



Australian Government  
Department of Defence

# Defence Current and Future Simulation Projects 2005 - 2015



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**Prepared by:**

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## Foreword

The Defence Current and Future Simulation Projects 2005-2015 comes at the conclusion of the most significant review of Defence's capability requirements since the Government's Defence White Paper, Defence 2000: Our Future Defence Force. As a result of this review some discrete major simulation projects were deferred. However, significant major simulation capability investment is ahead given that the majority of the projects within the new DCP (2004-2014) either already have, or will soon have, a simulation component.

This document builds on the Government's 2001 commitment to keep Australian industry abreast of Defence's acquisition planning so that it can effectively perform its role as a crucial component of our national Defence capability. It is an example of due recognition that industry requires some level of certainty and visibility of our Defence planning parameters in order to provide the most appropriate and effective capabilities for the Australian Department of Defence.

While indicative only, the information contained within this document is offered to enable industry to:

- obtain early information and broad guidance on Defence's long-term simulation capability plans;
- identify the skills, technology and infrastructure development requirements needed to support defence simulation capability;
- identify opportunities for involvement in defence simulation capability delivery and support;
- better understand Defence's simulation capability requirements; and
- provide meaningful contributions to Defence's simulation capability definition processes.

This publication is a source of valuable reference material. It is also an instrument for facilitating the ongoing cooperation and successful partnering between Defence and industry. I commend this document to our Australian defence industry colleagues.

A handwritten signature in black ink that reads "Cliff White".

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*Note: For recognition of a simulation's impact on a particular application area, the following scale has been utilised:*

- 1 – Simulation has primary impact in this application area.*
- 2 – Simulation has secondary significance in this application area.*
- 3 – Simulation has limited significance in this application area.*

# 1 Defence Simulation Majors Program - Capability Development Group

## Aerospace Battlelab Capability (ABC)

An Operational Concept Document is being scoped for the ABC. AIR5430 Aerospace Synthetic Environment was removed from the DCP, therefore the ABC is seeking alternate funding lines. The ABC is to be a simulated environment to support RAAF decision-making across the capability life cycle. The ABC will utilise prototype concepts developed by the DSTO Aerospace Battlelab Framework.

### Application Areas

Training	1	Crisis Management	3	Acquisition	1
Mission Rehearsal	0	Conduct of	0	Lifecycle	1
Force Assessment	1	Experimentation	1	Research and Development	1

**Type:** Various

**Status:** Unapproved Project

**Group:** Capability Development Group

**Organisation:**

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## AIR 5077 Airborne Early Warning & Control

This project will acquire an Operational Flight Trainer (OFT), an Operational Mission Simulator (OMS), and training and support packages, to train AEW&C Flight and Mission Crew respectively. The OFT will simulate the AEW&C aircraft in all phases of flight and provide some AEW&C mission-related training capability, including Air-to-Air Refuelling and Electronic Warfare Self Protection. The OFT will be certified in June 2006 to ICAO level 5 standards (zero flight time simulator). The OMS will simulate the AEW&C Mission System sub-systems in the full range of AEW&C operations in a representative-operating environment. The OMS is to be certified June 2006. Each simulator will be operated by

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Contract

**Group:** Capability Development Group

**Organisation:** Strike Reconnaissance Group

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## AIR 5276 Phase 5A, AP-3C Orion Electro-optic Enhancement

AIR 5276 Phase 5A, approved in Feb 04, will provide the AP-3C fleet with deployable elements of the EO capability sought in the former PA 5276 Phase 5 well in advance of the original 2009 ISD in the DCP. Phase 5B will address the more complex capability integration issues of the EO capability, including off-board provision of AP-3C imagery and inclusion of the capability in mission simulators.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** YOD 2005/6

**Group:** Capability Development Group

**Organisation:** Strike Reconnaissance Group

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### AIR 5276 Phase 6, Data Links for AP-3C Orion

AIR 5276 Phase 6 seeks to provide an update of the data links on the Royal Australian Air Force (RAAF) AP-3C Orion Maritime Patrol Aircraft. Data Links are used for exchanging digital information through specified techniques and standard message formats. The simulation component could be a task trainer and stimulator, and upgrading of the AP-3C training systems (including mission simulator).

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** YOD 2006/7

**Group:** Capability Development Group

**Organisation:** Strike Reconnaissance Group

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### AIR 5276 Phase 8B AP-3C Electronic Support Measure- Acquisition

The AP-3C Mission Simulator has a number of VAX and Alpha computer which run the operational and simulation of the Electronic Support Measures (ESM) sensor. These COTS based computers have become unsupported and are being upgraded under Project AIR 5276 Phase 8B.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Unapproved Project

**Group:** Capability Development Group

**Organisation:** Strike Reconnaissance Group

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### AIR 5276 Phase 8C AP-3C Technology Insertion/Component

The AP-3C Mission Simulator has a number of VAX and Alpha computers which run the operation and simulation of the Electronic Support Measures (ESM) sensor. These COTS based computers have become unsupported and are being upgraded under Project AIR 5276 Phase 8B. To ensure the simulation of the ESM system remains operational until the planned withdrawal date of the AP3C (2015), the upgrade computers will require an additional upgrade in the 2010 timeframe. AIR 5276 Phase 8C is being developed to upgrade the Phase 8B computers in 2010.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Approved Project

**Group:** Capability Development Group

**Organisation:** Strike Reconnaissance Group

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### AIR 5276 Phase 9 AP-3C Orion Component Enhancements

Phase 9 seeks to address AP-3C obsolescence issues out to the planned withdrawal date of the AP-3C. Phase 9 was included in the Defence Capability Plan 2004-2014 based on information initially provided by MPSPO in the "AP-3C Obsolescence Snapshot" to CS Division to support the Key Assets Review undertaken by CIR Division in early 2003. Obsolescence issues notionally planned to be addressed in Phase 9 include the radar, operational mission simulator, acoustic system, and data management system. This list is not expected to be exclusive. This project will impact on the Mission Simulator and, potentially, the Advanced Flight Simulator

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** YOD 2006/7

**Group:** Capability Development Group

**Organisation:** Strike Reconnaissance Group

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## AIR 5333 Vigilare

This project aims to replace the fixed site, air defence, command and control systems located at Number 2 Control and Reporting Unit (2CRU) and Number 3 Control and Reporting Unit (3CRU). The simulation component will acquire a training capability in air defence operations, including the capability to simulate sensors, and to replay data in an interactive mode.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Contract

**Group:** Capability Development Group

**Organisation:** Aerospace Development

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## AIR 5398 Air-to-Surface Stand-off Capability, Phase 1A/2

Project AIR 5398 Phase 1A/2 is acquiring the AGM-142E Stand-Off Weapon for integration into F-111C aircraft. The Project will provide the ADF a capability to strike non-hardened and semi-hardened fixed unitary targets while providing greater stand-off range than can be achieved with free-fall munitions, thereby improving survivability of the F-111C aircraft. The AGM - 142 is being procured under an FMS contract. The simulation components are threefold and include the modification of the F-111 mission simulator to reflect the new weapon being acquired, the acquisition of a mission rehearsal training system and a missile planning system. The mission rehearsal training system is being developed by Ball Solutions Group. The missile planning system has been acquired through the FMS Case. Modifications to the F-111 simulator are being performed under the Block Upgrade Program contract with Boeing Australia Limited, who have subcontracted to Thales Training and Simulation

### Application Areas

Training	1	Crisis Management	2	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Contract

**Group:** Capability Development Group

**Organisation:** Air Guided Weapons SPO

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## AIR 5405 Phase 1, Mobile Sector Operations Centre

AIR 5405 Phase 1 covers the acquisition of a Mobile Sector Operations Centre (MSOC) for air defence, comprising a Mobile Control and Reporting Centre (MCRC) and a Mobile Command Centre (MCC). The MSOC will provide a deployable aerospace battle management capability to support Deployable Joint Force Headquarter operations and augment the two fixed Regional Operational Centres (ROCs). The acquired MSOC would be modular, such that it is capable of being tailored to meet specific requirements, ranging from an air surveillance reporting post to a full Combined Air Operations Centre capability. The MSOC would be capable of working autonomously or being integrated into the Australian Air Defence System or coalition air defence systems. The envisaged simulation component would consist of recorded scenarios integrated into the operational system, together with live operator/pilot voice communications to stimulate fighter control mission. A link into the Virtual Air Environment will further stimulate and facilitate air defence simulations.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	2

**Type:** Virtual

**Status:** Unapproved Project

**Group:** Capability Development Group

**Organisation:** Aerospace Development

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### AIR 5409 Bomb Improvement Program

Upgrade of current flight simulators to incorporate aircraft changes due to introduction of BIP.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Approved Project

**Group:** Capability Development Group

**Organisation:** Aerospace Development

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### AIR 5418 Phase 1 Follow-on Stand-Off Weapon Capability

The project is currently unapproved, however it has been identified that current F/A- 18 and AP-3C mission simulators will need to include functionality to support the Follow-on Stand-off Weapon.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Unapproved Project

**Group:** Capability Development Group

**Organisation:** Aerospace Development

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### AIR 5428 Phase 1 Pilot Training System

The simulation requirement of the New Pilot Training System (NPTS) is still to be determined. It is assumed that simulation will provide a vital training tool within the NPTS however its application and magnitude are still being studied.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** YOD 2007/8

**Group:** Capability Development Group

**Organisation:** DGAD

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### AIR 5432 Communications, Navigation, Surveillance/Air Traffic Management.

