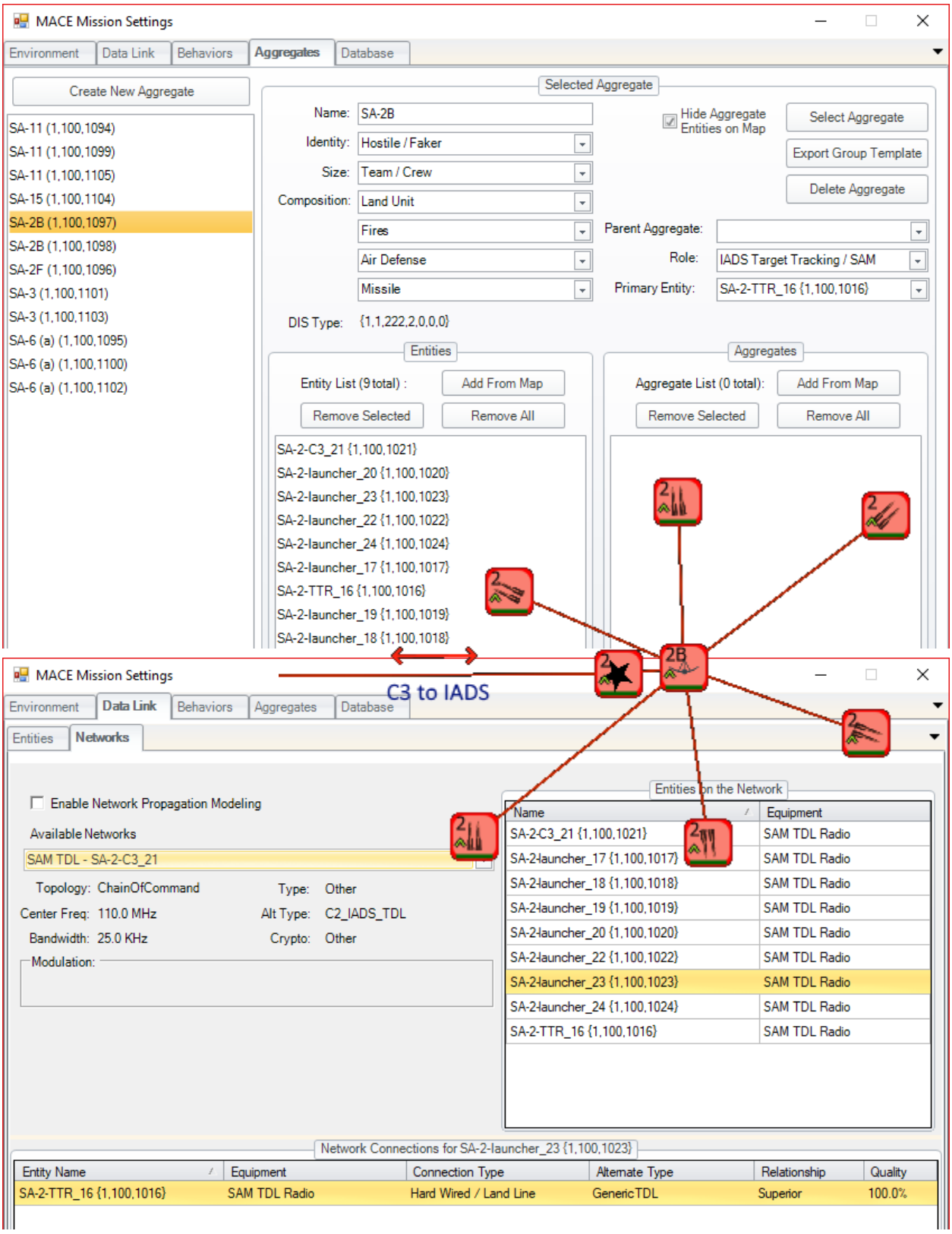

Figure 2: SAMs are now Aggregated Platforms

Joint Fires Improvements

MACE 2019R1 includes several improvements to the 9-Line capability, including:

- Ground based laser safety baskets
- Keyhole Template
- Risk Estimation Distance visualization
- Safe Escape
- Overbank on Roll-In
- Improved Low Altitude Pops
- Improved High Altitude Roll Ins

Figure 3: Laser Safety Zone Depiction

Shape Tools

MACE 2019R1 includes a complete re-write of the Shape drawing tools, including the following improvements:

