MACE R1 2015

What's New?

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BSI

BATTLESPACE SIMULATIONS INC.

MACE R1 2015 – What's New

Hello everyone! First, a heartfelt "thank you" to everyone who helps us continuously improve MACE. It is very fulfilling for us to see people using our software to help meet critical training needs. 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

Updated User Interface and Improved Map Data

One of the first things you'll notice is that MACE's UI has been updated to include crisper buttons and an enhanced 'blue marble' courtesy of the Natural Earth Dataset (NED - http://www.naturalearthdata.com/)

MACE now also includes several useful vector (SHP) files from the NED, which by default are installed to C:\Users\Public\Documents\MACE\maps\Vector\Worldwide. There's also a new 'Vector Map Data' tab on the 'Data Paths' tab of the System Settings window, where you can identify vector layers that you would like MACE to load each time it starts:
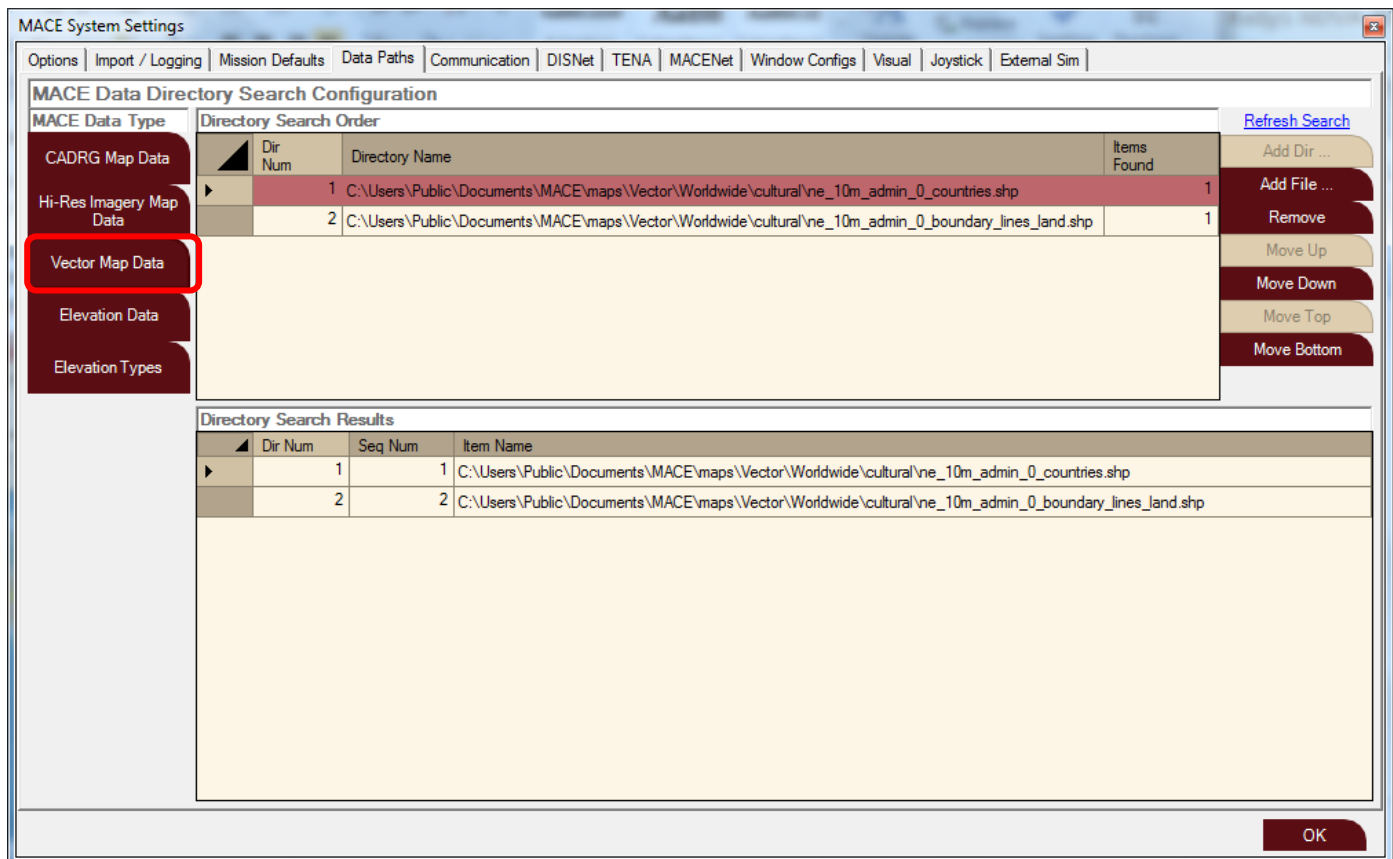

Figure 1: Vector Data added to the Data Paths Tab

The difference between adding vector layers to MACE using this new interface, and adding vectors by doing a File…Import (or dragging the vector files into MACE) is that Vector files identified on the Data Paths tab are not mission specific; they will persist regardless of which mission you load. Vectors that are added by dragging the files into MACE, or by doing a File… Import, are mission-specific references that load with the mission (and unload when a new mission is loaded that does not include those vector references).

