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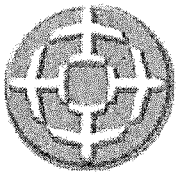

AVIATIONSIMNET™

Integration Manual

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Abstract

This document provides a high-level perspective of the components, requirements, and procedures, for integrating air-traffic related simulation systems (such as cockpit or air-traffic controller simulators) using the AviationSimNet Specification. It is designed to assist in estimating levels of effort and to guide potential participants through the process of joining AviationSimNet.

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AviationSimNet Specification

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Abstract

This document is a specification for creating and executing distributed Air Traffic Control (ATC) Human-in-the-Loop (HITL) simulations over a public, wide area network. Known as AviationSimNet™[1], this specification was developed mostly by adopting existing industry standards for network communications, in both simulation and voice protocols. This specification builds upon other distributed simulation efforts and will continue to evolve according to the needs of the aviation research community.

The scope of this specification includes definitions of the technologies required to support data and voice inter-communication in a controlled, simulated environment that models ATC simulations. It also includes the required protocols for using those technologies in order to facilitate implementations of this specification over a common network.

This document does not provide instructions on how to adapt any existing simulation capability to comply with the AviationSimNet specification. Rather, it provides the rules and limitations that can be used to achieve such goals. This document also does not address any activities associated with conducting analyses of a simulation execution. AviationSimNet requirements are highlighted throughout this document. Any application that satisfies these requirements is considered "AviationSimNet-compatible."

Section 1 of this document provides an introduction to the scope and technologies covered by AviationSimNet, as well as definitions that are relevant to AviationSimNet. Section 2 covers data communication protocols among simulation applications. Section 3 covers voice communication protocols among live participants of the simulation. Section 4 provides an overview of security measures for using AviationSimNet over a public network. Section 5 addresses performance, throughput, and latency requirements.

AviationSimNet is a collaborative effort among industry, academia, and government agencies. As such, this document was co-authored by the organizations participating in the AviationSimNet Standards Working Group. To date, organizations participating in AviationSimNet include Airline Pilot Association (ALPA), The Boeing Corporation, Center for Applied ATM Research (CAAR) at Embry-Riddle Aeronautical University (ERAU), Crown Consulting, The Federal Aviation Administration (FAA), Lockheed Martin Transportation and Security Solutions, The MITRE Corporation.s Center for Advanced Aviation System Development (CAASD), National Aeronautics and Space Administration (NASA) Ames Research Center, NASA Langley Research Center, Raytheon, and United Parcel Service.

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[1] AviationSimNet is a trademark of The MITRE Corporation.