- Easily draw circles, polygons, lines, markers, and airspace corridors
- Easily set appearance properties when shapes are created
- Combine shapes into new shapes

- Import shapes from text coordinates or WKT
- Export in GIS formats – KML, WKT, GML

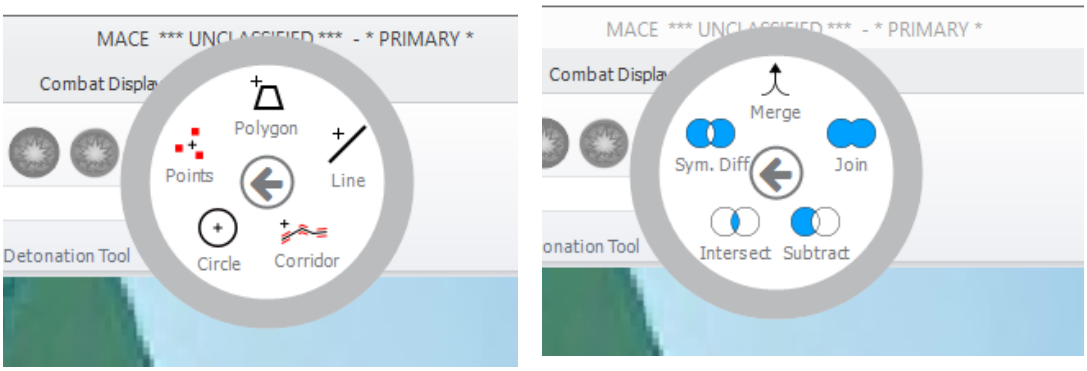

Figure 4: New SHAPE Tools in MACE

We have also posted a video demonstrating the use of the new SHAPE tools, which is useful as a tutorial as well: https://youtu.be/3h2pqNDzoCs

Live Integration

We made several improvements to support LVC use cases, including the following:

- Send & Receive JREAP-C (UDP & TCP)
- Plug-In to automatically add RADARs and Jammers to Live Aircraft (weapons too)
- "Engage on Link" – Have MACE shoot a constructive weapon when a live aircraft sends J12.6 Target Sorting Attack
- Plug-In for Manual Emitter Control
- Automatic Dependent Surveillance-Broadcast (ADS-B) PlugIn

Pattern-of-Life Improvements

MACE 2019R1 also includes a much larger library of pattern-of-life focused buttonized scripts. These are also very good examples to use to as starting points when creating your own buttonized scripts.