Below is a screenshot showing the updated MACE UI with several NED vector layers pre-loaded.

Figure 2: New 'Blue Marble' with Vectors pre-loaded (all data from the Natural Earth Dataset)

Improvements to the 9-Line

The 9-Line in MACE has been significantly upgraded, to support multiple DMPIs per asset, with each supporting a different laser PRF code, and with additional Dive and Pop-Up profiles.
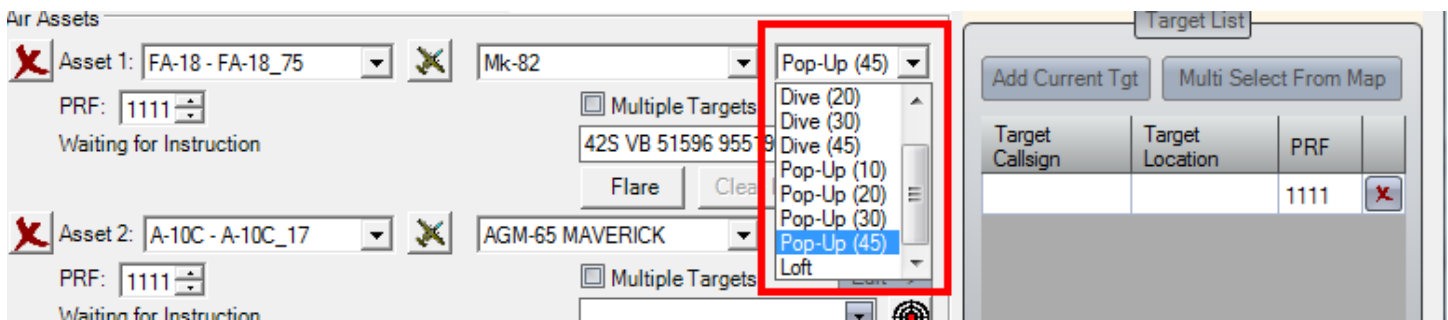
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Figure 3: Additional Dive and Pop-Up profiles on the new 9-Line

Improved 9-Line supporting multiple targets (and laser codes) per asset

MACE's new 9-line now supports multiple targets (DMPIs) per asset tasked, with each supporting a unique laser code:
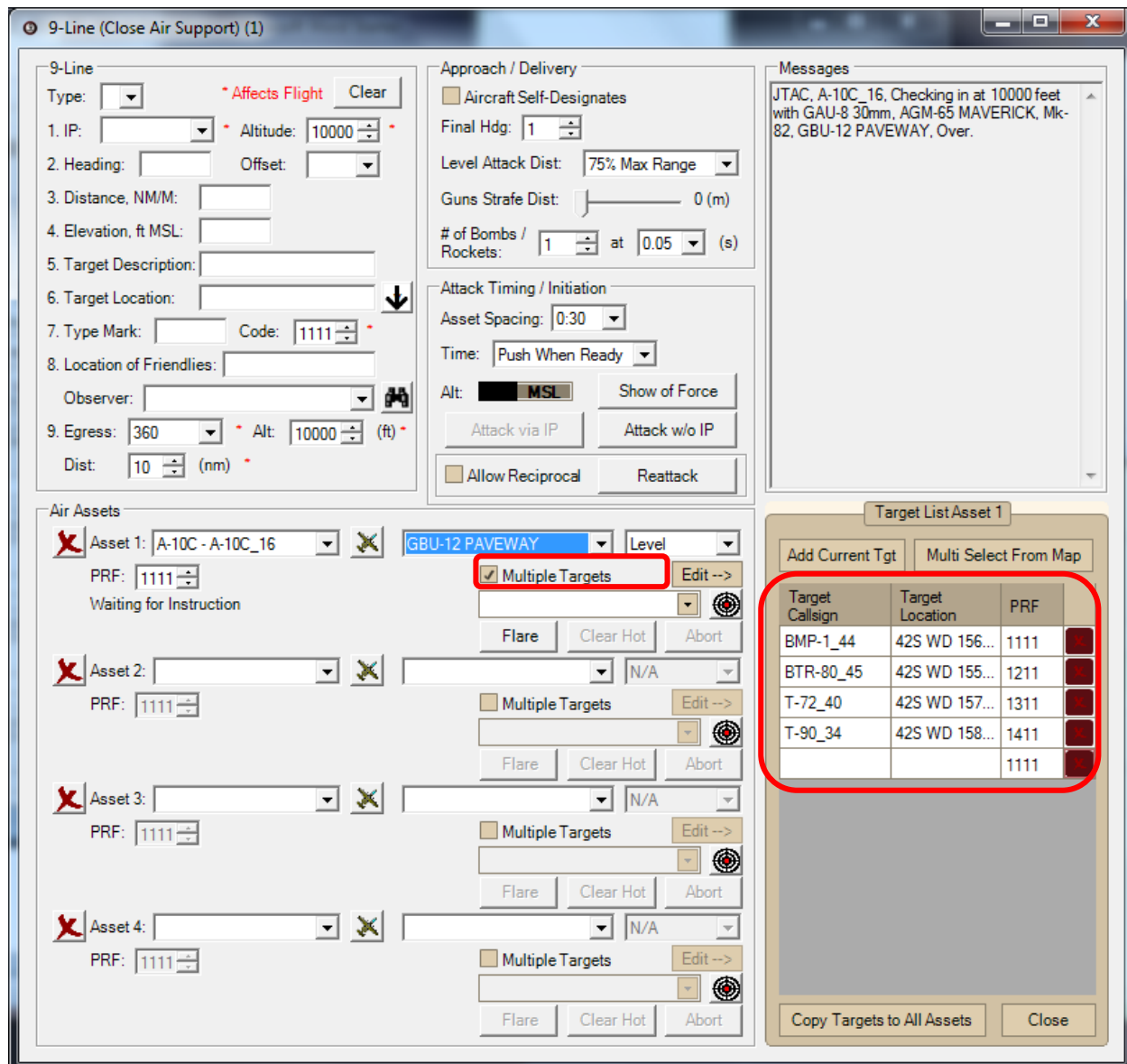