AIR 5432 aims to identify and acquire or enhance various capabilities of the ADF's space, air, maritime and ground-based systems to ensure that airspace use and air traffic management is optimised for both military and civilian users. The proposal will examine a broad range of capability options and enhancements that would provide an on-going capability. The precise nature and composition of the ensuing acquisition phases will be determined by the capability definition phase. Simulation and modelling has been identified as a requirement.

#### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** TBD

**Status:** YOD 2007/8

**Group:** Capability Development Group

**Organisation:**

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### AIR 6000 Phase 2A New Aerospace Combat Capability

The NACC project is determining the ADF requirements for the new air combat capability for the 2012-30 timeframe. The JSF (F-35) capability is being assessed as the expected manned element to satisfy those requirements. A mission simulator will be considered.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** YOD 2008

**Group:** Capability Development Group

**Organisation:** DOR NACC

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### AIR 6000 Phase 2B New Aerospace Combat Capability

The NACC project is determining the ADF requirements for the new air combat capability for the 2012-30 timeframe. The JSF (F-35) capability is being assessed as the expected manned element to satisfy those requirements.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** YOD 2008

**Group:** Capability Development Group

**Organisation:** DOR NACC

**Contact:** Group Captain Michael Maher

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### AIR 6000 Phase 2C New Aerospace Combat Capability

Phase 2C of the New Air Combat Capability will complement the air combat capability provided by Phases 2A and 2B which are expected to comprise JSF aircraft. A PCOD for Phase 2C is in development for first pass approval.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** TBD

**Status:** Unapproved Project

**Group:** Capability Development Group

**Organisation:** DOR NACC

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### AIR 7000 Phase 1

This Phase incorporates all aspects of the project previously known as JP2062 and will consider and further develop options leading to the acquisition of an unmanned aerial system that can perform all-weather, long endurance surveillance and reconnaissance tasks over maritime and land environments. Simulator components are likely to be Mission and Flight Simulators.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	1
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** TBD

**Status:** Pre-First Pass

**Group:** Capability Development Group

**Organisation:**

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## AIR 7000 Phase 2

Maritime Patrol Aircraft Capability. This Phase incorporates all aspects of the project previously known as AIR 5276 Phase R and will aim to acquire a manned Maritime Patrol Aircraft system capable of performing maritime patrol and response tasks.

### Application Areas

Training	1	Crisis Management	0	Acquisition	1
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** TBD

**Status:** Pre-First Pass

**Group:** Capability Development Group

**Organisation:**

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## AIR 8000 Phase 1 C-130H Refurbishment

AIR 8000 Phase 1 aims to refurbish the Royal Australian Airforce C-130H Hercules transport aircraft. This proposal would see a major refurbishment of the existing C-130H fleet to extend the platform Life to Type out until at least 2020. This will have impacts on current flight simulators.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** YOD 2008/9

**Group:** Capability Development Group

**Organisation:** Aerospace Development

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## AIR 8000 Phase 2 Battlefield Airlifter

AIR 8000 Phase 2 seeks to acquire a Battlefield Airlifter(BFA) capability. This capability will focus on the provision of an inter-theatre and intra-theatre airlift solution which will operate primarily at lower altitudes (below 10,000 feet for intra-theatre operations). Currently Air Force do not utilise a flight simulator for the extant light fixed-wing transport aircraft, the Caribou. Purchase of a full flight simulator would be considered as part of Air 8000 Phase 2, depending on the weapons system selected.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** YOD 2006/7

**Group:** Capability Development Group

**Organisation:** Aerospace Development

**Contact:** Wing Commander Peter Wood  
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## AIR 9000 Phase 3, Seahawk Mid-Life Upgrade

Potential simulator upgrade as a consequence of the Seahawk upgrades.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	2	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Unapproved Project

**Group:** Capability Development Group

**Organisation:** Capability Systems

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### AIR 9000 Phase 4, Blackhawk Mid-life Upgrade (or replacement)

AIR 9000 Phase 4 will address the modernisation or replacement of the Australian Army's fleet of 36 S70-A-9 Blackhawk helicopters, consistent with the AIR 9000 Phase 1 Australian Defence Force (ADF) Helicopter Strategic Master Plan. The simulation component may require the current Blackhawk simulator, training and maintenance aids to be upgraded consistent with the platform.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	2	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Flight Simulator

**Status:** Pre-First Pass

**Group:** Capability Development Group

**Organisation:** Capability Systems

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### AIR 9000 Phase 5B, Chinook Mid-life Upgrade

AIR 9000 Phase 5B (was AIR 130 Phase 2) will address the modernisation of the Australian Army's fleet of six CH-47D medium lift helicopter. This may involve the upgrading of aircraft systems, avionics, aircraft structures and aircraft propulsion. The simulation portion of this upgrade may include a training system to meet ADF's training

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	2	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Flight Training Device

**Status:** YOD 2009/10

**Group:** Capability Development Group

**Organisation:** Capability Systems

**Contact:** Lieutenant Colonel Dave Hayes

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### AIR 9001

AIR 9001 seeks to provide supplementation to the funding required in the formative years to set up a commercially leased helicopter training system for Navy. AIR 9001 Ph1 seeks to take advantage of the AIR 9000 Program.

Project AIR 9001 Ph1 will, in part, contribute to the rationalisation of aircraft types by replacing the existing AS350BA and Sea King types with a single type under a leasing agreement. Simulator component will be part of the leasing

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** YOD 2005/6

**Group:** Capability Development Group

**Organisation:** Capability Systems

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### DEF 224 Phase 2B Force Level Electronic Warfare

Phase 2B is the first major acquisition phase of the proposal. It will provide additional capability and enhancements to support concurrent operations. Simulation support is likely to be in the shape of systems trainers.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Approved Project

**Group:** Capability Development Group

**Organisation:**

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### DEF 224 Phase 3 Force Level Electronic Warfare

Phase 3, which will meet emerging needs with incremental technology enhancements to maintain a credible capability. Simulation components determined under Phase 2B are likely to be enhanced.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Unapproved Project

**Group:** Capability Development Group

**Organisation:**

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### Joint Simulation Capability (JSC)

ADSO continues to develop the Australian Defence Organisation (ADO) Joint Simulation Capability (JSC). At the technical level this focuses on the development of the Joint Synthetic Environment (JSE) mainly through the development of JSAF and associated tools within a HLA capable federation. This development aims to produce a simulation environment capable of supporting training, capability development, experimentation (CD&E) and support decision making in the operational environment.

#### Application Areas

Training	1	Crisis Management	1	Acquisition	1
Mission Rehearsal	1	Conduct of	1	Lifecycle	1
Force Assessment	1	Experimentation	1	Research and Development	1

**Type:** Various

**Status:** Under Development

**Group:** Capability Development Group

**Organisation:** Australian Defence Simulation Office

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### JP 0001 Phase R Harpoon Missiles Upgrade

Upgrade to existing Harpoon Training System to simulate the Block II capabilities acquired in the Harpoon Block II missile. Simulation also pertains to the Advanced Harpoon Weapon Control System to be fitted to ANZAC class Ships under project SEA 1348 Ph 3A.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Approved Project

**Group:** Capability Development Group

**Organisation:**

**Contact:** Lieutenant Commander Aaron Nye  
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### JP 2048 Phase 2,3,4A,4B&4C Amphibious Deployment and Sustainment Capability

JP 2048 comprises of four phases: a. Phase 1A is in progress and will acquire a watercraft system (6xLPA watercraft) to be used in conjunction with the LPAs-HMAS Manoora and HMAS Kanimbla. Phase 2 is a Project Definition Study (PDS) to identify options for replacing the current Australian Defence Force (ADF) amphibious transport capability and the current afloat support capability under Project SEA 1654 Phases 2 and 3. Phase 3 is designed to provide Amphibious Deployment and Sustainment (ADAS) Capability with a new breed of amphibious watercraft that will integrate with the platform chosen in Ph 4B/4C and be able to transport personnel and equipment from large amphibious ships to shore without utilising fixed port facilities, or prepared landing areas. This will provide a significant lift capability and further enhance the flexibility of the ADAS. These new watercraft will replace the existing capability inherent in the current generation of LCM8, LCH watercraft, and the new LPA watercraft being acquired