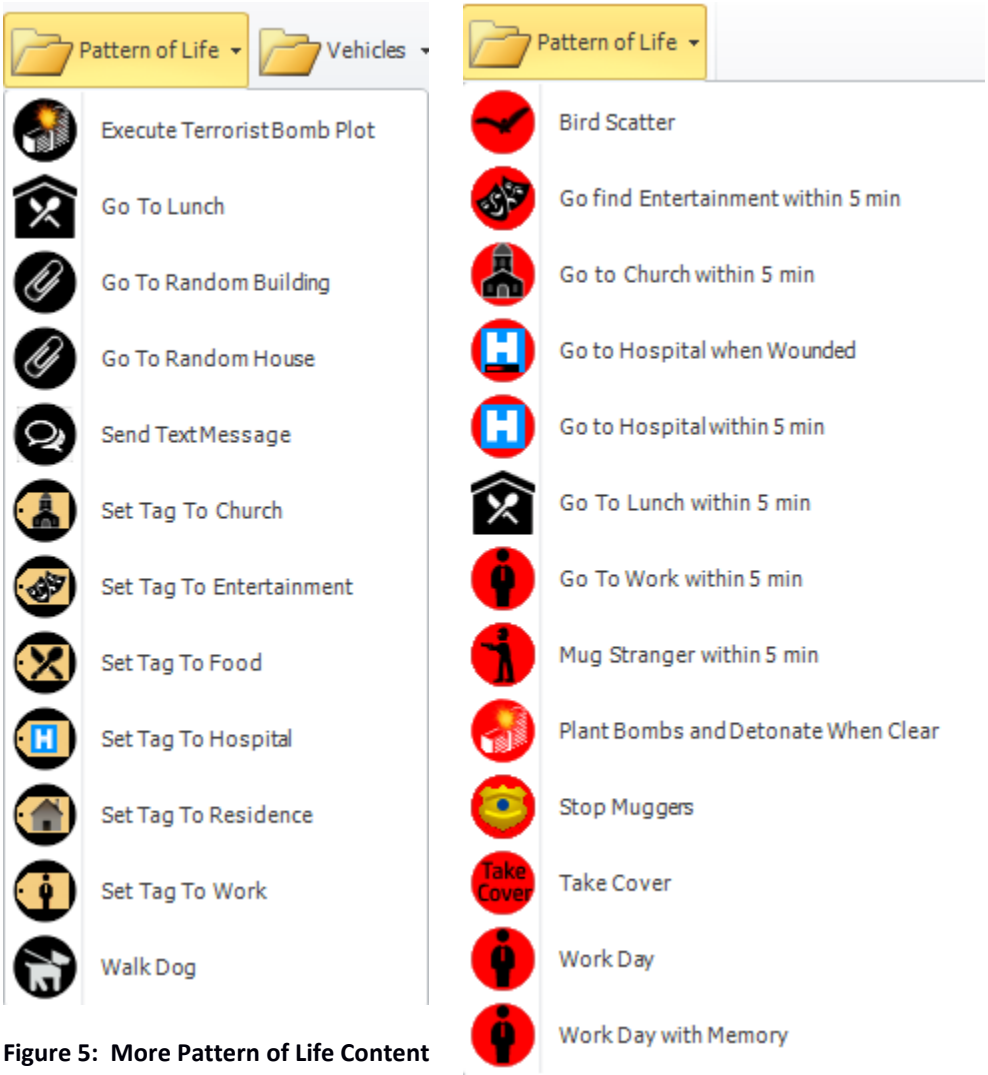

Figure 5: More Pattern of Life Content

New Mission Object Configuration Tool (MOCT)

The MOCT has been completely re-written for 2019R1. It's faster and has many more tools for searching and filtering data, plus a more organized way of presenting data. Please refer to the 2019R1 MOCT User's Manual for more.

