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MACE R1 2016

What's New?

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MACE R1 2016 – What’s New

Hello everyone! We’re very happy to announce our first MACE release of 2016.

Before we get into our summary of the new features, I would once again like to extend a heartfelt “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.

Also, sincere thanks as well to all of our Beta testers, those power users that we know are great at finding bugs 😊. We are very proud of this release, and we hope that you will find the new features compelling.

As usual, you can get the latest MACE at www.bssim.com/MACE/Latest_Release (usr: JT@C pwd: @!rp0wer).

Simulation Improvements

Sea States and Hydrodynamic Models

One of the most significant improvements in 2016R1 is the addition of true hydrodynamic models for all of our surface and sub-surface entities, as well as the simulation of sea states. Sea states are set on the ‘Environment’ tab on your Mission Settings form.

Please see this video of an aircraft carrier to see an example of a MACE hydro model in action: https://youtu.be/fY7u_SyaMTY

Please see this video to see an example of the sea states in action: <https://youtu.be/Eye7Uh2rFa0>

You can also now add mines with depth settings to your MACE mission.

New ‘Trail Route’ Formation Type

We’ve added a new Formation type called ‘Trail Route’ that is designed to keep multiple vehicles in formation while also keeping them on the same route. The existing ‘Trail’ formation was not ideally suited for ground vehicles because it did not imply a ‘follow exact’ behavior. When in ‘trail route’, a vehicle in trail is actually sharing its leader’s route; moving a waypoint for the leader (or follower) will move the waypoint for the follower (or leader). Please see this short YouTube video to see Trail Route in action: <https://youtu.be/EIL72Qt5Uck>

New ‘Squirtier’ Behavior

Human entities now have a new option on the Platform Properties Window that will cause the entity to behave as a ‘squirtier’ when the entity is attached to a vehicle. When the ‘is Squirtier’ option is selected, the entity will be set to invulnerable, until such time as the vehicle that contains the entity is damaged or destroyed. At that time, the entity will ‘squirt’ out of the vehicle and run away (also at this point the entity’s invulnerability is automatically removed). The ‘Squirtier’ designation is also exposed via the MACE Script editor. YouTube video here: <https://youtu.be/xEIMpv9acbQ>