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Unapproved Project

**Group:** Capability Development Group

**Organisation:**

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### JP 2060 Phase 3 ADF Deployable Medical Capability

JP 2060 Phase 3 will seek to enhance the capability of the simulation equipment procured under Phase 2A, namely the INTERMEDIATE FIDELITY MANIQUIN SYSTEM (IFMS). The IFMS is used to simulate a patient and the treatments applied in order to improve the skills and knowledge of the medical staff.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Unapproved Project

**Group:** Capability Development Group

**Organisation:** LDB

**Contact:** Major Brett Laboo

(02) 6265 2815

[brett.laboo@defence.gov.au](mailto:brett.laboo@defence.gov.au)

### JP 2064 Phase 2/Phase 3/Phase 4, Geospatial Information Infrastructure and Services.

JP 2064 Phase 2 (YOD 2002/03), Phase 3 (YOD 2004/05) and Phase 4 (YOD 2009/10) seek to develop a geospatial information infrastructure and services capability for Defence. This is not a simulation project as such, but simulation projects may be required to access real terrain data captured and managed under JP 2064.

#### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Unapproved Project

**Group:** Capability Development Group

**Organisation:**

**Contact:** Major Simon Buckpitt

(02) 6265 1523

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### JP 2070 Phase 3 Lightweight Torpedo Replacement

A simulator is required to replicate the MU90 weapon so that tactics can be developed. In due course, it may also be used for training, research and contributing to a joint database of weapon performance. The supplier is likely to be DCN, France and they have been asked to develop a proposal.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Approved Project

**Group:** Capability Development Group

**Organisation:**

**Contact:** Commander Robert Beveridge

(02) 6266 1825

[robert.beveridge@defence.gov.au](mailto:robert.beveridge@defence.gov.au)

### JP 2080 Phase 2A Defence Management Systems Improvement

Data modelling and data mining to predict finance, personnel and logistics trends.

#### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Research Simulator

**Status:** Approved Project

**Group:** CIO

**Organisation:** CIO

**Contact:** Mr David Carn

(02) 6265 7594

[david.carn@defence.gov.au](mailto:david.carn@defence.gov.au)

## JP 2097 Phase 1 REDFIN-Enhancement to Special Operations Capability

JP 2097 intends to use a range of simulation tools to inform acquisition (R&D through DSTO) and then to contribute to training, mission planning and rehearsal. Exact requirements are yet to be defined as is the amount/portion of investment required for the simulation systems is yet to be defined.

### Application Areas

Training	1	Crisis Management	0	Acquisition	1
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Various

**Status:** YOD 2005/6

**Group:** Capability Development Group

**Organisation:** Land Combat Branch

**Contact:** Major David Tonna

(02) 6265 4643

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## JP 8001 Phase 2B Headquarters Australian Theatre

JP 8001 Phase 2B seeks to design and construct a permanent facility for an Australian Defence Force (ADF) collocated joint headquarters capable of conducting joint, combined and single-Service military campaigns. The phase aims to establish a Headquarters Australian Theatre (HQAAT), collocating Joint Staff, Maritime, Land, Air and Special Operations Components, the Australian Theatre Joint Intelligence Centre, and Headquarters 1st Joint Movement Group within a single, permanent facility. The simulation component may include graphical battlespace representations, and wargaming rehearsals.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	1	Conduct of	1	Lifecycle	0
Force Assessment	0	Experimentation	2	Research and Development	0

**Type:** Task Trainer

**Status:** Approved Project

**Group:** Capability Development Group

**Organisation:** Capability Systems

**Contact:** Mr Kevin Wode

(02) 6266 8563

[kevin.wode@defence.gov.au](mailto:kevin.wode@defence.gov.au)

## JP2098 Joint Combined Training Centre (JCTC)

JCTC consists of Phase 1 at this point. Phase 1 will be the Proof of Concept capability and will be in-service for its performance to be evaluated on Exercise TALISMAN SABRE 07. JCTC has a YOD of 05/06 with ISD mid 07

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	2	Experimentation	2	Research and Development	0

**Type:** Various

**Status:** Unapproved Project

**Group:** Capability Development Group

**Organisation:**

**Contact:** Brigadier Bob Brown

(02) 6265 1780

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## LAND 112 Phase 4, Australian Light Armoured Vehicle (ASLAV)

Land 112-4 ASLAV Survivability Enhancement includes a situational awareness upgrade to the Battlespace Management System which will be provided under Land 75. This is most likely to be software upgrades to integrate turret sensor and navigation systems as well as to introduce Blue Force Identification and non-cooperative target identification. This information must be replicated in the ASLAV CPT environment. Therefore integration of the scenario generator and information display in the CPT will be funded under this phase of the ASLAV program.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** YOD 2006/7

**Group:** Capability Development Group

**Organisation:**

**Contact:** Captain Michael Scott

(02) 6265 3875

[michael.scott@defence.gov.au](mailto:michael.scott@defence.gov.au)

## LAND 17 Artillery Replacement

To optimise the artillery capability through improved operational effectiveness and individual training competencies achieved by systems approach to simulation throughout the capability life cycle.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Approved Project

**Group:** Capability Development Group

**Organisation:**

**Contact:** Major Matthew Taylor

(02) 6265 1734

[matthew.taylor@defence.gov.au](mailto:matthew.taylor@defence.gov.au)

## LAND 40 Phase 2 Direct Fire Support Weapon

LAND 40 Phase 2 aims to provide a range of Direct Fire Support Weapons to Infantry Battalions. The project is in definition stage and will consider systems that are simulation compliant during the requirements phase.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Systems Trainer

**Status:** YOD 2006/7

**Group:** Capability Development Group

**Organisation:** Capability Systems

**Contact:** Major Bob Parker

(02) 6265 1863

[bob.parker@defence.gov.au](mailto:bob.parker@defence.gov.au)

## LAND 400 Phase 1 Survivability of Ground Forces

This project seeks to enhance survivability of land forces in combat operations through the provision of transformational warfighting systems. These new systems, based on manned and unmanned air and land platforms, will incrementally replace legacy combat, combat support and combat service support systems currently fielded in the Army Combined Arms Teams. These systems will have very high commonality within their fleets and be interoperable with coalition nations. Simulation requirements are yet to be determined however simulation support is expected for maintenance training, live and virtual distributed collective training and real time planning and rehearsal incorporating joint and combined signal acceptance.

### Application Areas

Training	1	Crisis Management	0	Acquisition	1
Mission Rehearsal	1	Conduct of	1	Lifecycle	1
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** YOD 2011/12

**Group:** Capability Development Group

**Organisation:** Capability Systems (Land)

**Contact:** Major Bernie Richards

(02) 6265 4918

[bernie.richards@defence.gov.au](mailto:bernie.richards@defence.gov.au)

## LAND 58 Phase 3 Weapon Locating Radar Life of Type Extension

The AN/TPQ-36 Weapon Locating Radar was introduced into service in 1987 as an earlier phase of LAND 58. A total of seven radars, a simulator, plus support and test equipment were purchased. The radars are capable of locating (detecting and providing targeting data) mortars, guns and rockets in the tactical land environment.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Task Trainer

**Status:** YOD 2005/6

**Group:** Capability Development Group

**Organisation:**

**Contact:**

## LAND 75 Phase 3.4 and 4 Battlefield Command Support System

There is scope in the project to provide an interface between BCSS/BMS and simulation environments such as JANUS. The details have yet to be costed. There is also a BCSS Usability Laboratory being set up by DSTO LOD Human Factors area to provide a BCSS Simulation environment for training and evaluation of Human Factors aspects for future releases of BCSS.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	1	Conduct of	1	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Systems Trainer

**Status:** YOD 2006/7

**Group:** Capability Development Group

**Organisation:** Capability Systems

**Contact:** Major Vance Feeney

(02) 6265 4817

[vance.feeney@defence.gov.au](mailto:vance.feeney@defence.gov.au)

## LAND 907 Phase 1 Main Battle Tank Replacement

This project seeks to replace the ADF tank fleet with a more modern, survivable and interoperable tank capability that will be supportable until at least 2020. This capability requirement has been developed in order to support the Combined Arms Team in close combat. Simulation components are likely to include Advanced Gunnery Training Systems, Tank Driver Trainers and sub calibre gunnery simulation.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Approved Project

**Group:** Capability Development Group

**Organisation:** Capability Systems

**Contact:** Major Bernie Richards

(02) 6265 4918

[bernie.richards@defence.gov.au](mailto:bernie.richards@defence.gov.au)

