



Fact Sheet

US Army Engineer Research and Development Center
Geotechnical Laboratory

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Ribbon Bridge Composibility Project for SAF

Purpose: Develop a Ribbon Bridge Functionality in OneSAF as part of the OneSAF Testbed Process.

Background: Current engineer force portrayal is limited in SAF models. Recent analysis of the Synthetic Natural Environment (SNE) indicated the desire for ribbon bridge portrayal "...Modeling the construction and use of other bridges remain a priority, ...including the ribbon bridge." (DARPA report Synthetic Environments, Lukes and Birkel). The ERDC over the past 15 years has developed technology related to use of the ribbon bridge. This effort provides an additional method of transferring this technology to the combat engineer community.

Approach: Implementing the ribbon bridge in OneSAF requires composing a new engineering unit. A currently available bridging asset, the Armored Vehicle Launched Bridge (AVLB) is providing the initial template for constructing the new unit consisting of transport vehicles (HEMTT), interior and ramp bridge bays, and bridge erection boats (BEB). The effort necessary to implement the ribbon bridge functionality into OneSAF is related the level of detail desired in the simulation. The simplest usable simulation consists of moving the unit to the deployment staging area, waiting the required time, given the deploy rate, and registering the existence of a path over the river after this time has elapsed. A higher fidelity simulation will require explicit modeling of bridge deployment and recovery, including simulation of transport vehicles, BEBs, and bridge sections as individual entities. At a minimum, a bridging platoon unit is needed, with the goal being a complete bridge company.

Implementing full functionality will require modifications to the terrain database. River depth and flow rate, in addition to width, which is currently available, are necessary to compute the required number of bridging sections, BEBs, and deployment time. Another ERDC work effort is investigating these hydrological feature issues. The actual deployment processes must be defined though the finite state mechanism of OneSAF.

This requires an analysis of the deployment and recovery operation associated with transport, BEBs, and bridge bays. States intermediate to deployed and recovered must be defined, such as deployment of BEB, attach, detach, and damaged states. The number of states is related to the level of detail desired in the simulation as described above. While ribbon bridge states and associated calculations are similar to existing bridging assets such as the AVLB, ribbon bridging will require new simulations for component classes unique to this bridge type, such as the BEB. Stealth implementation is under consideration but has not progressed as the primary consideration at this point is to implement the basic simulation and icons for the OneSAF plan view.

Point of Contact: For more information regarding the Ribbon Bridge Composibility Project, please contact CPT Paul D. Terrell at (601) 634-2792, (terrellp@wes.army.mil). General information about the ERDC is available at <http://www.erd.c.usace.army.mil>.