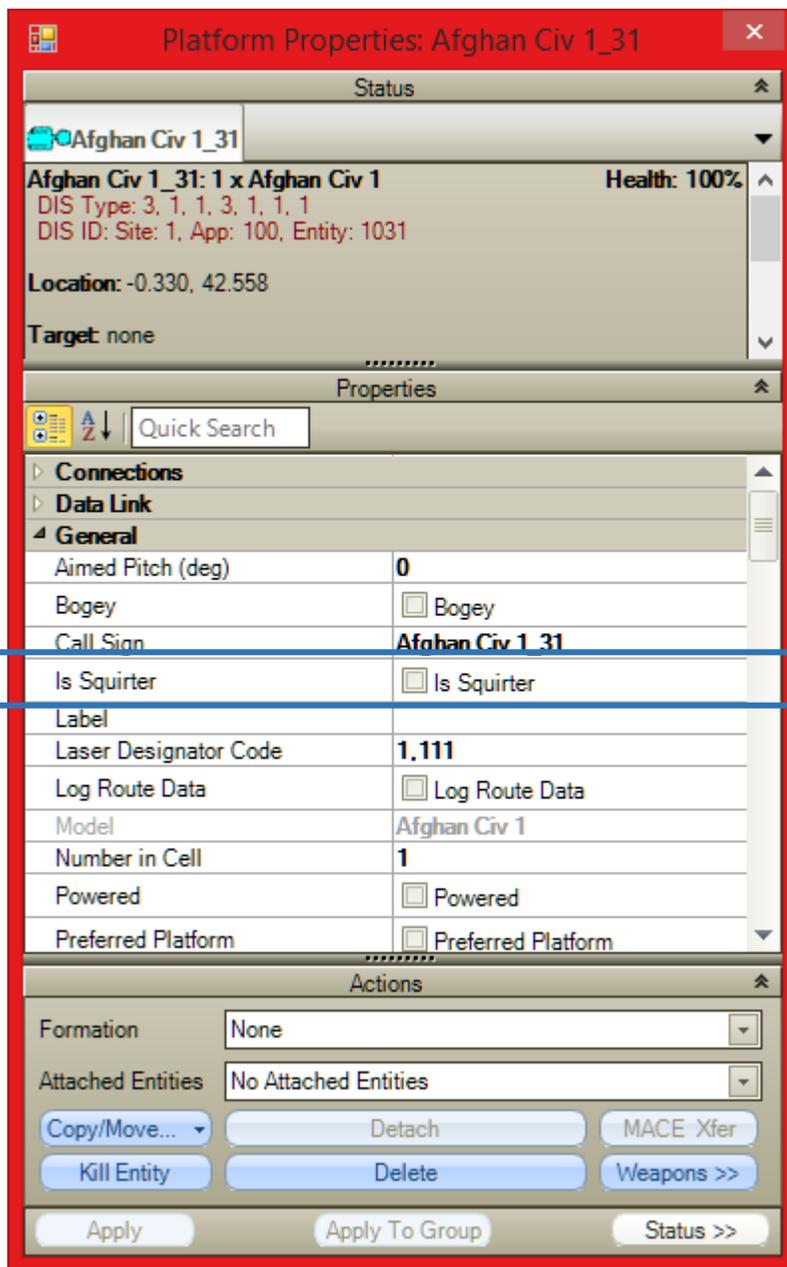


Figure 1: Squirter Behavior set via Platform Properties Window (also on Script Editor)

New 'Indoors' Waypoint Behavior

We've made it easier to simulate entities entering and leaving buildings, while maintaining both collision avoidance and pathfinding settings prior to entering the building and after exiting. To facilitate this, we've introduced a new Waypoint property, 'Is Indoors', that should be set whenever a waypoint is placed inside a building's SHP file in MACE. For example, in the figure below, WP4 is tagged as 'indoors'. Note that the waypoints prior and after the indoor waypoint should be placed close to the entry point, as pathfinding and collision avoidance will be disabled on the way to and from an indoor waypoint.