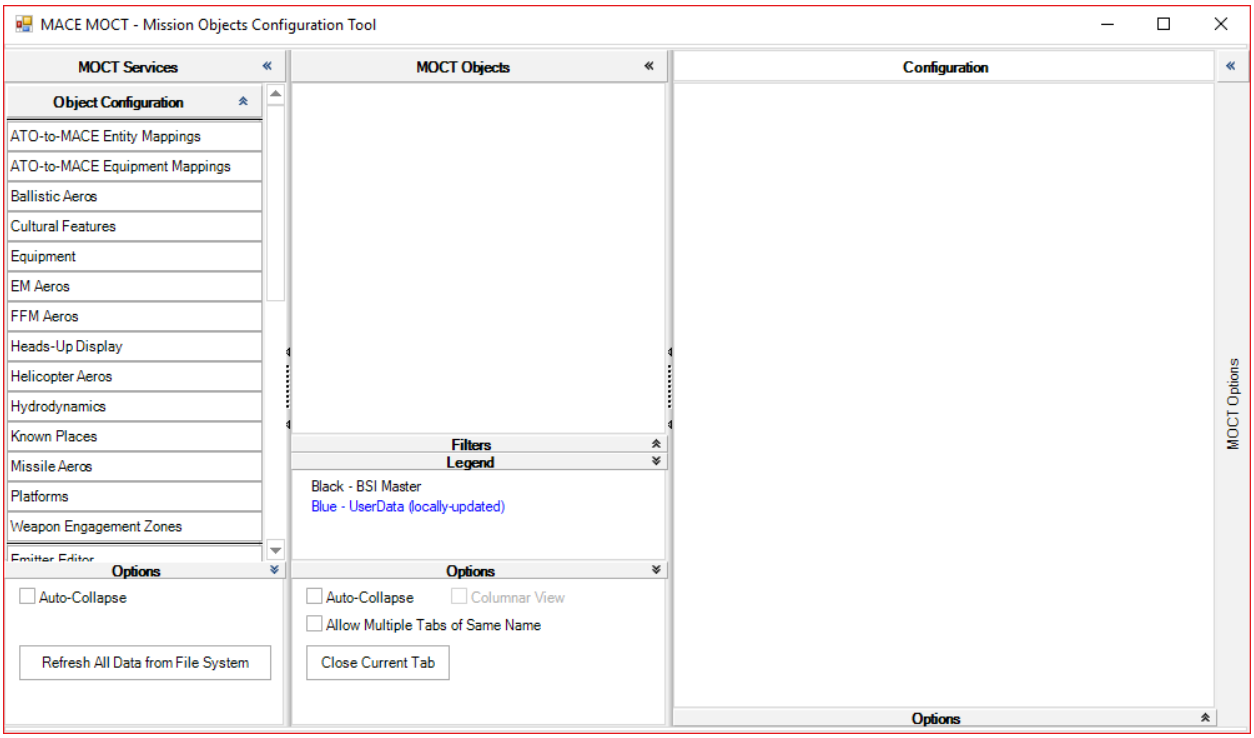

Figure 6: New MOCT for MACE 2019R1

Improvements to the Classified MACE Database

There is an update to the MACE classified database posted on the SIPR that was tested against MACE 2019R1. You must use this new version of the classified database with MACE 2019R1. When running with the classified MACE database, you can also import electronic orders of battle (EOBs) that are available on the SIPRnet. Upon import, MACE creates an IADS (integrated air defense system) from this EOB. This is a very fast way to create a representative IADS in MACE using actual system locations and RF characteristics.

Please contact us if you would like the download link for the classified MACE database (SIPRNet access required, of course).

New Plug-Ins

Manual Emitter Control Plug-in

MACE 2019R1 also includes an optional plug-in (in the MACE installer) for manual control of emitters. When under manual control, a system will ignore commands coming from an IADS and will honor only the commands given to it by the Manual Emitter Control interface. Note that when placed under Manual control, a SAM system will be also be placed into Weapons Hold. If the system has weapons, you can also command a manual weapon launch at the selected target, as shown in the figure below:

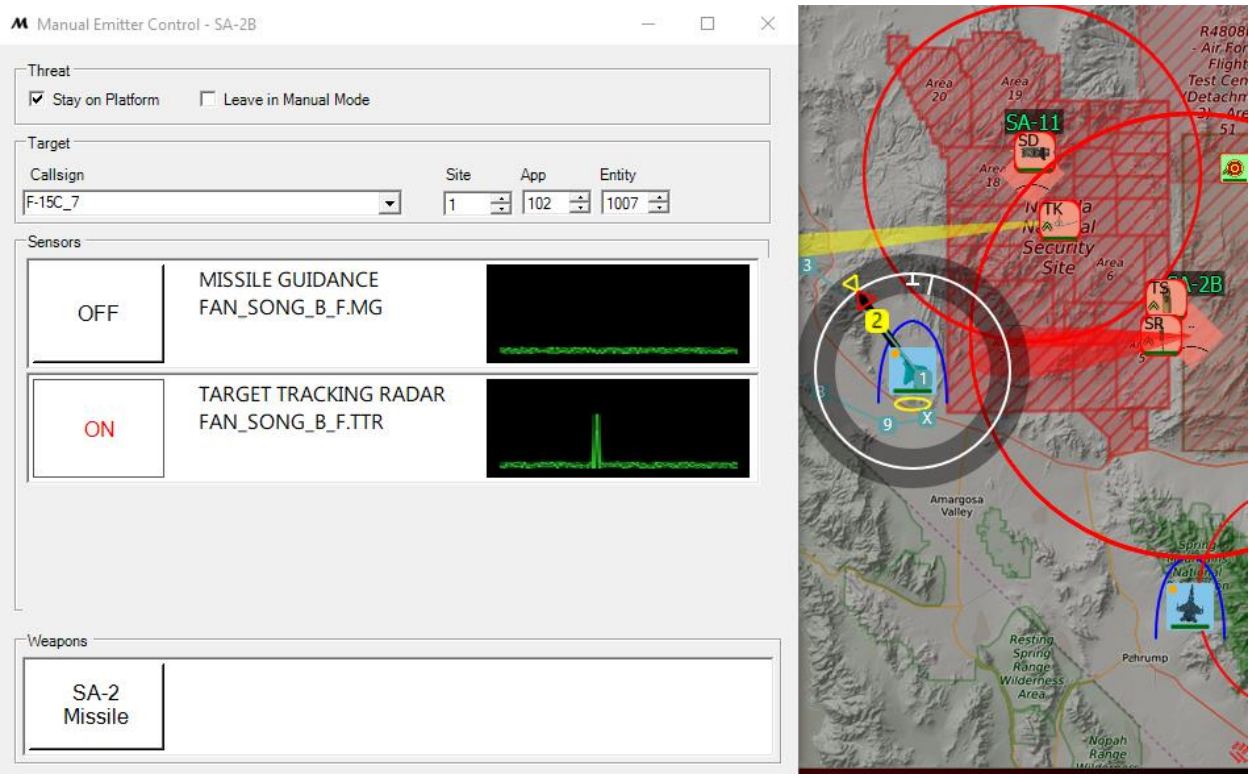

Figure 7: Manual Emitter Control Plug-in

Aerodynamic Model Plug-in

You can now override MACE's aerodynamic models for both aircraft and weapons. For weapons, your plug-in will receive target updates (in other words, MACE will continue to do the guidance) and you can take control over the missile's aerodynamics.