## LAND 91 Phase 6 Small Arms Life of Type Extension

LAND 91 Phase 6 will extend the life of ADF small arms such as the F88 Steyr rifle and the F89 Minimi Machine Gun. Currently part of in barracks training is conducted using the Weapon Training Simulation System. This will be reviewed during the requirements phase of the LOTE.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** YOD 2009/10

**Group:** Capability Development Group

**Organisation:** Capability Systems

**Contact:** Major Bob Parker

(02) 6265 1863

[bob.parker@defence.gov.au](mailto:bob.parker@defence.gov.au)

## Rapid Prototype Development and Evaluation

The Rapid Prototyping, Development and Evaluations (RPDE) Program's Mission is 'to enhance ADF warfighting capacity through accelerated capability change in an NCW environment'. The core competency of RPDE is its ability to rapidly bring together Defence and industry knowledge, experience and IP to understand problems, identifying potential solutions and finally provide valid evidence in support of our decision support and change management recommendations. Solution options are evaluated using a rigorous, analytical and/or experimentation approach that delivers evidence which supports RPDE conclusions and options in response to a specific Question. This allows to Defence to make informed decisions about the implementation of high-value opportunities. A range of tools and techniques ranging from simulation and modelling, operational analysis, experimentation and other investigative and analytical methods will be used to prototype and develop concepts to determine their capability improvement value and implementation feasibility. RPDE will address doctrine, training, support and organisational aspects of capability as well as technology and systems.

### Application Areas

Training	0	Crisis Management	0	Acquisition	1
Mission Rehearsal	0	Conduct of	0	Lifecycle	1
Force Assessment	1	Experimentation	1	Research and Development	0

**Type:** Various

**Status:** In Use

**Group:** Capability Development Group

**Organisation:** Industry Partnership

**Contact:** Mr Colin Cooper (Stakeholder Liaison Manager)

(02) 6256 6534

[colin.cooper@rpde.org.au](mailto:colin.cooper@rpde.org.au)

## SEA 1405 Phase 3B, Installation of ESM and FLIR into the S-70B-2 Seahawk

'Project Sea 1405 will provide all of the Navy's S-70B-2 Seahawk helicopters with a forward looking infra-red sensor and an electronic support measures suite of equipment to enhance their surveillance and self protection capabilities

significantly, particularly at night and in bad weather. The S-70B-2 flight and mission simulator will be modified to reflect these upgrades. Tenix Pty Ltd is the prime contractor.

**Application Areas**

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Contract

**Group:** Capability Development Group

**Organisation:** Navy Aviation Systems Division

**Contact:** Commander Daniel Reilly

(02) 4424 3434

[daniel.reilly1@defence.gov.au](mailto:daniel.reilly1@defence.gov.au)

### SEA 1439 Phase 5 Collins Continuous Improvement Program

SEA 1439 Phase 5B2 is unique in that it will argue for a Continuous Improvement Programme for the COLLINS Class submarines rather than Mid Life Upgrade. There is a wide range of capabilities to be addressed by the CIP some of which will have simulation requirements however this has yet to be determined.

**Application Areas**

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** TBD

**Status:** Unapproved Project

**Group:** Capability Development Group

**Organisation:** Director General Maritime Development

**Contact:** Commander Andrew Tarpley

(02) 6265 2134

[andrew.tarpley@defence.gov.au](mailto:andrew.tarpley@defence.gov.au)

### SEA 1439 Phase 6 Collins Sonar Replacement

The simulation Application and Investment are only a guide, as it is too early to determine, which, if any applications will be used for simulation.

**Application Areas**

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Unapproved Project

**Group:** Capability Development Group

**Organisation:** Director General Maritime Development

**Contact:** Commander Andrew Tarpley

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[andrew.tarpley@defence.gov.au](mailto:andrew.tarpley@defence.gov.au)

### SEA 1442 Phase 3 Initial Capability

SEA 1442 seeks to upgrade the Royal Australian Navy (RAN) communications and information management systems, acquire new communications equipment, and integrate capabilities being delivered to Maritime platforms by other approved major communications proposals. It is a multi-phased proposal to upgrade the communications and information management infrastructure of the RAN. The simulation component could include facilitating joint and coalition training, for example, in concert with SEA 1412 Phase 3.

**Application Areas**

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Communications Model

**Status:** Approved Project

**Group:** Capability Development Group

**Organisation:**

**Contact:**

(02) 6265 1908

### SEA 4000 Phase 1B

Contract currently in place to develop a report advising on how to set up a synthetic environment to assist Air Warfare Destroyer acquisition requirements that best uses the resources available in Australia. Report also to include advice on existence and validated status of selected Combat System elements. May be further contracts to implement the report during rest of Phase 1B and Phase 2. Simulation Assisted Acquisition is an integral to this

#### Application Areas

Training	0	Crisis Management	0	Acquisition	1
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Report Delivered

**Group:** Capability Development Group

**Organisation:** Air Warfare Destroyer Program

**Contact:** Commander Donald Burningham

(02) 6265 4046

[donald.burningham@defence.gov.au](mailto:donald.burningham@defence.gov.au)

### SEA 4000 Phase 2 Air Warfare Destroyer - Design Activity

Development of a Virtual synthetic environment to assist in development and acquisition of Air Warfare Destroyer. Will probably incorporate elements of the DSTO Virtual Maritime System Architecture.

#### Application Areas

Training	0	Crisis Management	0	Acquisition	1
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Various

**Status:** Under Development

**Group:** Capability Development Group

**Organisation:** Air Warfare Destroyer Program Office

**Contact:** Commander Donald Burningham

(02) 6265 4046

[donald.burningham@defence.gov.au](mailto:donald.burningham@defence.gov.au)

### SEA 4000 Phase 3 Air Warfare Destroyer

Use of Virtual synthetic environment developed in Phase 2 and development of training and support systems.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	1
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	2	Research and Development	1

**Type:** Various

**Status:** YOD 2006/7

**Group:** Capability Development Group

**Organisation:** Air Warfare Destroyer Program Office

**Contact:** Commander Donald Burningham

(02) 6265 4046

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## 2 Defence Simulation Majors Program - Defence Materiel Organisation

### AIR 5186 Australian Defence Air Traffic System

AIR 5186 The School of Air Traffic Control (SATC) simulator provides a fully automated ATC training environment to train up to eight ab initio ATC officers in the provision of air traffic services. It can be subdivided to operated on four separate training missions with two trainees and three instructors in each of four groups, up to a total of eight trainees with twelve instructors (all in a related environment) or any combination in between. Graduates from SATC, after completing their basic training on the simulator, proceed on posting to an ADF flying base where they receive site specific training leading to full qualification as an ATC operative.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Operational Systems Trainer

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:** Electronic Systems Weapons Division

**Contact:** Mr Roger Wimhurst

(02) 6266 7377

[roger.wimhurst@defence.gov.au](mailto:roger.wimhurst@defence.gov.au)

### AIR 5232 Navigator Training Aircraft

This project will procure navigator-training suites for fitment to a leased trainer aircraft. The project will also replace the Synthetic Navigation Trainer (a ground-based procedural navigation training facility) to match the changes to the aircraft's training avionics and to incorporate radar simulation. BAE SYSTEMS is the prime contractor. Whilst the project is about to close, the contract is for whole of life for the simulator.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:** Aerospace Systems Division

**Contact:** Group Captain Leigh Gordon

(03) 5146 7000

[leigh.gordon@defence.gov.au](mailto:leigh.gordon@defence.gov.au)

### AIR 5276 Phase 3, AP-3C Advanced Flight Simulator

This phase seeks to replace the existing P-3C Operational Flight Trainer currently in service with a more capable AP-3C flight simulator. This enhanced training capability, which will also include tactical training capabilities, is expected to reduce significantly the amount of aircrew training currently conducted in the aircraft.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Approved Project

**Group:** Defence Materiel Organisation

**Organisation:** AeroSim Systems Support Office

**Contact:** Mr David Martin

(02) 6265 7533

[david.martin5@defence.gov.au](mailto:david.martin5@defence.gov.au)

### AIR 5367 Lead-in Fighter Capability

AIR 5367 will acquire thirty-three Hawk 127 aircraft, life-of-type repairable items, training devices and a range of support equipment. BAE SYSTEMS Australia, as subcontractor to BAE SYSTEMS in Britain, will be responsible for constructing the flight-training device. The simulation component of the flight training device is embodied by the Tactical Weapon Systems Training System (TWSTS). The TWSTS is essentially an amalgam of a Hawk Cockpit Procedures Trainer, an Avionics Part-Task Trainer (known as the Avionics Switching and Rehearsal Debriefing Station (ASRADS)), and an Air Combat Simulator. A ground-training device, the Computer Based Instruction System (CBIS) also contains a simulation component, the Simulated Maintenance Operations Training System (SMOTS).