Figure 4: Improved 9-Line Interface

Entity Aggregation

A significant improvement to MACE R1 2015 is support for user-defined entity aggregates, using Mil-Std 2525D Joint Military Symbology. The symbols will be built dynamically as you define your aggregates.

The interface for building aggregates is accessed via the View tab:

Figure 5: Entity Aggregate Drop-Down Button on the View Tab

Creating Aggregates

To create a new Aggregate, follow the steps below:

1. First, click on the main aggregate button so that it is highlighted; this tells MACE to display the 2525D symbols for your aggregates.

2. Next, add the entities from the Mission Builder into your mission that will comprise the aggregate. In this example, we will add 4 x US Soldiers and create a fireteam.

In the figure below, we've added the four soldiers, and selected them all by holding SHIFT and dragging a rectangle around all four soldiers:
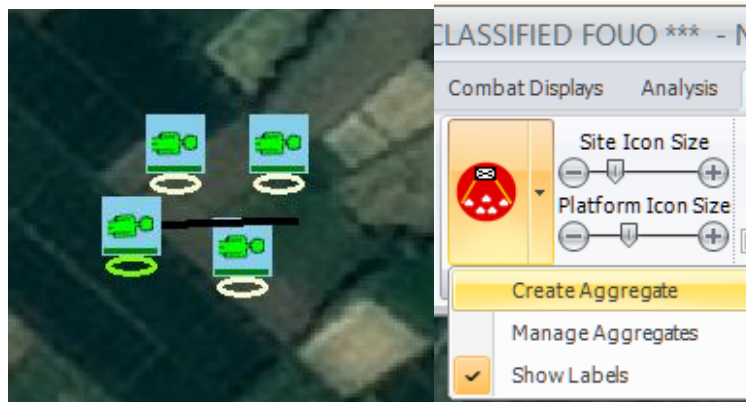

Figure 6: Creating an Aggregate

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3. The next step is to click the 'Create Aggregate' button on the Aggregate drop-down menu as shown in the figure above. That will bring up the Aggregate Manager, as shown below:

Figure 7: New Aggregate Tab on Mission Settings Form
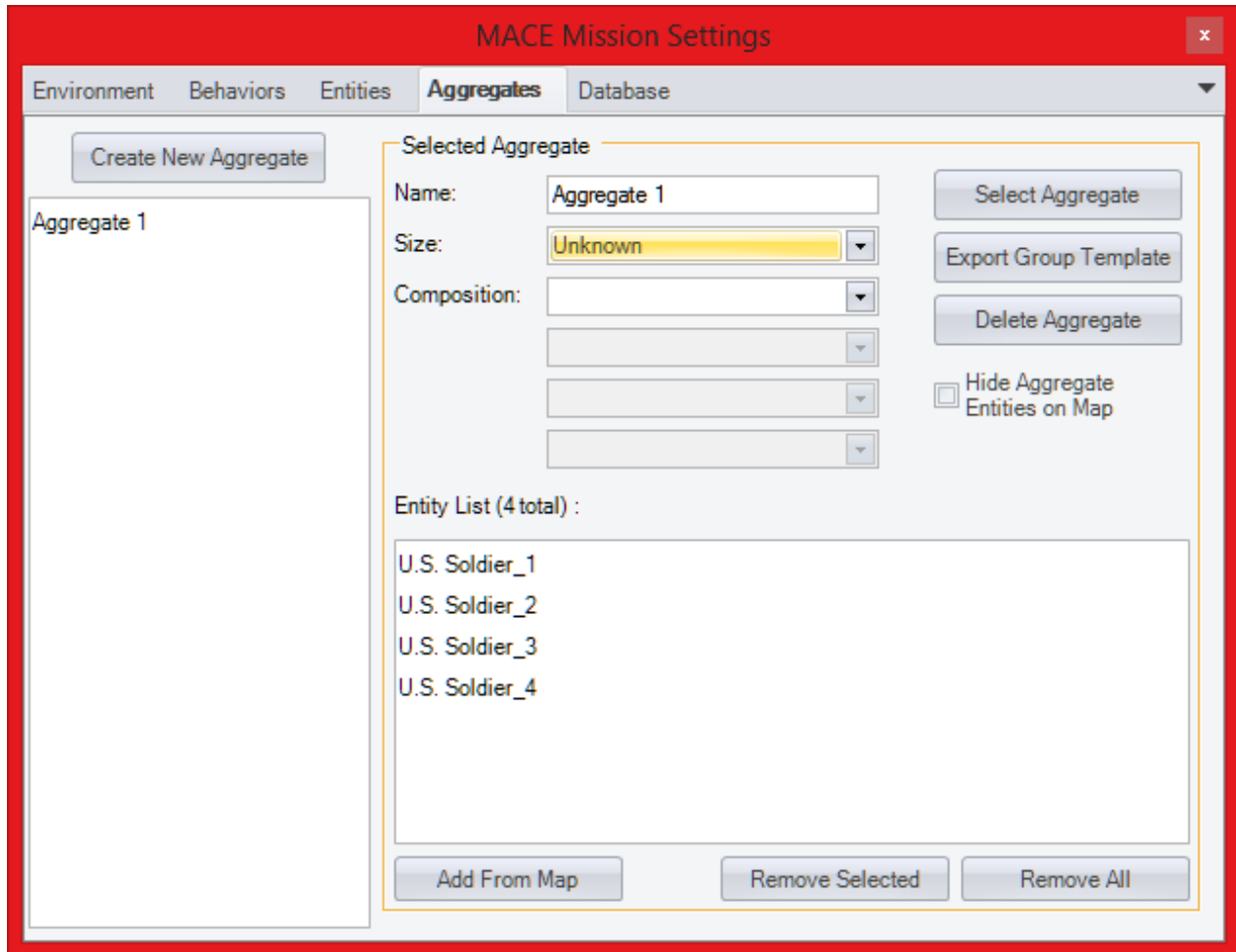
4. Next, give the aggregate an appropriate name, and define the aggregate's composition.

The composition for the aggregate is assigned via a collection of drop down menus. The drop downs are a hierarchy based on Joint Military Symbology 2525D. As the composition is changed on the Mission Settings form, the icon of the aggregate on the MACE map reflects the new composition.

For example, our fireteam is shown below:
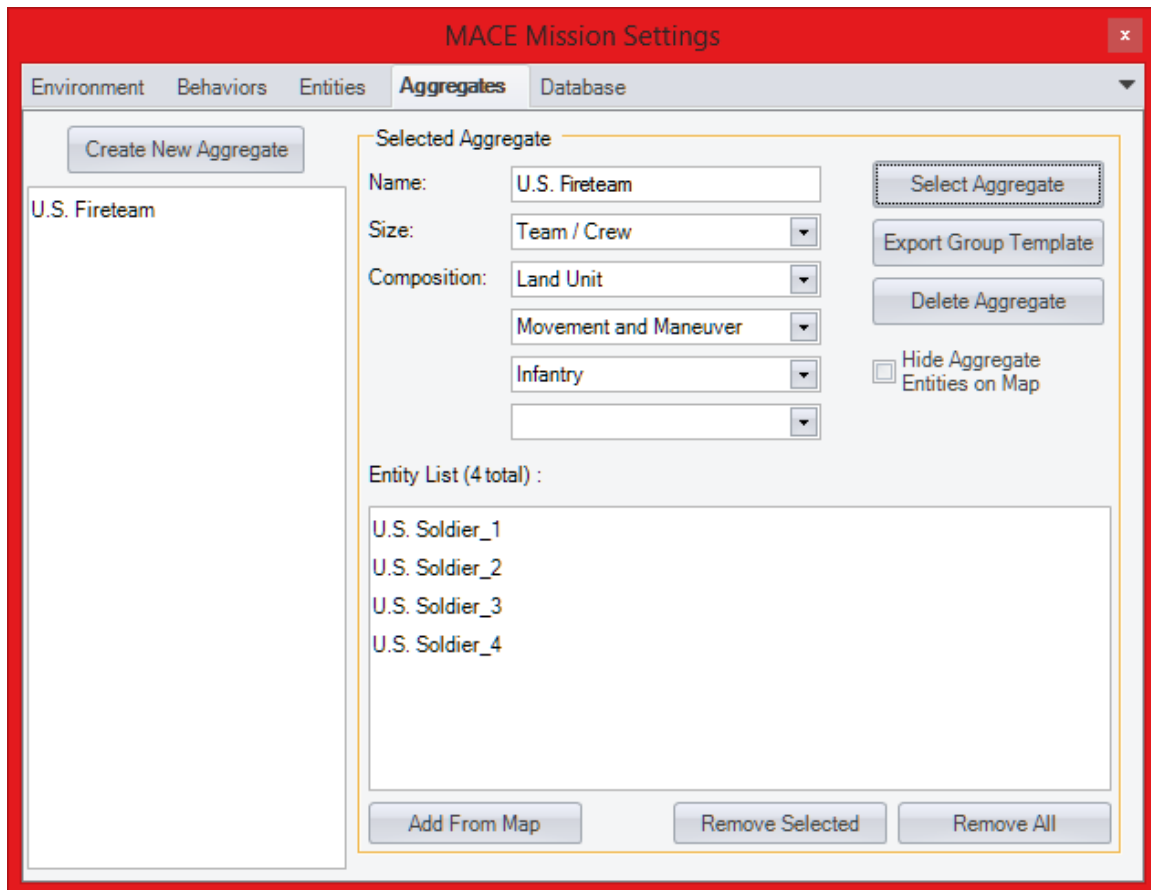
Figure 8: Fireteam Aggregate Created