ARMOR

2019R1 also includes support for BSI's new Augmented Reality Mission Observation and Rehearsal (ARMOR) 3D viewer for MACE. ARMOR is a Unity-based 3D viewer for MACE that supports viewing the battlespace in Virtual Reality (VR), Augmented Reality (AR) and screen mode. MACE communicates with ARMOR via shared memory (via the ARMOR plug-in for MACE), and so ARMOR and MACE must be installed on (and run on) the same computer. ARMOR itself is a separate download, as is ARMOR terrain. Initially, only terrain in the Fallon and Kabul areas is available. BSI will be adding additional terrains and creating instructions for how to create your own terrains for ARMOR in the upcoming weeks. In the meantime, if you have a need for ARMOR terrain in a different area, please contact us.

You can see ARMOR in action here: https://www.youtube.com/watch?v=9-uOimnUZYk

You can download ARMOR from this location: http://downloads.bssim.com/MACE/ARMOR/

Usr: JT@C
Pwd: @!rp0wer

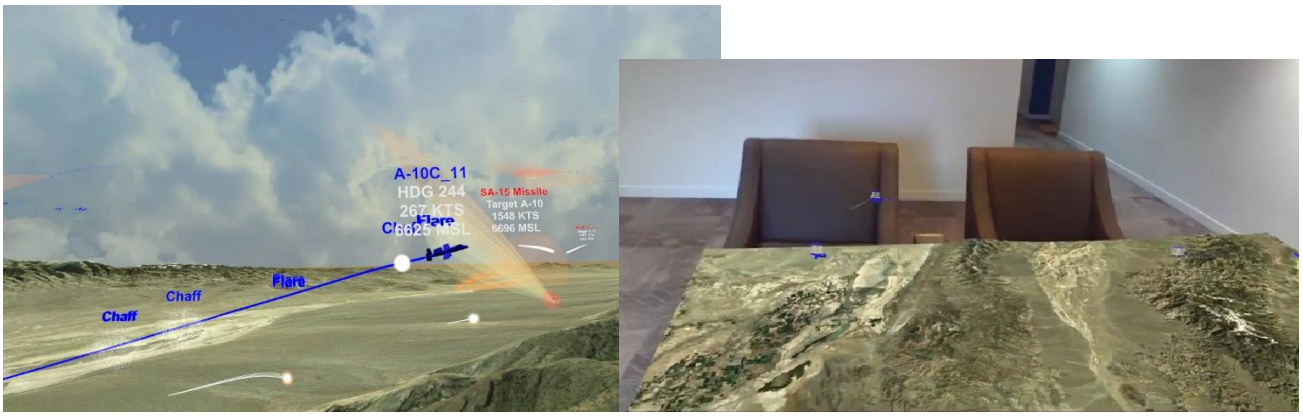

Figure 8: ARMOR in VR and AR modes

A Note Regarding HLA…

Our HLA Plugin for MACE will be forthcoming in the next few weeks – it targets the Pitch RPR FOM 2.0

Resources

As a reminder, we have a series of MACE Tutorial Videos posted on our YouTube page. They are the first nine videos posted here: https://www.bssim.com/videos/

There are many other videos posted on our YouTube page as well, designed to demonstrate specific capabilities or new features: https://www.youtube.com/user/BattlespaceSims/videos

If you have any questions please e-mail us @ support@bssim.com and we will do our best to reply within one business day.

Get Your MACE!

As usual…you can get it here: http://downloads.bssim.com/MACE/Latest_Release/ (usr: JT@C pwd: @!rp0wer).

Note: Before installing MACE 2019R1 for the first time on a particular PC, you should download and run the latest version of our pre-requisite installer. This will ensure you have the correct version of DirectX, Visual C++ runtime, and a few other required files. You can download the latest version of the prereqs from the same (latest release) folder.

Thanks again everyone, and please let us know if you have any suggestions or encounter any issues with this new MACE.

Best Regards,
The BSI Team