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Task Trainer

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:** Tactical Fighter Systems Program

**Contact:** Squadron Leader Phil Telfer

(02) 4928 6975

[phillip.telfer@defence.gov.au](mailto:phillip.telfer@defence.gov.au)

### AIR 5376 Phase 2, F/A-18 Upgrade, Hornet Aircrew Training System (HACTS)

New flight simulators, to the Hornet Upgrade Program (HUG) Phase 2.2 configuration, are required to replace the current Hornet simulator capability at RAAF Tindal and Williamtown. Raytheon Australia has been contracted to provide replacement Hornet Operational Flight Trainers to the Commonwealth. The Tactical Operational Flight Trainers (TOFT) will reflect the Hornet HUG 2.2 configuration and be developed and produced by Link Simulation and Training under contract to Raytheon Australia. The first simulator and other associated items, including debrief facilities and Australian specific visual databases, will be ready for training at RAAF Tindal and Williamtown in late 2006 and 2007 respectively. HUG 2.3 aircrew simulation will be incorporated in the Hornet Aircrew Training System. This system of devices will include the capability to conduct distributed mission training with other defence simulators. A number of additional simulation devices for HUG 2.3 specific requirements is still being analysed. HUG 2.4 aircrew simulation will be incorporated in the Hornet Aircrew Training System. This system of devices will include the capability to conduct distributed mission training with other defence simulators.

Additional details are available on the HACTS website: <http://www.defence.gov.au/dmo/asd/air5376p2/index.cfm>

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:** AeroSim Systems Support Office

**Contact:** Mr Luke Hartfiel

(02) 6265 7772

[luke.hartfiel@defence.gov.au](mailto:luke.hartfiel@defence.gov.au)

### AIR 5400 Air-to-Air Missiles, Training Capability

Project AIR 5400 intends to acquire a training and operational capability for new Within and Beyond Visual Range Air-to-Air Missiles (WVRAAM & BVRAAM). A contract has been signed with MBDA for the supply of Advanced Short Range Air-to-Air Missiles (ASRAAM) missiles in satisfaction of the WVRAAM requirement. The AMRAAM Beyond Visual Range Air-to-Air Missiles are being acquired for the US DoD through foreign military sales. Significant funds were allocated as part of this project to DSTO to conduct performance analysis requirements and testing. Funds will also be allocated against the Hornet project in order to upgrade the simulator capability.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Weapon Simulator

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:** Air Guided Weapons SPO

**Contact:** Squadron Leader Dominic Sims

(02) 6265 2663

[dominic.sims@defence.gov.au](mailto:dominic.sims@defence.gov.au)

### Air 5402 ADF Air to Air Refuelling Capability MRTT

AIR 5402 selected the A330-200 as the aircraft of choice for the MRTT. Five aircraft are being purchased, with aircrew training to be supported by a new A330-200 full flight simulator.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Simulator ISD 2008/9

**Group:** Defence Materiel Organisation

**Organisation:** Air to Air Refuelling Program Office

**Contact:** Squadron Leader Michael Gan

(02) 6265 5659

[michael.gan@defence.gov.au](mailto:michael.gan@defence.gov.au)

### AIR 5416 Phase 3A Enhanced EWSP for F-111 (RWR)

Project Air 5416 Phase 3A will provide enhancement for the F-111 Electronic Warfare Self Protection (EWSP) capability to render it effective until the retirement of the aircraft around 2010. Work will concentrate on modifying the F-111 flight simulator so that it reflects the EWSP configuration of the parent aircraft.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Flight Simulator

**Status:** Pre Tender

**Group:** Defence Materiel Organisation

**Organisation:** Airborne Self Protection Systems Program Office

**Contact:** Mr Laurie Bode

(02) 6265 1615

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### AIR 5416 Phase 4C-130J EWSP

Air 5416 (Echidna) is a multi-phased proposal to develop comprehensive EWSP capabilities for selected ADF aircraft. Other phases of Echidna include: Phase 1 is in progress and includes the full scale engineering development of the ALR-2002 Radar Warning receiver by BAE Systems Australia and elements of an ADF-wide countermeasures development and validation capability for in-service and soon to be introduced EWSP equipment. Phase 1 Stage 3 is in progress and covers the provision of ballistic protection measures for the Black Hawk aircraft. Phase 1A is in progress and includes elements of an ADF-wide countermeasures development and validation capability for current in-service and soon to be introduced EWSP equipment not covered in Phase 1. Phase 2 (previously approved) will cover the implementation of the Black Hawk, Chinook and C-130H EWSP capabilities defined during the Phase IDA; and Phase 3 builds upon the capability baseline established under AIR 391 Phase 6 F-111 Interim EWSP, by providing enhancement for the F-111 EWSP capability, including an upgrade of the Radar

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Unapproved Project

**Group:** Defence Materiel Organisation

**Organisation:** Aerospace Development

**Contact:** Squadron Leader Cameron Leslie

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## AIR 87 Armed Reconnaissance Helicopter (ARH)

The contracted solution includes simulator training for all facets of Tiger operation accredited to a level commensurate with CASA Level 5. The solution will include Pilot, Battle Captain, Crew and maintenance support simulator training. The Pilot, Battle Captain and crew simulator devices are to be located at Darwin and Oakey. The maintenance and ground-crew part task trainers, including; Mechanical Systems Trainer, Avionics Systems, Gun Systems Trainer, Environmental Control Systems Trainer, Underwater Escape Trainer, Centre Fuselage Trainer, and an integrated computer based training package including computer aided instruction will also be located in Oakey. It is planned to network the aircrew devices using a distributed interactive simulation capability. The purpose of this simulator is to train tiger operators in lieu of actual aircraft training. Simulators are designed to target the problems of reduced budget and lack of flying hours. Simulators are not susceptible to ATC delay, bad weather or time transiting to a training area. Simulators can have a full coverage of technical failures at no risk to the aircraft or operator and the ability to train in all environments. The Flight/Mission Simulator Component comprises the following. 1. A full flight and mission simulator, Pilot and Battle Captain in two separate domes, both on a six degree of freedom motion platform. 2. Two crew procedural trainers (consisting of Pilot and Battle Captain Station) one based in Oakey and one based in Darwin.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	2	Conduct of	0	Lifecycle	2
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Contract (Approaching Test Readiness Review)

**Group:** Defence Materiel Organisation

**Organisation:** Aerospace Systems Division

**Contact:** Major Scott Harris

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## AIR 9000 Phase 2, Additional Troop Lift Helicopters

AIR 9000 Phase 2 (was AIR 5046 Phase 5/6) seeks to acquire about twelve additional troop lift helicopters for the Australian Army, to be compatible with ship-borne operations. AIR 9000 Phase 1 will complete the capability definition stage through a study commenced in 2001. Acquisition of the aircraft will commence in 2002, with the helicopters planned to enter service around 2007. The solution for AIR 9000 Phase 2 is expected to be a Military-off-the-Shelf (MOTS) helicopter. The project will also procure a simulator, training aids and a number of associated ILS and other aids. Under the AIR 9000 approach, a single OEM will be required to supply all prime equipment, simulation, maintenance and training aids.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	1
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Mission Simulator

**Status:** Approved Project

**Group:** Defence Materiel Organisation

**Organisation:** Aerospace Systems Division

**Contact:** Lieutenant Colonel Jim Vince

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## JP 129 Phase 2 Airborne Surveillance for Land Operations

JP 129 Phase 2 will acquire a TUAV system capable of providing airborne surveillance, reconnaissance, and target acquisition to support land operations. The simulation component will consist of an embedded simulator within the ground control station capable of networking to a fixed facility training class room and an operations room. The simulator is to be capable of high fidelity representation of imagery from the UAV and of aircraft emergencies (such as engine failure). The project is seeking Level 5 CASA accreditation for a fixed based simulation as a means of

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** ISD end 08

**Group:** Defence Materiel Organisation

**Organisation:** Aerospace Systems Division

**Contact:** Mr David Carpenter

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## JP 2030 Joint Command Support System & Air Command Support

This project involves the extension of JCSS and ACSS to support more users across command elements of the ADF, and the evolutionary development of additional capabilities. Some new capabilities to be introduced include general MGI and simulation technologies. The character of these capabilities will be determined as part of the project's Evolutionary Acquisition process. More immediate uses of simulation technology will be the air mission planning and rehearsal functionality to be used within ACSS. The solution used within ACSS is based on the USAF's Theatre Battle Management Core Systems (TBMCS), which supports the planning and conduct of air operations. Opportunities may exist for delivering ADF aircraft-specific and weapon-specific simulation modules compatible with the air mission planning system being acquired for ACSS (when selected), TBMCS, and other components of ACSS. JCSS will have tasks to improve integration between simulation systems and JCSS applications especially at

