CAE**Sprint**™

Virtual Reality (VR) Trainer

The CAE Sprint Virtual Reality (VR) trainer is an integral element of the CAE Trax Academy, a student-centric, self-paced training continuum - a system integrating multiple training elements and tools for a mobile-assisted, closed-loop adaptive learning system. More than just another simulation-based training device, the CAE Sprint VR trainer is a medium to deliver lesson content and guided training to help pilots practice and hone requisite skills.

CAE Sprint Virtual Reality (VR) Trainer

The CAE Sprint VR Trainer is a high-fidelity immersive training device, both small and affordable.

Visual immersion is enabled via a VR headset with high-resolution out-the-window visuals generated by the CAE Medallion image generator and delivering the visual acuity to read the instrument panel.

Physical controls including joystick, throttle, and rudder pedals provide realistic sensory feedback.

The immersive and realistic VR experience in the CAE Sprint VR trainer is enhanced by:

- Platform-tailored configurations leveraging full-fidelity simulation software for increased training fidelity
- Excellent visual quality delivered by the integration of the Head Mounted Display (HMD) and CAE Medallion image generator to provide a realistic out-the-window (OTW) visual environment, with 20/20 visual acuity enabling the cockpit instruments to be easily real
- Hand tracking input for bare-handed operation
- Sound enablement
- Seat vibration effects
- Biometric evaluation tools

The CAE Sprint VR trainer helps support better student throughput:

- Students train at their own pace, not limited by communal progress at the group/class level or blocked by scheduling restrictions
- The CAE Sprint VR trainer can be reconfigured to provide training on multiple platforms
- Visual database, collimated Heads Up Display (HUD), full weather simulation consistent with high-fidelity simulator
- Multiple CAE Sprint VR trainers can be linked to enable crew or team training
- A comparably low cost of ownership facilitates an increased number of training devices available for training, with no constraints
- More training devices means more students can be trained

The CAE Sprint VR Trainer helps support better quality training when integrated with CAE Trax Academy:

- Embedded CAE Trax Academy training content provides higher value than VR simulation alone
- CAE Learning Management System (LMS) including computer-based training (CBT) combined with high-fidelity, virtual reality (VR) enhanced visual content for scenario immersion
- The CAE Virtual Coach delivering immediate, actionable instruction and feedback
- CAE Rise (Real-time Insights and Standardized Evaluations) performance assessment, tracking and benchmarking for continuous improvement
- CAE's simulation-based courseware provides a common core simulation base ensuring continuity throughout the training continuum – from courseware and self-paced VR trainer to higher-fidelity flight training devices and full-mission simulators.

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CAE Sprint VR Training Device Configuration

Configuration profile*	Non-specific (generic) cockpit controls	Platform-tailored cockpit controls
Training tasks	Procedures training, demonstrating maneuvers, flight training, live sorties familiarization, weather conditions	
Simulation	CAE high-fidelity aircraft simulation with full virtual environment (i.e. weather, sound)	
Self-paced lessons	Tailored to customer curriculum	
Virtual coach	Embedded objective assessment and real-time virtual coach powered by CAE Rise, based on: Aircraft dynamics | Flight controls | Cockpit switch | Eye tracking	
Headset	High-end commercial grade headset, 20/20 eye acuity in targeted viewing area	
Cockpit interface	Infrared (IR) camera-based bare-handed tracking	
Structure	Typical cockpit geometry	Specific cockpit geometry
Stick/Cyclic	High-end gaming, spring-loaded (Custom)	Force-feedback, 50 Nm
Stick grip	High-end gaming	Specific replica
Throttle/Collective	High-end gaming	Specific replica
Pedals	High-end gaming	Active controls
Seat	Gaming seat	Specific partial replica with electric height adjustment
Cueing		Seat vibration
Network	Interoperability capabilities over High Level Architecture (HLA) and Distributed Interactive Simulation (DIS)	

* Configuration profiles are based on identified training requirements as defined by a training needs assessment. The configurations above are examples.
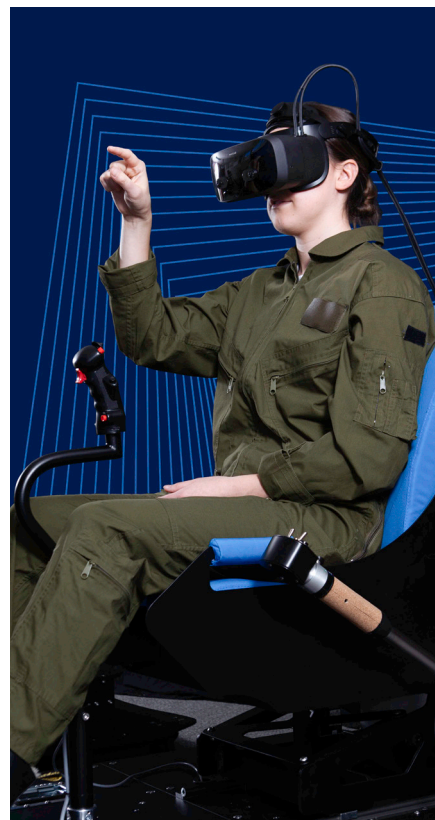
The CAE Sprint VR trainer offers the ability to offload training tasks from high-end flight training devices and simulators. The platform-tailored nature of the CAE Sprint VR trainer reinforces platform familiarity and muscle memory for better, more realistic immersion and training.

The effectiveness of the CAE Sprint VR trainer is increased with the integration of training content and support. Smaller, sophisticated and affordable, the CAE Sprint VR trainer makes self-paced immersive training highly accessible, enabling student pilots to practice and put learning into action for optimum progress in training.

Program Example

Transforming Fast Jet Pilot Training for the Royal Air Force

As one of the industry partners working with Ascent Flight Training, in collaboration with the UK MOD and RAF, CAE is supporting the virtual reality trials at RAF Valley as part of the on-going development of solutions for jet pilot training under the UK Military Flying Training System (UKMFTS). The CAE Sprint VR trainer is one of the VR technologies being trialed with the expectation that students will be able to gain skills faster and undertake training that cannot easily be replicated in the air, such as formation flying and combat skills. Results independently validated through academic peer review will drive the design of the future UKMFTS program.

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