

ARMY AVIATION DATA MANAGEMENT SYSTEM

The Army Aviation Data Management System (AADMS) provides the Air Network Infrastructure required for tracking players and player events during training at the Fort Irwin National Training Center (NTC).



The AADMS infrastructure enables instrumented players to collectively train at the NTC, to include the AH-64, UH-60, OH-58C, CH-47, and UH-72A aircraft. AADMS integrates Tactical Engagement Simulation System (TESS) data from the Advanced SMart Onboard Data Interface Module (ASMODIM) aviation player unit into the NTC Core Instrumentation Subsystem (CIS) via the Aviation Gateway (AGW).

The AADMS Life Cycle Replacement program has replaced and upgraded the aging Air Network Infrastructure and related networks, and improved Radio Frequency (RF) coverage areas for instrumented aircraft.

Five solar-powered remote site tower assemblies replaced seven towers that were non-operational. Affected networks include test administration, the Observer/Controller (O/C) networks, Core Instrumentation Subsystem (CIS) commands, and the AADMS player networks.

DATA MANAGEMENT

The Remote Site Tower Assemblies transmit aviation player data via Telemetry RF at a 1Hz data rate. A 900 MHz radio is used for Aircraft and O/C tablets. A 1.3 GHz Radio is used as a Backhaul to send data from the remote towers to the main towers at Tiefort and Granite mountains. Data is transmitted from the main towers via fiber optics cable to the AGW. The AGW communicates to the NTC-CIS via Ethernet.

INFORMATION ASSURANCE

The data link between the Aircraft and Towers is connected via 921-928 MHz hopset RF. Data is then sent to the 1.3 GHz Backhaul Radio

that transmits from the Remote Site Towers to Tiefort and Granite mountains. This data link is 256 bit encrypted via Advanced Encryption Standard (AES) and certified for use in accordance with the National Institute of Standards and Technology (NIST).

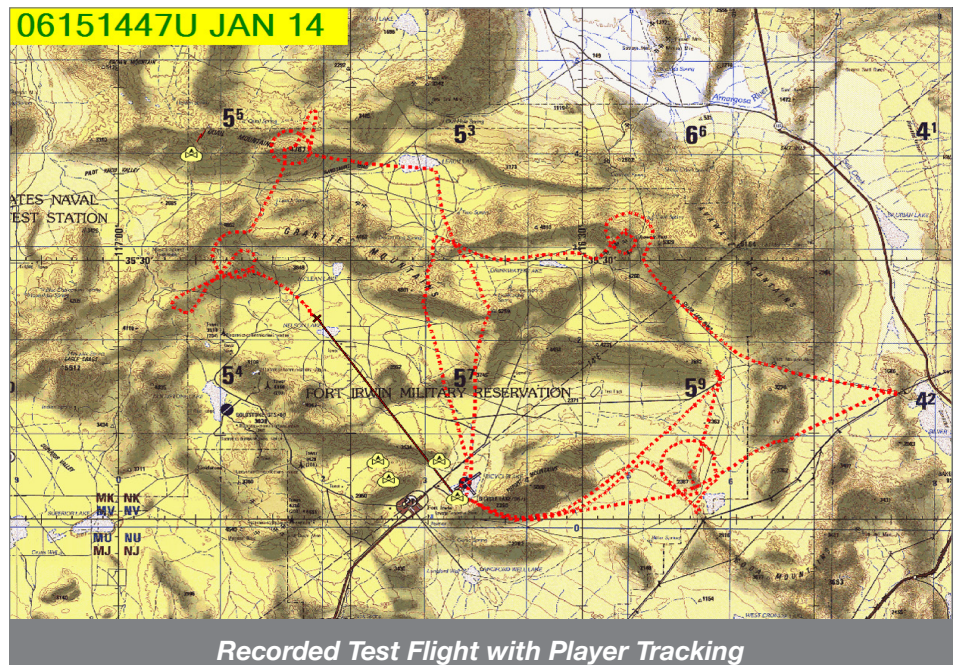
The fiber data link between the CIS and Towers is part of the current NTC Authorization to Operate (ATO). Data is transmitted to the AGW operating on a Windows 7 Virtual Machine (VM). This VM has had a Security Technical Implementation Guide (STIG) applied in accordance NTC's original ATO.



The AADMS Life Cycle Replacement program delivered major updates to the network infrastructure at the NTC. The system passed extensive government acceptance tests in a tough environment, and provided support during two unit rotations during implementation.

As stated by the Government customer, PM CTIS;

"The added coverage improves training feedback and tracking and safety oversight of aircraft to improve soldier readiness."



AVIATION GATEWAY

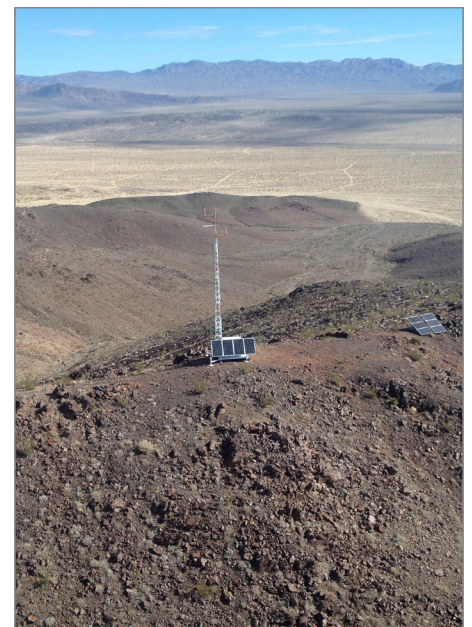
Upon receipt of an aircraft message, a Rack-mounted Relay Unit (RRU) sends the message to the AGW via a wireless radio transceiver installed at each of the main tower sites. The Radio packets the data in a User Datagram Protocol (UDP) message. It then transmits the UDP message upon connection from the AGW. When the AGW receives the message, it processes and transfers it to the CIS.

CIS EVENTS TO AIRCRAFT

Upon transmission of an event, such as a kill, resurrect or reset, the CIS sends the event to the AGW. Upon receipt of the event, the AGW processes and determines what player the event is destined for. The AGW then generates a player readable message telling the player to initiate that function. The AGW message is transmitted via Ethernet and the RRU relays it over the RF network.

SOLAR POWER

Each of the five Remote Site Tower Assemblies utilize a solar power system with a status monitoring display. Towers are 100% solar powered, and can operate up to 22 days without solar power and recharge within two days. The monitoring system collects data that provides indication for troubleshooting and pre-inspection in case of a problem or failure. Up to one year of solar operations data logging can be stored on an SD memory card.



ANY MISSION, ANY ENVIRONMENT, ANY PLATFORM