Now look again at your MACE map; you should see your newly created 2525D symbol at the geographic center of your aggregate, with lines connecting the symbol to the entities in the aggregate:
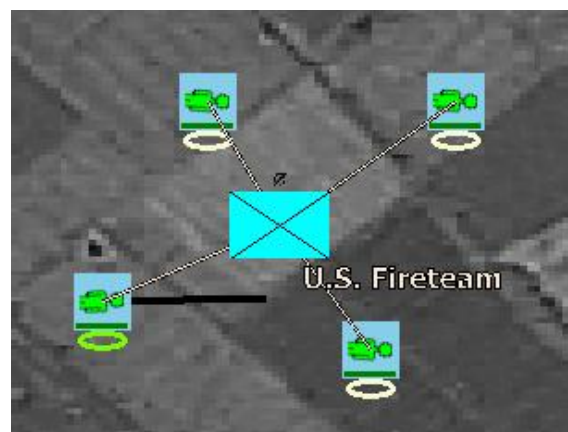

Figure 9: Fireteam Aggregate shown on MACE Map

Tip: You can still drag individual units around the normal way (CTRL+drag) but now you can also CTRL+drag the 2525D symbol, moving the entire aggregate!

Managing Aggregates

You can use the Aggregate Manager to manage multiple aggregates. The left panel lists all the aggregates that exist in your mission; the right panel shows details of the currently active aggregate.   To change the active aggregate, simply click on the aggregate name in the left panel, as shown below.

The aggregate manager also has several other options. The user can toggle whether or not the entities that comprise an aggregate are visible by selecting "Hide Aggregate Entities on Map". Alternatively, if the user double-clicks on the 2525D symbol on the map then MACE will toggle whether or not the individual entities are drawn.

