

# OMIA: Simulation-based Training for Helicopter Cockpit Operations

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**Customer** U.S. Navy

**Users** Helicopter crew members and their instructors at HSC-3 and HSM-41 at Naval Air Station North Island, HSC-2 at Norfolk, HSL-44 at NAS Jacksonville, and HSM-40 at NS Mayport. Helicopter crew members in every fleet squadron with MH-60S or MH-60R helicopters.

**Need** The Common Cockpit design used by the Navy's MH-60S and MH-60R helicopters includes all the flight and mission instrumentation. It enables the pilot and co-pilot to share workload through dual flight and mission instrumentation; and to work with the Sensor Operator in the MH-60R. The Navy needed a flexible training system that could function as a part-task trainer for general functionality, as well as be expandable to support in-depth training in particular subsystems, such as the FLIR or active and passive acoustics. The solution also needed to be as accessible as possible, that is, from NMCI computers to WEB access from anywhere.

**Solution** For more than a decade the US Navy's PMA-205 in conjunction with Stottler Henke has developed/deployed/updated a flexible, low-cost PC-hosted and WEB-hosted Part-Task Trainer (PTT) crew trainer for the Navy's MH-60S (Sierra) and MH-60R (Romeo) helicopters called the *Operator Machine Interface Assistant (OMIA)*.

The core OMIA is a standalone Java program that operates under any standard Windows 7/8/10, Linux or Macintosh computer that includes a Java Runtime Environment. The standalone OMIA is a part-task trainer for the Common Cockpit, including the Mission Display, Flight Display, various Center Console panels including the CDU, CMP, RCU and FLIR HCU units.

OMIA also supports integration with NASA's WorldWind that provides external view support for the FLIR. The core OMIA supports three training configurations: Sierra Pilot, Romeo Pilot, and Romeo Sensor Operator.

There are two additional in-depth training areas currently supported by OMIA: FLIR and acoustics. These areas add functionality to the core system described above.

The FLIR functionality allows OMIA to function as a FLIR trainer. The FLIR user mainly controls the FLIR operation via a Hand-Control Unit (HCU). OMIA can interface with a portable hardware HCU that is a close facsimile of the actual helicopter's HCU via USB, or with a software version of the HCU.

The acoustic functionality supports in-depth acoustic systems training. In this configuration OMIA supports both dipping sonar and sonobuoy sonar, both with active or passive modes, with fidelity that matches the full-flight TOFT simulators.

**Status** OMIA is currently used in the US Navy's fleet training program for MH-60R and MH-60S helicopter crews, as well as for refresher training in deployed squadrons. In addition, it is used to familiarize maintenance crews with the MH-60S cockpit. OMIA is available to all crewmembers at land and at sea.

OMIA has also be acquired by the Royal Australian Navy (RAN) for use by all RAN MH-60R crewmembers of the RAN for initial training as well as refresher training.

## Example: OMA for FLIR Training in MH-60R Pilot Configuration

Mission Display with FLIR enabled (upper left), Flight Display (upper right), and hardware FLIR hand control unit via USB (lower right), and other panels.