### Application Areas

Training	1	Crisis Management	1	Acquisition	0
Mission Rehearsal	1	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:**

**Contact:**

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## JP 2060 Phase 2A - ADF Deployable Medical Capability

Acquisition of human-patient simulation system that will enable sophisticated training and assessment of ADF medical staff in individual and team settings.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Systems Trainer

**Status:** ISD 05

**Group:** Defence Materiel Organisation

**Organisation:** Land Systems Division

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## LAND 112 Phase 3, Australian Light Armoured Vehicle (ASLAV)

Phase 3 of the ASLAV project is a follow-on buy of up to 144 8x8 wheeled, Australian Light Armoured Vehicles to add to the 111 ASLAVs already in service. The delivery of the ASLAVs to Army is scheduled from 2002 to 2004. As with the early vehicles, the majority of the Phase 3 variants will be 25mm M242 chain gun equipped ASLAV-25s. To meet existing and future training requirements and support the ASLAV operational readiness, an ASLAV-25 Crew Procedural Trainer (CPT) system will be introduced into service in mid 2003. The CPT will be used to bring new vehicle crews up to a level of proficiency to allow direct transfer to on-vehicle training. It will allow the ASLAV-25 crew commander and gunner to safely learn and practice drills and procedures in a simulated environment, and improve the efficiency and effectiveness of gunnery and team skills training. The CPT will provide significant training and operational benefits, whilst reducing wear and damage to the prime equipment and making more effective

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:** Land Systems Division

**Contact:** Mr Simon Prendergast

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## LAND 134 Combat Training Centre Live-Simulation, Range-Instrumentation & Information

Land 134 will supply Army's Combat Training Centre (CTC) with a combat sized Live simulation, range instrumentation and information system (CTC-LIS) and its associated turnkey contractor support. Contractor is Osmar. In service date of Nov 07.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Live

**Status:** ISD 07

**Group:** Defence Materiel Organisation

**Organisation:** Land Systems Division

**Contact:** Lieutenant Colonel James McCrae

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## LAND 19 Phase2B Advanced Air Defence Simulator (AADS)

Phase 2B is the acquisition of an Advanced Air Defence Simulator (AADS). The AADS will be a collective detachment training system that will simulate in real time a multi-aircraft attack. Other requirements of the system will be to simulate realistic targets and missile performance, provide for a full engagement sequence utilising the complete weapon detachment, and simulate a realistic battlefield environment with noise, obstruction, and ambient light effects. See also [www.defence.gov.au/dmo](http://www.defence.gov.au/dmo) and follow links to Projects and Land 19.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	2	Research and Development	0

**Type:** Virtual

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:** Land Systems Division

**Contact:** Captain Brendan Kellaway

(03) 9282 6485

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## Network Warfare Simulation (NETWARS)

The US Department of Defence (DoD) NETWARS is a suite of software applications for analysing defence-related network communications. NETWARS is based on a discrete event simulator using the OPNET Development tool. It provides a robust analysis capability to assist in communication planning that includes assessments of the impacts of leading edge technologies on Joint Task Force communications.

### Application Areas

Training	0	Crisis Management	1	Acquisition	1
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Proposal

**Group:** Defence Materiel Organisation

**Organisation:** NCWPO

**Contact:** Commander Jeremy Pickel

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## SEA 1229 Active Missile Decoy (AMD-NULKA)

The aim of this project is to develop an anti-missile decoy system for the major fleet units (Destroyers and Frigates). The simulation component lies in the development of a Generic Threat Simulator to test and evaluate the performance of the NULKA system. The GTS will simulate radar signals emitted by an air-to-surface missile causing the ship's missile defence system to perform all reactions to the threat. Tenix is the prime contractor for the

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:**

**Contact:**

(02) 6265 1150

## SEA 1390 Guided Missile Frigate Upgrade - Implementation

The simulation component of the FFG Upgrade is to provide a FFG On-Board Training Systems (OBTS) installed on each upgraded ship, and Land Based Simulation Systems (LBSS) for each FFG shore site. All locations (ie. all ships and shore sites) are able to be connected to a DIS Wide Area Network for both individual site and wide area coordinated warfare training.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:** Maritime Systems Division

**Contact:** Commander Rob Richardson

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## SEA 1397 Supply of Generic Threat Simulator (GTS) Mark 1 Systems and Maintenance

The Generic Threat Simulator Mark 1 (GTS Mk1) will be used with Australian Fleet assets. The simulation component lie in the development of a Generic Threat Simulator to test and evaluate the performance of the NULKA Anti-Ship Missile Decoy and Electronic Warfare systems. The airborne GTS Mk1 is mounted on a Learjet and will simulate radar signals emitted by an air-to-surface missile. Tenix Systems Proprietary Limited is the prime contractor for the development of the GTS Mk1.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	1

**Type:** Mission Simulator

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:** Maritime Electronic Warfare

**Contact:** Mr Joseph Linehan

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## SEA 1411 ANZAC Helicopter Capability

This project will be acquiring eleven SH-2G(A) Super Seasprite Helicopters together with a full mission flight simulator, software support centre and associated logistics support. Kaman Aerospace International is the prime contractor, with CSC Australia developing the flight simulator and part task trainer. CAE is providing the simulator platform.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:** Navy Aviation Systems Division

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## SEA 1412 Phase 2, Maritime Warfare Training Centre

The MWTC Phase 2 requirement is to link the Integrated Operations Team Training Facility (DDG/FFG Operations Room Simulator - BAeA) and the Combat System Tactical Trainer (ANZAC Operations Room Simulator - CSC Australia) through a LAN to provide a comprehensive multi-ship command team training capability. DIS protocols will be employed to exchange virtual world information as well as voice communications between the simulators. Work continues on an evolutionary acquisition activity to provide Link 11/16 connectivity between simulators. Link 11 component is expected to be in-service by 2005.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	1	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	0

**Type:** Various

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:** Maritime Systems Division

**Contact:** Mr Max Britton

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### SEA 1414 Penguin Missile

The simulation component of the project will provide for missile firing training for aircrew, missile practice-firing trajectory predictions and post firing flight analysis. The Penguin Mk 2 Mod 7 ASM is built by Kongsberg Defence and Aerospace AS of Norway, and will be launched from Super Seasprite helicopters operating from ANZAC Class

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:**

**Contact:**

### SEA 1428 Phase 2B/3, Evolved Sea Sparrow Missile

SEA 1428 will continue the support of INTSIM-the simulation tool for the Evolved SEASPARROW Missile (ESSM). INTSM is used in both combat system development and firing support modelling. SEA 1428 Phase 2B/3 seeks to introduce the ESSM system into the ANZAC Class ships (08-HMAS BALLARAT, 09-HMAS TOOWOOMBA, and 10-HMAS PERTH) and to retro-fit the system into HMAS ANZAC and HMAS ARUNTA. The simulation component could include training systems for targeting and firing (such as BAE SYSTEM's Ship Air Defence Model-SADM), and changes to existing simulators (Tactical Trainer at HMAS WATSON).

#### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Task Trainer

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:** Major Surface Ships Branch (MSD)

**Contact:** Commander Paul Mandziy

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### SEA 1444 Phase1, Patrol Boat Replacement

SEA 1444 Phase 1 is acquiring Armidale Class Patrol Boats to replace the existing FREMANTLE Class Patrol Boat Force. This Patrol Boat capability provides the primary patrol and response element of the integrated National Civil Surveillance program. The support concepts for the Replacement Patrol Boat (RPB) capability represent a departure from customary RAN practice that all support is contracted, and the measures of effectiveness of the support

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Task Trainer

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:**

**Contact:** Mr Sam Yamunarajan

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### 3 Defence Simulation Minors Program

#### Combat Vehicle and Mounted TESS (CVTESS/MTESS)

This has been satisfied with the procurement of 48 CVTESS systems. CVTESS is a laser based live simulation system used to train ASLAV crews and mechanised infantry in armoured and anti-armoured tactics. It is interoperable with the Anti-Armour Weapon Effects Simulation System (AAWESS), Land Mine Effects Simulation System (LMESS) and the Tactical Engagement Simulation System (TESS). It is also capable of operating with the NZ and US Armies' TESS (MILES 21).

##### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Live

**Status:** Project

**Group:** Defence Materiel Organisation

**Organisation:** Land Systems Division

**Contact:** Mr Peter Winter

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#### Complex Warfare Training

Examine simulation support requirements for three complex warfare environments

##### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	0

**Type:** Various

**Status:** Contract

**Group:** Capability Development Group

**Organisation:** Australian Defence Simulation Office

**Contact:** Wing Commander Tom Wickham

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#### Course of Action Analysis Environment

Development of prototype COA Analysis Environment in support of training, exercises and planning

##### Application Areas

Training	1	Crisis Management	1	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Contract

**Group:** Capability Development Group

**Organisation:** Australian Defence Simulation Office

**Contact:** Wing Commander Tom Wickham

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#### ESA280 Phase 3 Emerging Simulation Technologies

This activity has four components that are looking at a number of different areas. The four activities are: a Course of Action Simulation capability that utilises intelligent agents, a tactical data network emulation capability, the evaluation/development of low-cost commercial games to determine applicability to Defence use, and the development of a distributed simulation repository.

##### Application Areas

Training	1	Crisis Management	1	Acquisition	1
Mission Rehearsal	1	Conduct of	1	Lifecycle	1
Force Assessment	1	Experimentation	1	Research and Development	1

**Type:** General

**Status:** Closed

**Group:**

**Organisation:**

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## ESA298 Intelligent Agent Development

The Minor Project was designed to allow the further development of Defence's Intelligent Agent capabilities through three separate but complementary project elements. The three elements involve the development of Intelligent Agent related programming tools, development of a facility to explore human-intelligent agent interactions, and the trial use of Intelligent Agents in a specific ADF-based application.

### Application Areas

Training	1	Crisis Management	1	Acquisition	1
Mission Rehearsal	1	Conduct of	1	Lifecycle	1
Force Assessment	1	Experimentation	1	Research and Development	1

**Type:** Various

**Status:** Closed

**Group:** Capability Development Group

**Organisation:** Australian Defence Simulation Office

**Contact:** Wing Commander Tom Wickham

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## ESA299 Simulation Support to Network Centric Warfare (DARNOS)

The Dynamic Agents Representation of Networks of System (DARNOS) is designed to allow Defence to set-up and explore different network topologies/performance, explore the impacts on the interaction between component systems and assess the merits of information management options. This project is an initial development activity and is not structured to provide a "production" system.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	1	Experimentation	1	Research and Development	1

**Type:** Constructive

**Status:** Contract

**Group:** Capability Development Group

**Organisation:** Australian Defence Simulation Office

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(02) 6265 7823

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## ESA301 Simulation Support to Operational Level Headquarters

This Minor Project is designed to introduce the Joint Semi-Automated Forces (JSAF) product into Australian service to provide simulation support to training for operational level headquarters. It is expected that JSAF will also be able to support experimentation to the joint and multinational level, Course of Action analysis in operational level headquarters and individual training at ADC and ADFWC. JSAF is a MOTS product from the US Department of Defence and will require modification and development to allow population of the database with appropriate ADF data.

### Application Areas

Training	1	Crisis Management	1	Acquisition	0
Mission Rehearsal	0	Conduct of	2	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	2

**Type:** Constructive

**Status:** Contract

**Group:** Capability Development Group

**Organisation:** Australian Defence Simulation Office

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## Extensible Modelling and Simulation Framework Testbed

Development of an XMSF capability within Defence to evaluate the utility of the technology for use in Defence experimentation activities

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	0

**Type:** Various

**Status:** Contract

**Group:** Capability Development Group

**Organisation:** Australian Defence Simulation Office

**Contact:** Wing Commander Tom Wickham

(02) 6265 7823

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## HLA-based Intelligent Agent Development Capability

Development of an HLA-based development capability

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	0

**Type:** Various

**Status:** Contract

**Group:** Capability Development Group

**Organisation:** Australian Defence Simulation Office

**Contact:** Wing Commander Tom Wickham

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## JSAF Development

Aim is to expand the functionality of the JSAF federation to provide greater utility in the simulation support for experimentation at the joint/multinational level and capability development deliberations.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	0

**Type:** Constructive

**Status:** Contract

**Group:** Capability Development Group

**Organisation:** Australian Defence Simulation Office

**Contact:** Wing Commander Tom Wickham

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## Military History Education

Exploration of the application of interactive learning with COTS simulations to develop educational and training products

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** Contract

**Group:** Capability Development Group

**Organisation:** Australian Defence Simulation Office

**Contact:** Wing Commander Tom Wickham

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## MINCS(L) 23.12 Tactical Training Simulation Capability

The Tactical Training Simulation Capability (TTSC) will provide permanent Tactical Training Simulation Sites (TTSS) capable of being linked for integrated or distributed simulation. The project is in its final stages and is likely to be closed in 2005.

### Application Areas

Training	1	Crisis Management	1	Acquisition	0
Mission Rehearsal	1	Conduct of	0	Lifecycle	0
Force Assessment	1	Experimentation	1	Research and Development	0

**Type:** Various

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:** Land Systems Division

**Contact:** Mr Ron Thompson

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### **MINCS(L) 29.10 Mounted TESS Precision Gunnery Trainer - Leopard (PGT)**

The mounted tactical engagement simulation system (MTESS) phase sought to acquire a laser-based live simulation system that simulates tank gunfire, and effects in and on other tanks and armoured vehicles. Individual engagement data will be generated from each participating vehicle, and uploaded to a computer for post-exercise analysis. The MTESS portion of the project is approaching closure. The PGT is a duplex laser based gunnery trainer that will provide a means to objectively train the tank commander, crew and gunners in gunnery procedures and tactics. It will also provide realistic collective training, reduce ammunition usage, reduce the time taken to achieve basic gunnery skills and reduce damage to the live fire ranges. The PGT is being procured for the Leopard Tank. Army has confirmed the requirement remains valid. The level of effort and cost associated with modifying the capability for use with the Abrams being acquired under Land 907 is being investigated.

#### **Application Areas**

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Live

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:** Land Systems Division

**Contact:** Mr Peter Winter

03 9282 5297

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### **MINCS(L) 29.19 Indirect Fire Observer Trainer**

This project acquired Indirect Fire Observer Trainers (IFOT) for field artillery units and training institutions (Offensive Support Division (OSD) and Royal Military College). It includes mobile field units and static systems at the OSD. IFOT is used for training various combat teams in the drills and procedures required for the effective employment of offensive fire support. It is intended that minor software upgrades be installed in the field units.

#### **Application Areas**

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Systems Trainer

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:** Land Systems Division

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### **MINCS(L) 29.22 Combat Vehicle Tactical Engagement Simulation System (CVTESS)**

CVTESS is a laser based live simulation system used to train ASLAV crews and mechanised infantry in armoured and anti-armoured tactics. It is interoperable with the Anti-Armour Weapon Effects Simulation System (AAWESS), Land Mine Effects Simulation System (LMESS) and the Tactical Engagement Simulation System (TESS). It is also capable of operating with the NZ and US Armies' TESS (MILES 21)

#### **Application Areas**

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Live

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:** Land Systems Division

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### **MINCS(L) 29.27 Weapon Training Simulation System**

The original WTSS project acquired nine indoor, laser-based simulation systems that are used primarily to train soldiers in marksmanship principles by simulating everyday and night Live Fire Practice. This project seeks to enhance the current WTSS capability with additional facilities and weapon types in Perth, Adelaide, Bonegilla and

#### **Application Areas**

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual Trainer

**Status:** Contract

**Group:** Defence Materiel Organisation

**Organisation:** Land Systems Division

**Contact:** Major Robin Leach

(03) 9282 6692

[robin.leach@defence.gov.au](mailto:robin.leach@defence.gov.au)

### MINCS(L) 29.28 Deployable Weapon Training Simulation System

A transportable self contained Indoor, laser-based simulation system used primarily to train soldiers in marksmanship principles by simulating every day and night Live Fire.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Concept Endorsed

**Group:** Defence Materiel Organisation

**Organisation:** Land Systems Division

**Contact:** Major Robin Leach

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### MINCS(L) 29.29 Constructive Simulation

A project designed to investigate and evaluate the future of constructive simulation within the Army. It will provide a number of options for use in the training, experimentation and military operations domains.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	1	Conduct of	2	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	0

**Type:** Constructive

**Status:** Approved Project

**Group:** Defence Materiel Organisation

**Organisation:** Land Systems Division

**Contact:** Mr Ron Thompson

(03) 9282 5541

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### MINCS(L) 29.30 Driver Training Simulator.

