VR-FORCES C2SIM INTERFACE v1.5

Current interface subscribes to a server (default 10.2.10.30) and listens for C2SIM orders. It does not validate the order against an XML schema; simply parses out the necessary information elements.

The interface runs independently from VR-Forces; it functions by exchanging messages with VR-Forces. Using the download provided, the Interface is invoked in Windows by the command-line with up to six optional parameters:
bin64\c2simVRF <serverAddress> <restPort> <stompPort> <ClientID> <skipInitialize> <useIBML09>
where:
serverAddress is an IPv4 address (default 10.2.10.30)
restPort is the server Web service input port (default 8080)
stompPort is the server STOMP output port (default 61613)
clientID will be used to identify this VR-Forces as in the coalition
skipInitialize is 1 to run without the C2SIM startup initialization message sequence
useIBML09 is 1 to read IBML09 orders and send IBML09 reports

The order can have multiple tasks. Data pulled from the order are UnitID, 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 under C2SIM Client and Servers). Any tags in the order that include a namespace (for example, <ibml:Task>) will be ignored.

Operation normally starts with an initialization phase where a C2SIM_Military_Organization message is sent to the server for consolidation with such messages from other clients. When the server receives a SHARE command, it sends a consolidated C2SIM_Military_Organization message in the STOMP channel and the Interface uses this message to create VR-Forces objects. (There is a command-line option to skip this phase (see above), in which case the objects are created in VR-Forces when a command for them is received. Not very useful because there is no way to provide initial position for simulated objects.) After initialization the server is ready to run; when it receives a START command it goes into state running and the Interface starts VR-Forces simulating.

The schema for C2SIM_Military_Organization is available in BMLC2GUI/Schemas. Server operation is started by (1) STOP and RESET the server; (2) push one or more C2SIM_Military_Organization into the server; (3) INITIALIZE and START the server (these requires server password). This is very easy to do with BMLC2GUI, under the File dropdown. But you don't need to do it for every order; once all the units you will use are initialized in server you can enter multiple C2SIM or IBML09 orders; if you want the VR-Forces simulator cleared for the new order, just select the objects you want to go away in the VR-Forces object list and

delete them; then do the same for control measures using the next button over. This avoids restarting VR-Forces.

The Interface now listens for order messages. The order as implemented at present directs VR-Forces to move an object with name given by UnitID either to a lat/lon location or through the sequence of locations given by the route in the order. The object starts at its initialized point (or, if initialization was skipped, at the first set of coordinates in the order). If a subsequent order is sent with the same UnitID, no new object is created but the original object of that name is sent to a new sequence of locations. The interface also sends "blue force tracking" style reports on the object's location. The object may be friendly or hostile; it generates C2SIM or IBML09 position reports regardless. These can be viewed on the BMLC2GUI.

The trial C2SIM schema for CWIX 2018, based on the v0.6.8 ontology, is used by this interface. (It can be found among the schemata bundled with the BMLC2GUI.) As a result, the position report has the format CWIX_Position_Report. The schema includes a few Maneuver Warfare data elements that will support more interesting behaviors associated with the MSG-145 CWIX 2018 scenario.

Features employed for CWIX that are worth mention:

a. VR-Forces default map of Bogaland is very low resolution. A better terrain (though still not great) is available online and will be loaded automatically after selecting in the VR-Forces GUI: File->Open Terrain->MAK Earth Base (online). User will need to spin the globe and zoom in on Bogaland (southern Sweden).
b. Doug Reece of MAK used VR-Forces scripting to create a simple aggregated scout unit object, which c2simVRFinterface v1.5 uses for any unit initialized with echelon SQUAD and in absence of initialization for any unit with name ending "INF". The scout unit consists of 4 HUMVEE-like wheeled vehicles which VR-Forces codes as "SmWhel" in its GUI. The interface treats the location of the first SmWhel as the unit location and generates position reports with the aggregated name and that position.
c. The interface now recognizes an aircraft of sorts: If the positions 2 through 6 (starting at 0) of SymbolID in the Unit initialization are APMH an AH-64 rotary wing aircraft is generated. In the absence of initialization any unit name ending "AV" will be configured as AH-64.
d. With the exception of the squad and rotary wing, all units are represented by an Abrams tank.

Please report any problems with C2SIM Sandbox to Mark Pullen <mpullen@c4i.gmu.edu>. Try to be as specific as possible regarding the circumstances and be prepared to provide screenshots and data files.