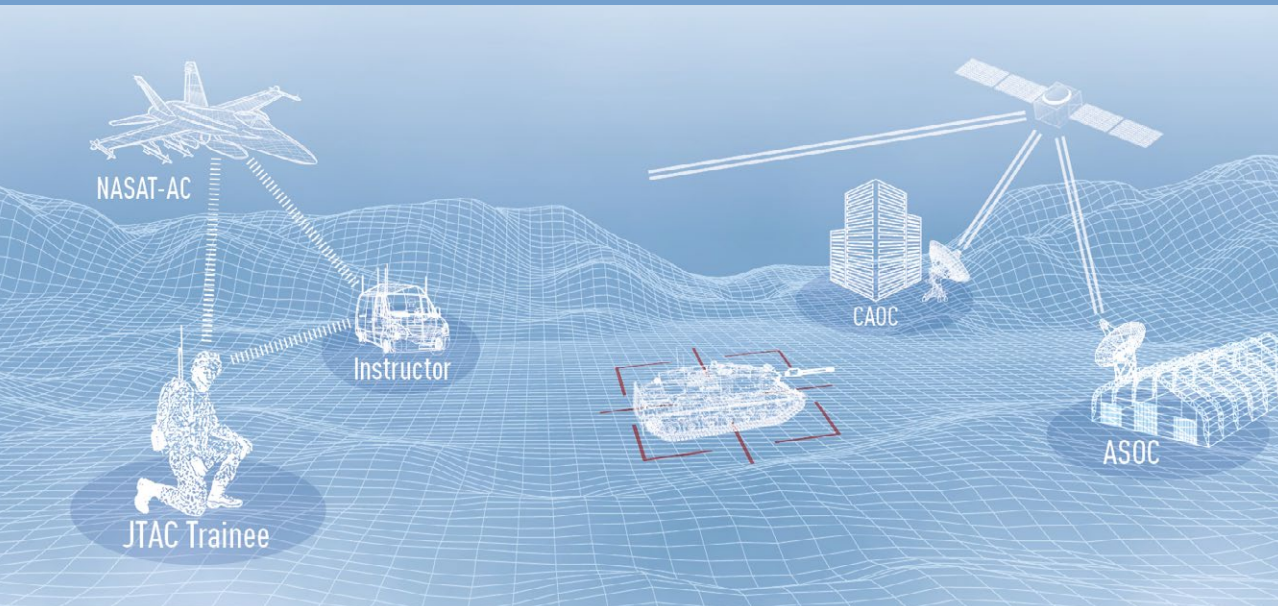# Live CAS Simulation and Training System
Prepare • Train • Evaluate • Improve

IABG's Live Close Air Support (CAS) Simulation and Training System is a modern state-of-the-art live training system used to qualify and prepare Joint Terminal Attack Controllers (JTACs) for close air support operations. Civil aviation contract air services aircraft are fitted with the Navigation Based System for Aerial Targeting (NASAT), which determines the position of the aircraft and transmits this information with all relevant Target Engagement and Effects Data to an instructor workstation/ground station. At the centre of the Live CAS Simulation and Training System is the JTAC himself. His instructor uses the information delivered via different subsystems to conduct the After Action Review (AAR) and score the trainees.

Background
The JTAC's job is a complex task and an acquired skill, which requires extensive training to reach qualification and maintain skills currency. IABG has developed and supports an internationally accepted training system aimed to support JTACs, their instructors and the wider military exercise.

Problem Statement
CAS is a critical element of joint fire support that requires detailed planning, coordination, and training of ground and supporting air forces for safe and effective execution. To maintain his currency the JTAC must participate in live training of the terminal attack control, manoeuvre and grant of weapons release clearance to attacking aircraft. The availability and cost of using of military strike aircraft for live training exercises drives the requirement to use civil aviation service providers for live CAS training. NASAT provides a cost effective solution for simulated weapons release and effects while capturing the air-ground-air CNR communication.

Use Cases
The NASAT Planning Tool pre-configures all aircraft with the planned mission load to ensure correct communication with the ground station. With his previously determined target coordinates, the JTAC uses his standard equipment to train briefing the aircrew on target approach, terminal control and engagement.

The ground station captures all relevant Target Engagement Information and Effects Data and is field deployable in both the mobile and static modes. The instructor monitors the employment of effects using IABG's Mission Display and Analysis System (MiDAS) software and, at the conclusion of the training, delivers the AAR.

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Value Proposition

The captured time stamped data is structured and displayed within the MiDAS event manager. The recorded data is made available for play back and analysis.

The system enhances CAS Exercises delivered using highly available and cost effective contract air services. Trainees and instructors can visualise and confirm the effects without the need to deliver live munitions.
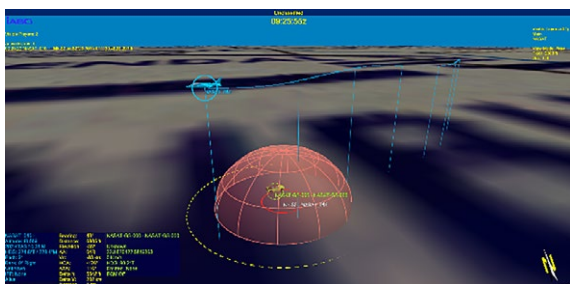
Coupled with IABG's UniVeMo Lite (Universal Vulnerability Model) analysis extension, this system can also be adapted and used as a weaponing tool to determine the quantity of a specific type of lethal or nonlethal weapons required to achieve a specific level of damage to a given target.

Target vulnerability, weapons effect, munitions delivery accuracy, damage criteria, probability of kill, and weapon reliability are considered in the analysis.

Key Advantages

- Trainee scoring using captured event data
- Highly available, cost effective and flexible
- Supports Digitally Aided Close Air Support (DACAS) and Video Downlink
- Scenario modification eg: alternative effects
- 100% ITAR-free Commercial-off-the-Shelf

Technical Data

The system complies with:
- ATP 3.3.2.1 Tactics, Techniques and Procedures for Close Air Support and Air Interdiction
- DO-160G, MIL-STD-810G, -461F

References

- German JTAC Competence Centre
- The German School of Artillery in Idar-Oberstein
- The German Army's Combat Training Centre
- GFD & QinetiQ Germany
- German Procurement Office BAAINBw L3.1

System Breakdown / Components

The system contains of the following Configuration Items (CI):
- NASAT Aircraft Subsystem
- Instructor Work- / Ground Station
- Combat Net Radio (JTAC Equipment)

Possible ammunition configurations (each as contact/ delay or airburst) include:
- Unguided Bombs: Mk 82, Mk 83, Mk 84
- PGM: GBU 12/24/31/32/38/49/54, BLU 109
- MSL: AGM 114 K/M/N/FA, AGM 65
- Gun: FW 20/25/30mm
- Rockets: Mk 151/229/261, Mk 151/229/261 (low ALT), Mk 24

Scope of Delivery / Services

- Hardware and software components
- USB SW Installers and product documentation

The NASAT Aircraft System provides aircrew with an intuitive cockpit User Interface (UI) enabling the crew to enter the communicated target engagement parameters into the system and transmit via data link to the ground station.

System Support & Training Services

IABG software products are delivered in accordance with their respective software release plans and maintenance agreements. Support plans delivered with IABG products include regular software and maintenance updates.

IABG training courses deliver the essential content required to ensure trainees are able to apply systems in the context of their operations. All aspects of the use, configuration and administration of the system are covered. Successful completion of the interactive training provides the basis to support continued proficiency improvement.

For further information please contact:
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Further information for
Live CAS Simulation
and Training System

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