

## **Germany/USA Transatlantic Distributed Simulation Project**

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### Abstract

A joint German/USA Transatlantic Distributed Simulation Project was initiated to develop and prove the capability to conduct live, interactive simulations to support testing in a multinational, geographically distributed environment. The first exercise includes a German anti-aircraft tank (Gepard) in a hardware in the loop facility in Greding, Germany (WTD-81) stimulated by virtual targets generated real time at Redstone Technical Test Center (RTTC) in Huntsville, Alabama. High Level Architecture (HLA) and the Run Time Infrastructure (RTI) developed by DMSO are implemented in this test.

This transatlantic HLA exercise can be considered a classic sensor, shooter, and target scenario consisting of two federates, digitized terrain of the WTD test range and a live Gepard air defense system. The Gepard engages, in real time, a constructive target generated at RTTC. This target federate provides target aircraft state data to the Gepard federate which then injects this information through the hardware in the loop facility into the radar system on-board the Gepard. This stimulates the on-board fire control system so that the gunner can engage the target. Data are gathered to evaluate the system performance to detect, track and engage the constructive aircraft target as if it were flying a test mission at WTD 81.

For this type of long-haul exercise, the challenges lie not so much with federate development, but with the synchronization and latency issues when dealing with a "real-time" transatlantic HLA distributed test. This paper will discuss the configuration, results and lessons learned in hopes of providing the reader insight into this challenging exercise.