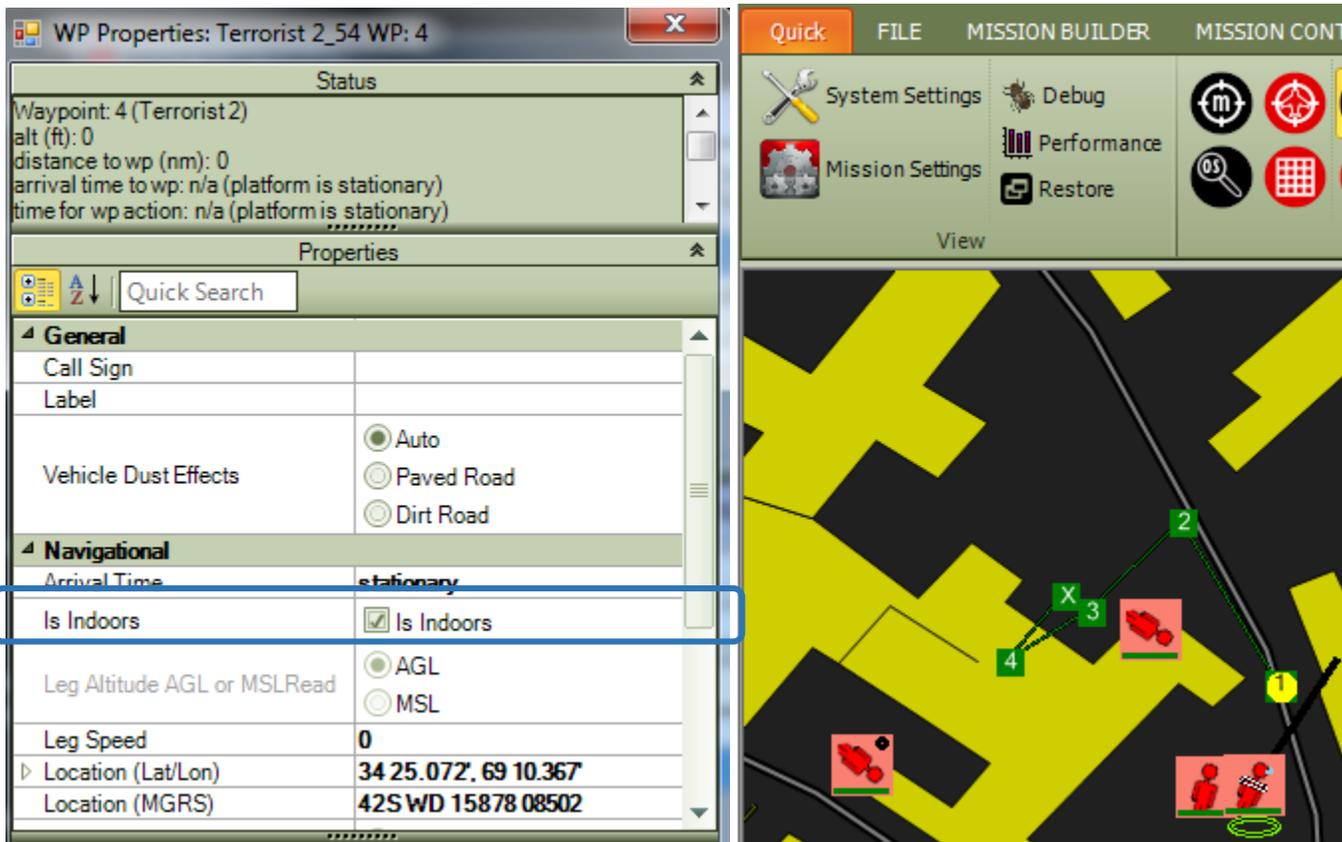


Figure 2: 'Indoors' Waypoint Property

Please see [this video](#) for a demonstration of the new 'Indoors' Waypoint property.

TENA (Test and Training Enabling Architecture)

With this version of MACE, we've introduced a TENA interface for LVC use cases. MACE uses the 6.0.4.2 TENA Middleware and is compatible with 6.0.4.x versions of the Middleware. Please see the 'TENA Console' section of the MACE User's Manual for more. Note: The TENA tab is only available on the MACE-EW (electronic warfare) version.

Airspace Conflicts

In addition to identifying airspace conflicts resulting from platform-to-platform proximity (which was introduced last year), MACE will also now identify airspace conflicts that arise between mortars/artillery and aircraft in flight (MACE will both identify near misses and will also assess whether an aircraft in-flight has been struck by arty/mortar in-flight).

Call for Fire Improvements

Added the ability to set a Vertical Offset (up/down) to the Call for Fire form, and also the ability to specify a parachute release altitude for parachute-deploying weapons such as illumination rounds.

GIS (Data) Improvements

Worldwide OpenStreetMap Data

Another major improvement we can now offer MACE customers is the ability to connect MACE to offline (no internet connection required) OpenStreetMap servers that we've developed to run under Linux Virtual Machines (Oracle's VirtualBox, which can run on any Windows 7/8/10 machine).



We've developed 2 servers, each of which runs on a separate VM. One serves up worldwide OSM data in raster format (similar to Google Maps) while the other serves up worldwide road vector data.