Map interaction of aggregates is similar to that of platforms. The entities of an aggregate can be selected by left clicking on the aggregate on the MACE map. The properties of an aggregate can be viewed by right clicking on the aggregate.
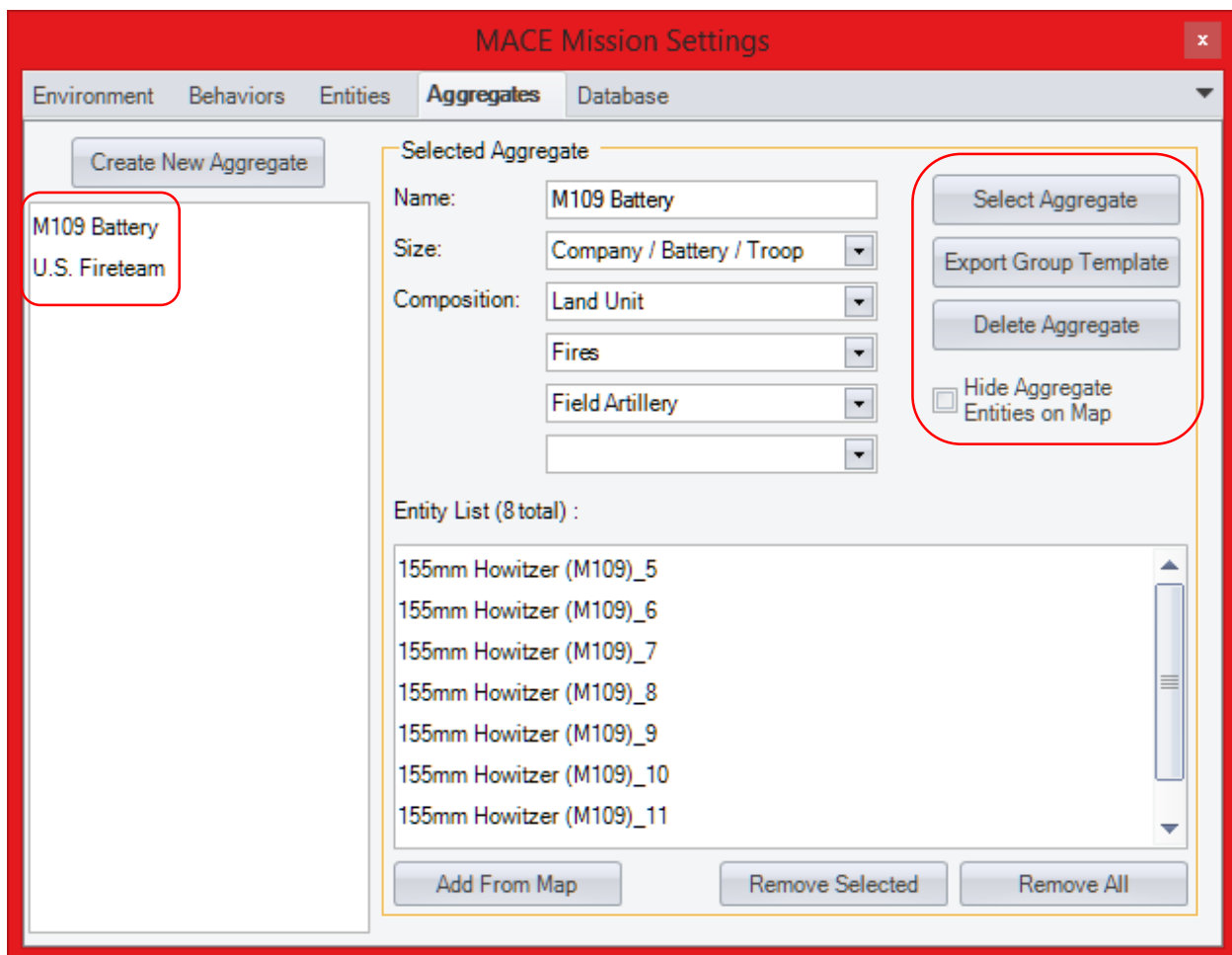
Figure 10: Exporting Aggregates for Future Use va Mission Builder

The 'Export Group Template' button saves the Aggregate as a [Group Template](#) that will be dynamically added to your Mission Builder, and will subsequently be available under the Platforms| Groups drop-down menu.

Issuing Group Commands to Aggregates

'Select Aggregate' selects the Aggregate on the map; this is the same as clicking on the 2525D symbol on the map. Note that selecting an Aggregate also selects all the entities in the Aggregate. This means you can easily give group commands

to all entities within an Aggregate; simply click on the 2525D symbol and issue the command. All entities in the Aggregate will receive the command.

Under the Covers – New Prerequisites

MACE has also been updated to use version 4.5.1 of Microsoft's .NET framework. This means .NET 4.5.1 is now a pre-requisite for MACE, as is the latest Microsoft Visual C++ runtime. Both of these are available on our website, here: www.bssim.com/MACE/Prereqs (user: JT@C, password: @!rp0wer)

This new version of Microsoft's .NET framework may already be installed on your computer; many USAF standard desktops will already include it. If you install MACE and it does not start correctly, visit the link above and install this pre-requisite, and then restart MACE.

Variables in Scripts

Variables offer a very powerful way for MACE scripts to gather information of the mission state and make decisions to affect it. Each script supports two variables: a number variable and a string variable.

An example use-case may be a counter to record how many times a script has run. Once the counter reaches a certain value, a trigger causes another script to execute. An advanced use-case may be a number that increments each time an enemy soldier is killed. Once a certain number of hostile targets have been killed, a trigger could automatically fire to cause the remaining hostiles to flee.

Displaying Labels On the MACE Map

MACE can also display a "Label" property at **ALL** times on the Mission Area. This is for Platforms, Sites, and Waypoints. The "Callsign" property will appear if you hold down CTRL and mouse over the Platform, Site, or Waypoint.

