

## VR-FORCES C2SIM INTERFACE

Current interface subscribes to a server (default 10.2.10.30) and listens for IBML09 and C2SIMv9 orders. It does not validate the order against an XML schema; simply parses out the necessary information elements.

The prototype distinguishes three types of objects for ManeuverWarfareTask PerformingEntity, as established in the C2SIMInitialization:

- An aggregate squad is recognized by the 12<sup>th</sup> character in the 15-character SIDCString having value "B"
- An aircraft is recognized by characters 3-6 in that string having value "APMH" or "APF"
- Everything else is represented as a VR-Forces Abrams Tank (clearly we have a lot more to do in defining objects)

Units to be simulated are initialized per C2SIMv9. If server is not yet running the interface waits on a startup initialization message; if already running it requests late joiner initialization for which the server sends the same message but with object positions from latest reports. Hostility and name come from the initialization process, with Entity UUID as key.

The order can have multiple tasks. Data pulled from the order are UUID, TaskersIntent (IBML09 only), DateTime, and vector of GDC coordinate points identified as latitude, longitude, and optional elevationAGL, presumed to be either a single-point destination or a route.

The order can be sent to the server by a command-line client or by the BMLC2GUI (both available open source on [c4i.gmu.edu/OpenBML](http://c4i.gmu.edu/OpenBML) under [C2SIM Client and Servers](#)).

The implemented order directs VR-Forces to MOVE an object with name given by UnitID through the sequence of locations given by the route. Or ATTACK at the same coordinates.

After an object is created and the server goes into running state, VR-Forces sends a position report for every object, every 30 seconds. The report uses the syntax of the last order received (IBML09 or C2SIM). Order execution starts when the order is received.

We expect to increase the variety of objects and actions they can take, based on needs of the MSG-145 C2SIM validation. We do not plan to expand c2simVRF to the full capabilities of VR-Forces; only to enable those use cases tried by MSG-145.