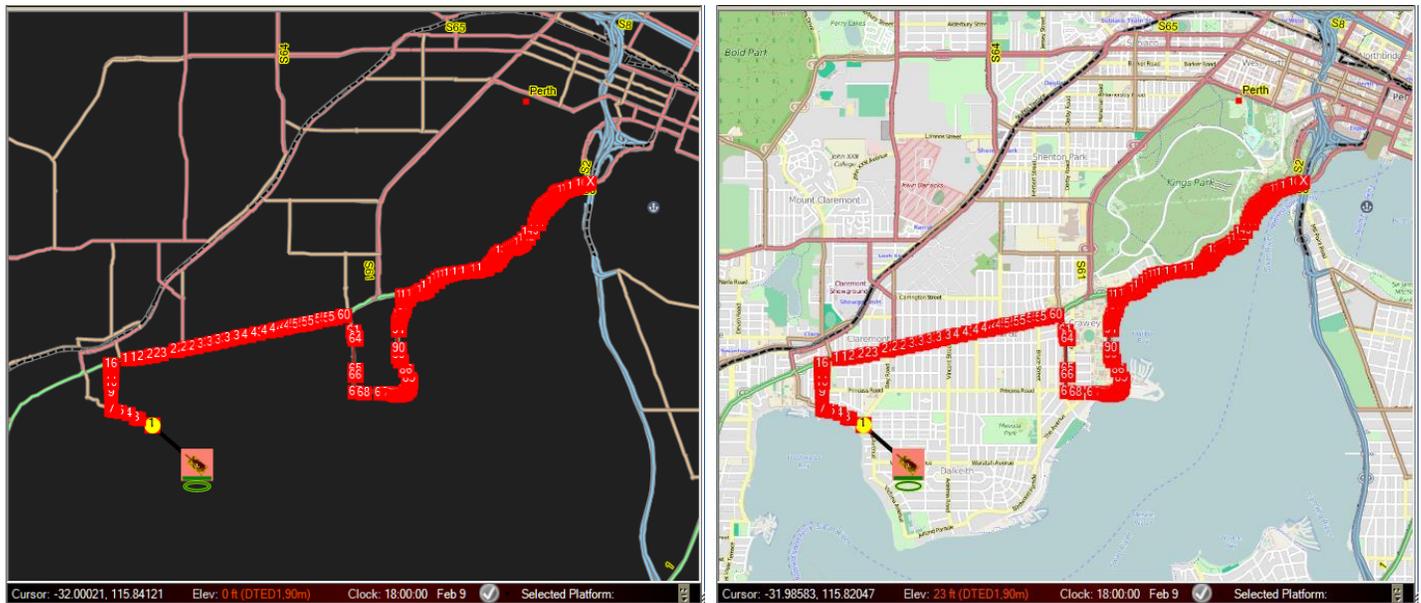


Figure 3: Worldwide OSM Data (road vectors, left) and Raster (right, shown with road vectors on top)

This is a vast amount of high-quality data; both VMs can run on a single 4TB hard drive. This will enable the ability to create missions just about anywhere on the globe, with the ability to attach to roads just about anywhere on the planet (there's even OSM coverage in some areas we didn't expect, like North Korea).

Though we will likely make these VMs available separately (OSM Raster and OSM Vector), they are designed to work together (will correlate exactly). Please contact us if you are interested in the OSM data for your MACE installation.

User Interface Improvements

Entity Control Window

We've added several new commonly requested shortcuts to the Entity Control Window (ECW). Based on user feedback, there was a consistent theme: "we want to enter a MGRS grid and..." <do something based on that grid>. So, now you can enter a MGRS grid on the ECW, and then quickly tell MACE what to do with that grid. There are 4 buttons added to the bottom of the ECW, next to the test box for the MGRS grid. They are, in order from left to right:

1. Command the currently selected platform to establish a loiter centered on the grid
2. Command the selected platform to Attack the grid
3. Center the map on the grid
4. Command the selected platform to center its camera location on the grid

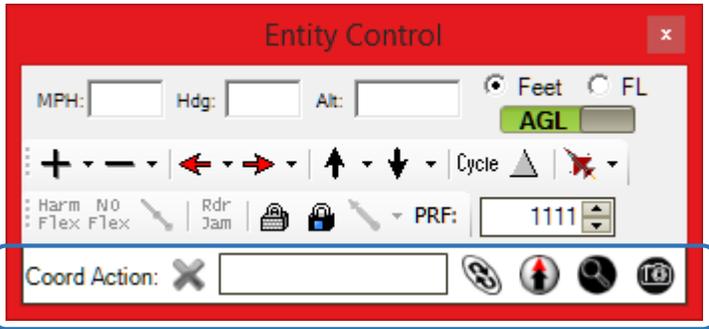


Figure 4: New Controls added to Entity Control Window

Imagery Coverage

You can now see your Hi-Res Imagery coverage on the MACE map. Click the 'Hi-Res Imagery Map Data' button on the Data Paths tab of the MACE System Settings window and click the 'Show Coverage' button to generate a shaded depiction of where you have imagery coverage:

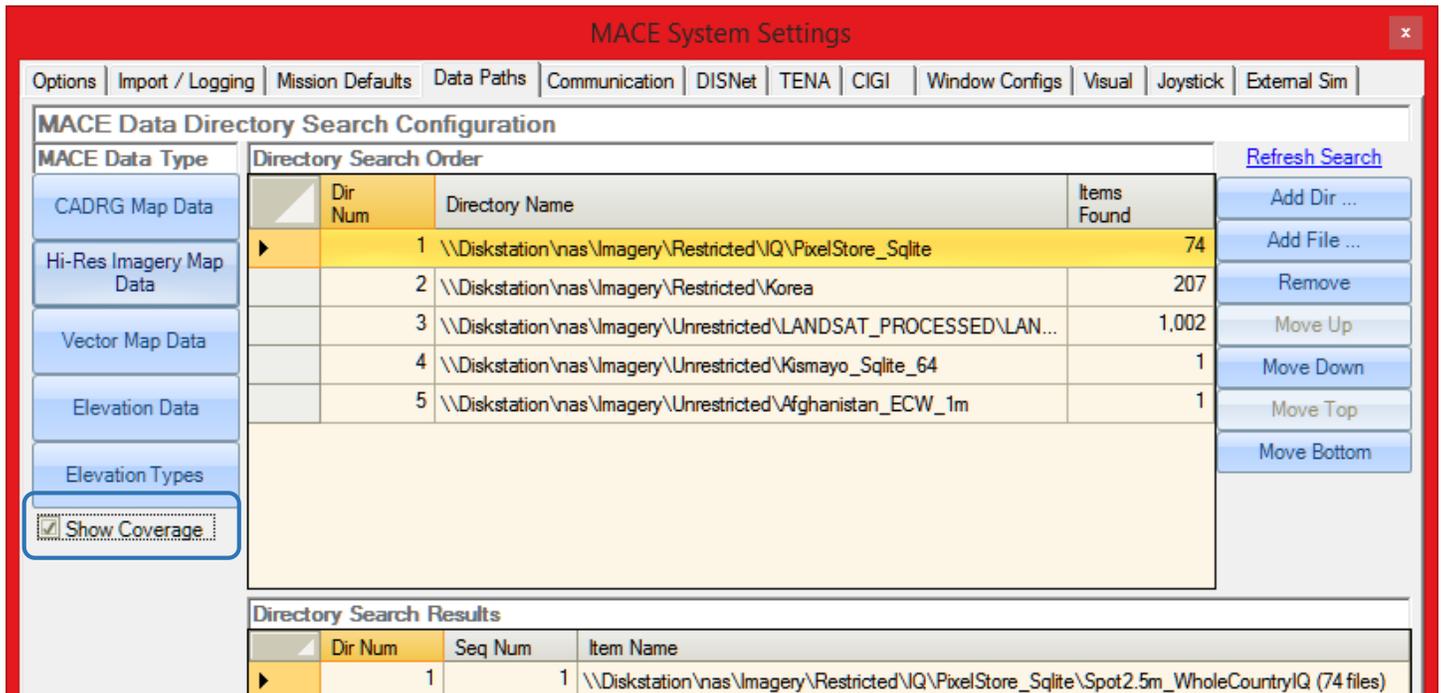


Figure 5: Show Coverage (Hi-Res Imagery)

Areas of hi-res imagery coverage will be shown similar to the screenshot below:

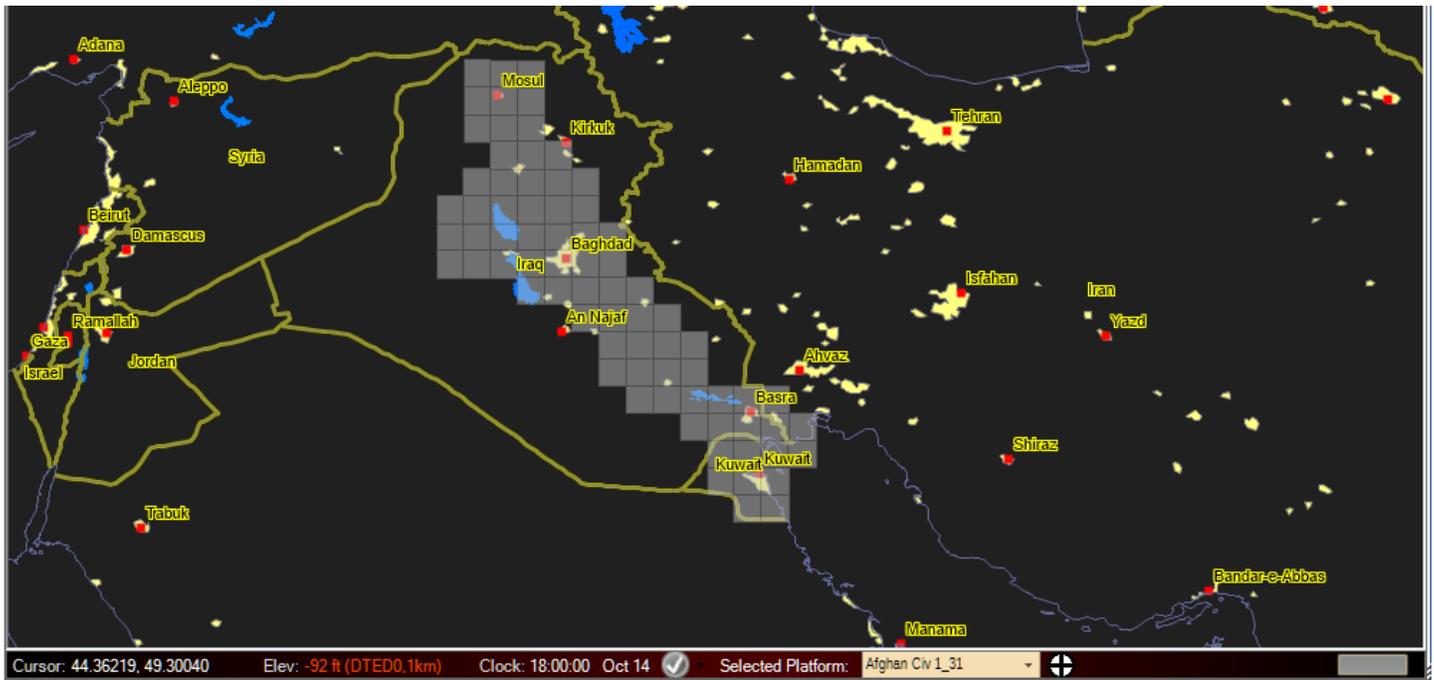


Figure 6: Sample Hi-Res Imagery Coverage Depiction

Improved Text Rendering

Text will now be shown on a semi-transparent black background, to make it easier to read text on the MACE map:



Figure 7: Improved Text Rendering

Multiple Bullseyes

You can now easily change the active bullseye using the drop-down on the expanded status bar at the bottom of your MACE window. The expanded status bar appears whenever you have one or more Bullseyes in your mission:



Figure 8: Easy Selection of Active Bullseye

Additional Information on Platform Status Window

The platform status window will now show time-to-arrival and time of arrival information whenever the platform has a known destination (previously, the platform had to be in intent). For example, you will now see arrival information when a platform is enroute to a loiter, or when it is proceeding to a target:

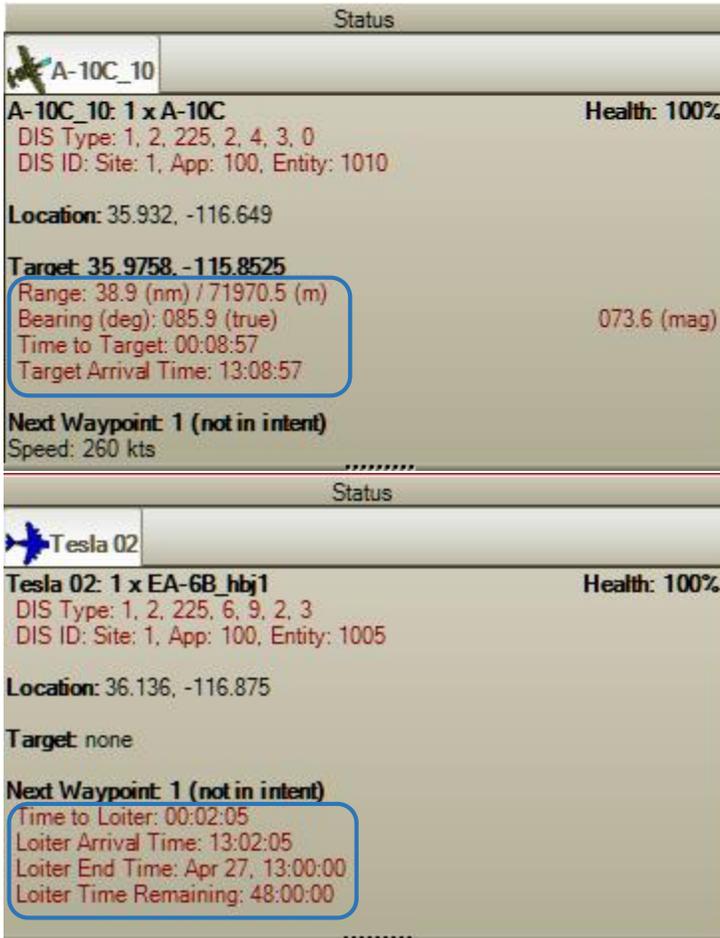


Figure 9: Time-to-Arrival and Time of Arrival

Indications of 5-Line or 9-Line Assignment

The MACE icon will now show a '9' or '5' in the lower left-hand corner of any entity assigned to a 9-Line or 5-Line:

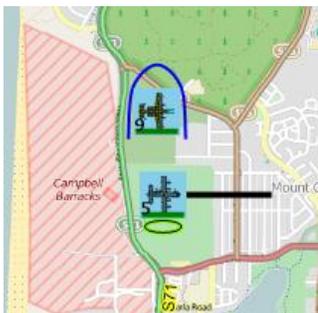


Figure 10: 9/5-Line Indication

Performance Improvements

MACE-to-MACE Transfer

MACE-to-MACE Transfers should be much faster. Please note: we have also increased the number of commands that you can issue from one MACE instance to another, reducing the need to perform a MACE-to-MACE transfer. Please see the 'MACE to MACE Platform Controls' section of your MACE User's Manual for more information. New MACE-to-MACE commands added to 2016R1 include the ability to command an external MACE entity to enter a loiter (and the ability to modify that loiter) or to rally to a location.

IADS Size

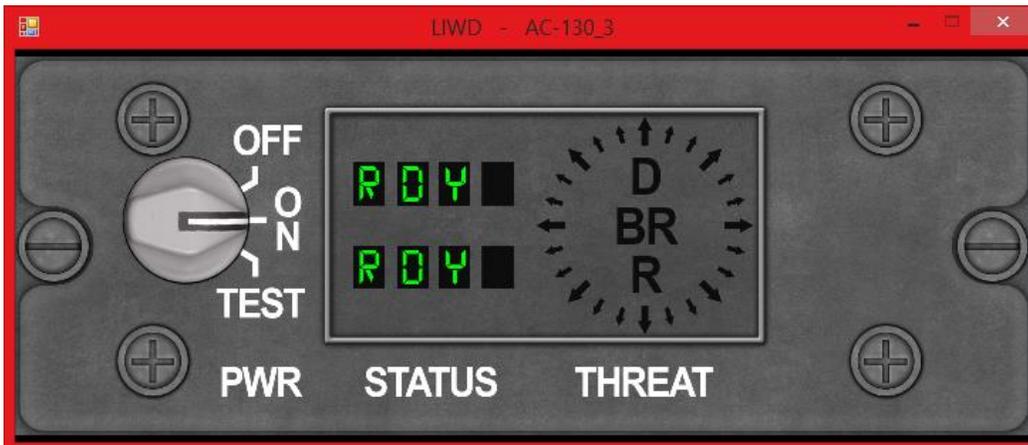
A performance improvement was made that will now enable MACE to support 150 or more (depending on your hardware) simultaneously operating emitters. This means that your IADS can be significantly larger than 150 sites, given that generally not all sites in an IADS are operating as the same time.

Mission Size

Mission size (on disk) has been significantly reduced; missions with large numbers of waypoints may see file size reduction on the order of 90% once the mission is loaded and re-saved using 2016R1.

New Combat Display

Laser Indicator Warning Device (LIWD)



The LIWD will show an indication when the ownship is receiving laser energy. 'D' for Designation, 'BR' for beam-rider and 'R' for laser range finder. The rosette indicates direction of arrival. The LIWD is available beneath the RWR on the Combat Displays tab and is available in both the base and EW versions of MACE.

That's it! Well, technically there's a whole bunch of smaller things that I've skipped but I don't like making these too long ☺ Thanks again everyone, and please let us know if you have any suggestions or encounter any issues with this new MACE. Which, BTW, you can get in the usual location: www.bssim.com/MACE/Latest_Release (usr: JT@C pwd: @!rp0wer).

Thanks everyone!

Gary

PS... next up for 2016R2: [AESA over DIS](#), Net-Enabled Weapons such as the Small Diameter Bomb II (SDBII) controlled via J11 messages over DIS, and a plug-in architecture!