Figure 11: Add a Label (using the Property Grid) to a Site, Platform or Waypoint

Improved ATO/ACO Import and ACO Interaction via Layer Manager

In support of the Joint Theater Air Ground Simulation System (JTAGSS), MACE now supports improved Air Tasking Order (ATO) and Airspace Control Order (ACO) import and interaction. Users can interact with imported airspaces via the Layer Manager, as shown below:
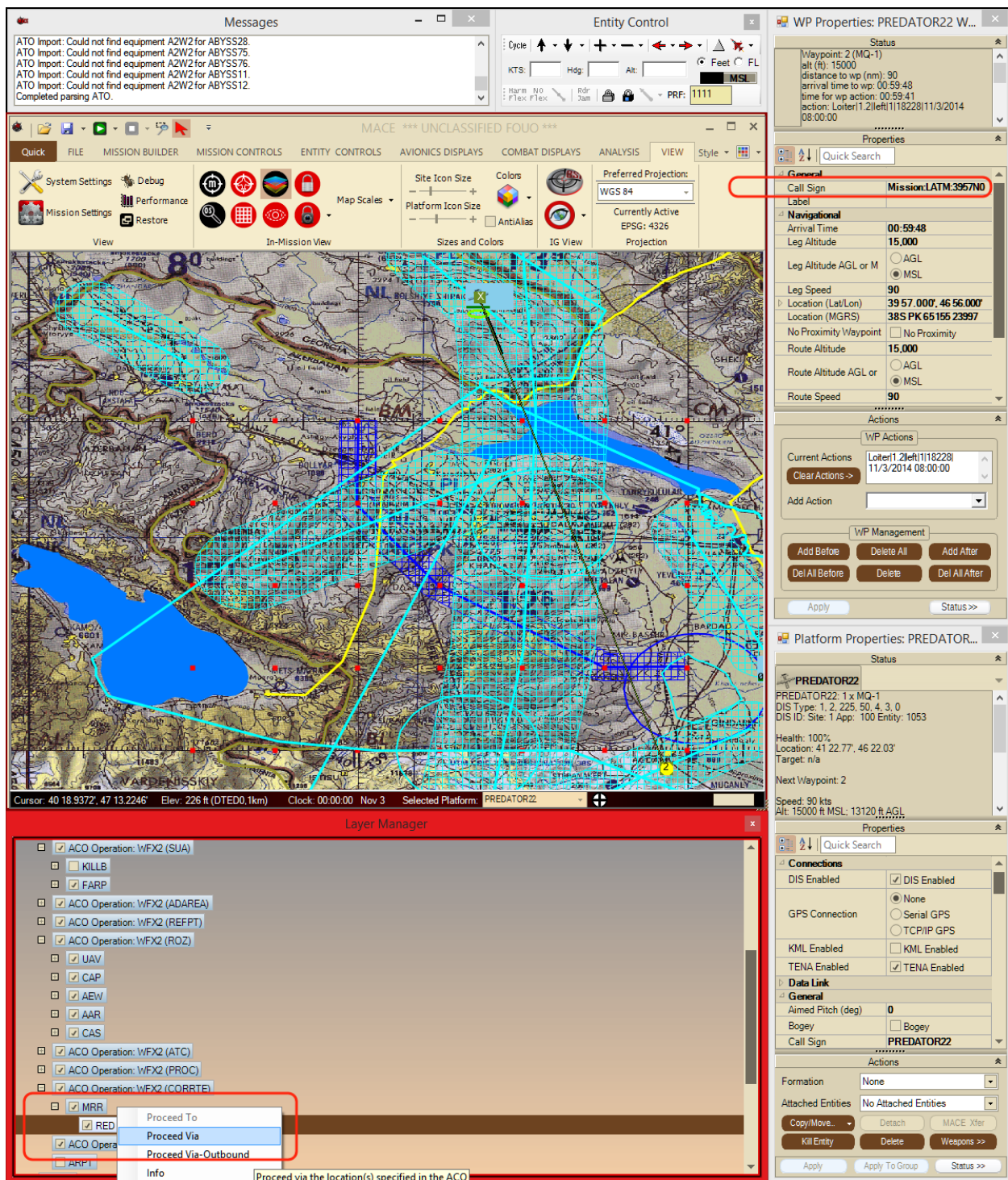
Figure 12: Airspace Control Order (ACO) Imported into MACE

Using the Layer Manager to Give ACO Commands to an Aircraft

In the figure above, we've expanded the MRR node (Minimum Risk Route) Usage node under the Corridor/Route (CORRTE) layer node, and right-clicked on the lone corridor option ('Red') to access our options. 'Proceed to' is greyed out; that is not a viable option for an airspace of this type. However, we do have the option to either 'Proceed Via' or 'Proceed Via-Outbound'.

Proceed Via

When you click on 'Proceed Via', MACE will insert waypoints along the selected corridor/route, immediately prior to the next (not yet arrived at) Mission waypoint. In the screenshot below, waypoints 2-6 have been inserted prior to WP7, which is the Mission waypoint (was WP2 in the original import, shown in the figure above).
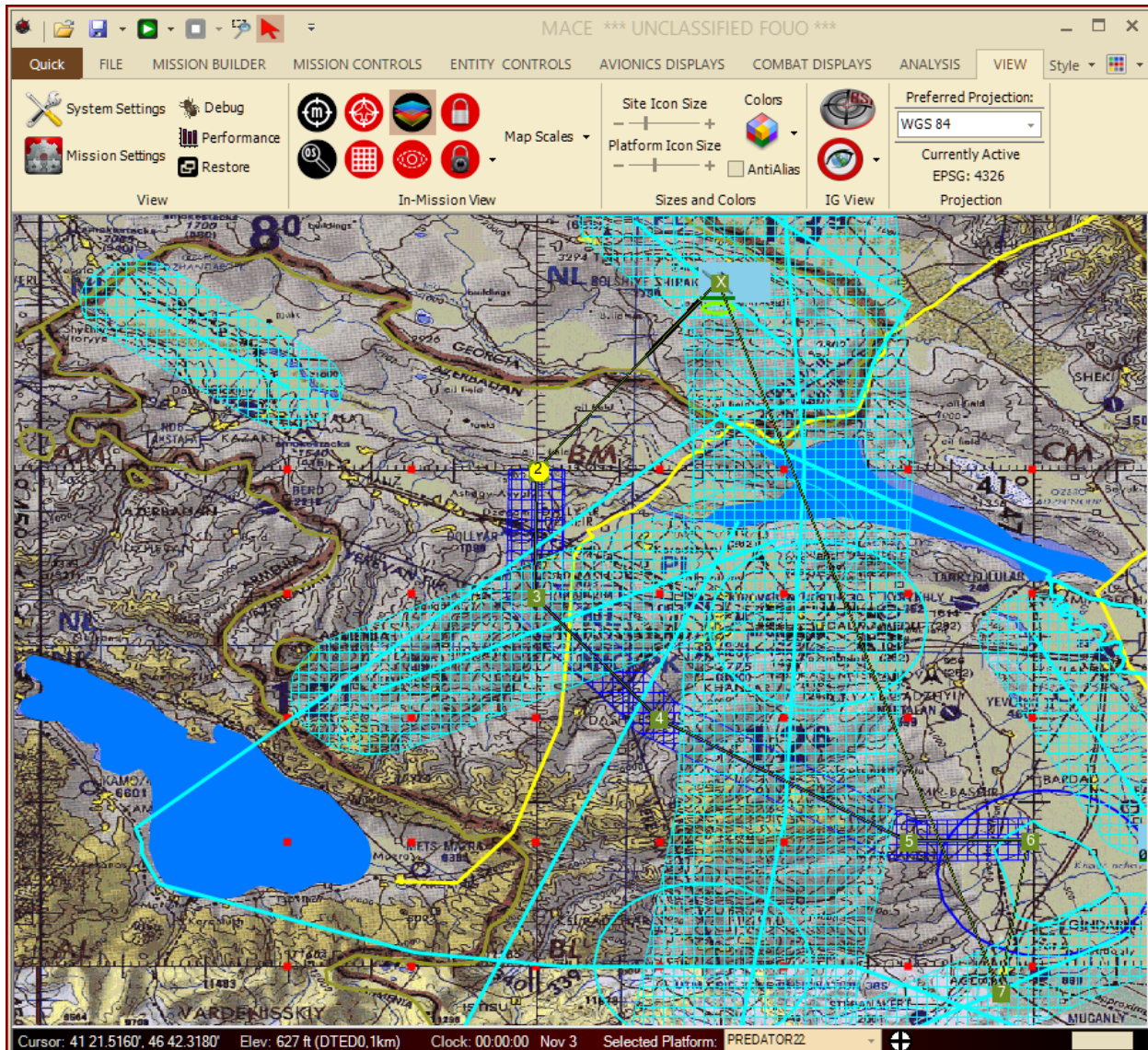
Proceed Via-Outbound

'Proceed Via – Outbound' is similar to 'Proceed Via', except that instead of inserting waypoints prior to the Mission waypoint, it will insert them along the corridor (in reverse order) just prior to the Recovery waypoint (generally, the last waypoint in the route, and located at the landing airfield). After this command is issued, the second-to-last waypoint will be tagged with the 'RTB' (return to base) waypoint action, which will tell the aircraft to land at the recovery airfield.

Proceed To

The 'Proceed To' command will be available for a variety of airspace types. The specific meaning will depend on the airspace type as well; for some, 'Proceed To' will mean proceed to the centroid and enter a 5nm loiter (for example, if the

target airspace is a Killbox), while for others, it will tell MACE to create a route around the specific shape as defined by the ACO (for example, for AAR or AEW tracks).

Also, most of the nodes will have an 'Info' option on the context menu that will bring up the properties for the selected node, as shown below. **TIP: You can also access this by ALT+Right-clicking on the airspace's Shape, on the MACE map.**

Shape: 9	
UID	9
TAB_LINE	0
TAB_SYMBOL	0
Type	ROZ
Name	SADUMP
Shape	ORBIT
Usage	AEW
Time_Mode	DISCRETE
Beginning_Time	010600ZNOV2014
Ending_Time	300559ZNOV2015
Effective_Level_Type	FLFL
Effective_Level_Lower	FL300
Effective_Level_Upper	FL310
Type_Enum	6
Shape_Enum	3
Usage_Enum	8
Effective_Level_Enum	5
Handle	1640
GIS_AREA	0
GIS_LENGTH	47.53 mi

Figure 13: Accessing Properties of ACO Items in MACE