MINCS(L) 29.30 aims to provide driver training simulators to assist crew conversion training for ASLAV and Bushmaster

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Concept Endorsed

**Group:** Defence Materiel Organisation

**Organisation:** Land Systems Division

**Contact:** Unallocated

### MINCS(L) 29.31 Virtual Reality Parachute Flight Simulation

Seeks to procure several Virtual Reality training stations to support Military Free Fall (MFF) training at PTS.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Concept Endorsed

**Group:** Capability Development Group

**Organisation:** Director General Land Development

**Contact:** Unallocated

### MINCS(L) 29.32 Advanced Air Defence Simulator

Seeks to upgrade existing RBS-70 simulator to current build.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Concept Endorsed

**Group:** Defence Materiel Organisation

**Organisation:** AADSPO

**Contact:** Unallocated

## MIS 917 PC9A Cockpit Procedural Training Upgrade

In 1996, three PC9/A Cockpit Procedure Trainer (CPT's) were built and delivered to the RAAF by BAE SYSTEMS. The CPTs are located at 2FTS Peace and offer basic pre-flight familiarisation training. They do not simulate taxing or flying and do not provide any motion simulation or out-of-cockpit visuals. However, the CPT's are now an integral part of the pilot training syllabus and any loss of availability has an immediate and significant impact on training schedules. Their unavailability also means that students revert to using real aircraft on the ground to earn basic pre-flight procedures. This project aims to replace the Cockpit Procedural Trainers for the PC/9-A.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Crew Procedural Trainer

**Status:** Pre Tender

**Group:** Defence Materiel Organisation

**Organisation:** TASPO

**Contact:** OC TASPO

## MIS 919 RAAF Air Synthetic Component (RASEC)

The purpose of this project is to evolve high resolution simulation and team training tools to support NCW battle management for offensive and defensive aerospace operations. RASEC also aims to develop RAAF component of joint tools and databases for command team training and readiness management.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	1	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Various

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Air Operations Division

**Contact:** Mr John Blacklock

(02) 6265 7963

[john.blacklock@dsto.defence.gov.au](mailto:john.blacklock@dsto.defence.gov.au)

## MIS851 Upgrade to Tower Visual Simulator

To Upgrade the Tower Visual Simulator for Air Traffic Control training.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Proposed contract date 2005

**Group:**

**Organisation:** School of Air Traffic Control

**Contact:** CO SATC

(03) 9256 1111

## NMP Medium Calibre Gunnery Simulator (1861)

Acquiring a Medium Calibre Gunnery Simulator to replace some of the capability lost when the 4.5" gun at WHGR decommissions in 2005.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Weapon Simulator

**Status:** Under Development

**Group:** Navy

**Organisation:** Training Authority Maritime Warfare

**Contact:** Lieutenant Darren Jerrard

(03) 5950 7971

[darren.jerrard1@defence.gov.au](mailto:darren.jerrard1@defence.gov.au)

## NMP Sea King Simulator Upgrade

The upgrade of Sea King helicopter simulator is intended to address obsolescence issues. The scope of the program is dependent upon program decisions to be made with AIR 9000 in 2005

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Unapproved Project

**Group:** Navy

**Organisation:** FEG

**Contact:** Commander Neil McQueen  
(02) 4424 1501  
[neil.mcqueen@defence.gov.au](mailto:neil.mcqueen@defence.gov.au)

## NMP SeaHawk Mid Life Upgrade (SMULE)

The Seahawk helicopter is to be upgraded under the guise of the Seahawk Mid Life Upgrade (SMULE) project. The project is yet to be defined and currently at the Project Definition stage. Specific simulation requirements are yet to be defined.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Unapproved Project

**Group:** Navy

**Organisation:** FEG

**Contact:** Commander Neil McQueen  
(02) 4424 1501  
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## 4 Defence Science and Technology Organisation Simulation

### ADSIM

Simulation of the movement of ships and aircraft. Simple models of sensors and radars - ground based and over the horizon - are included. The model can replay scenarios. To be used to stimulate and test command and control

#### Application Areas

Training	0	Crisis Management	0	Acquisition	3
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Research Simulation

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** CCD

**Contact:** Mr Noel Haydon

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### Aerospace Battlelab Framework (ABF)

The ABF will provide ADF members with the opportunity to explore real life scenarios in a simulated environment. It draws on key capabilities in operations research, crew environments and training (including the Air Operations Simulation Centre) and airborne mission systems (including the Mission System Research Centre).

#### Application Areas

Training	0	Crisis Management	0	Acquisition	1
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	1	Experimentation	1	Research and Development	1

**Type:** Various

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Air Operations Division

**Contact:** Research Leader, AOD

(03) 9626 7700

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### AESOP

An analysis tool to investigate the scientific principles and operational dynamics in the search for submarines by maritime patrol aircraft. Specific emphasis is on the above water detection modes such as visual and radar detection.

#### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	2

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Defence Systems Analysis Division

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(08) 8259 7611

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### Air Defence Ground Environment Simulator (ADGESIM)

ADGESIM has been developed by DSTO to support aerospace surveillance and battle management functions in the RAAF Surveillance and Control Group. ADGESIM combines modern Commercial-Off-The-Shelf simulation products with purpose-built thin-client applications from DSTO's advanced Distributed Simulation Laboratory (ADSL) in Fishermans Bend, Victoria. Several systems are now installed in RAAF training, operational and logistic support

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	2

**Type:** Various

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Air Operations Division

**Contact:** Dr Lucien Zalcman

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## Air Operations Simulation Centre (AOSC)

The AOSC is Australia's premier human-in-the-loop flight simulation research facility. It specialises in simulation of fixed and rotary wing aircraft operations with a focus on crew environments and human performance. The AOSC plays a major role in Air Operation Division's Aerospace Battlelab Framework.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Various

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Air Operations Division

**Contact:** Dr Mather Mason

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[mather.mason@dsto.defence.gov.au](mailto:mather.mason@dsto.defence.gov.au)

## AIR PLAN

AIR PLAN is a commercially available spreadsheet tool developed for exploring air mission planning options. AIR PLAN is being used in resource assessment and alternatives analysis work being undertaken as part of AIR 6000 operational analysis.

### Application Areas

Training	0	Crisis Management	2	Acquisition	1
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Available for Use

**Group:** Defence Science Technology Organisation

**Organisation:** Air Operations Division

**Contact:** Mr Rodney Brown

(03) 9626 7717

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## AiR Tactical Engagement Mission Simulator (ARTEMIS)

Mission-level air-to-air combat model being developed in support of NACC operational analysis and capability assessment. AOD is collaborating with several DSTO divisions in the development of ARTEMIS, which is built on the BattleModel architecture. Teamed intelligent agents are used to model pilot behaviour.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	1

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Air Operations Division

**Contact:** Mr Michael Turner

(03) 9626 7747

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## AMPHIB

Amphibious Warfare Command Support Systems (AWOCSS) contains the AMPHIB+ model, which is a variable time-step stochastic model of amphibious operations able to simulate watercraft and airborne assaults. It is used for comparing capability options and tactical level decisions.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	2	Experimentation	1	Research and Development	2

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Operations Division

**Contact:** Mr Jamie Watson

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## AMRAAM

Contractor supplied 6DOF simulations, such as WinASP and ARS are available for performance analysis.

### Application Areas

Training	0	Crisis Management	0	Acquisition	2
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons Systems Division

**Contact:** Mr Robert Graham

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## Analytica

Quantitative modelling software using GUI and influence diagrams. Can perform sensitivity analysis on a range of parameters simultaneously

### Application Areas

Training	0	Crisis Management	0	Acquisition	1
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	0

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Air Operations Division

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## ARENA

Process modelling tool for the use in the visualisation of message flows in C3I systems.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	2	Research and Development	1

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Command and Control Division

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## ASRAAM

Contractor supplied 5&6DOF simulations for performance analysis. The MBD missile-closed-loop-model (MCLM) is the most detailed model which includes a target scene and seeker algorithm model. WSD is developing an in-house MSTARs version of ASRAAM to support additional performance evaluation studies in the Centre for Evaluation, Simulation and Analysis of Weapons (CESAW) which will include development of a hardware-in-loop (HIL) model.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons System Division

**Contact:** Mr Robert Graham

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## ATIRCM/CMWS E2E Model

Detailed EO/IR engagement model (acquired from US Army under PA10)

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Electronic Warfare and Radar Division

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(08) 8259 6593

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## AUE

Urban Environment for software agent combat simulation.

**Application Areas**

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive**Status:** Under Development**Group:** Defence Science Technology Organisation**Organisation:** Land Operations Division**Contact:** Mr Russell Connell

(08) 8259 7660

[russell.connell@dsto.defence.gov.au](mailto:russell.connell@dsto.defence.gov.au)**BACTOWARS**

Distillation model of Land Warfare.

**Application Areas**

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	1

**Type:** Constructive**Status:** Under Development**Group:** Defence Science Technology Organisation**Organisation:** Land Operations Division**Contact:** Mr Justin Millikan

(08) 8259 5371

[justin.millikan@dsto.defence.gov.au](mailto:justin.millikan@dsto.defence.gov.au)**BattleModel**

Constructive simulation framework that allows connection of various models to allow tactical development and performance evaluation and benchmarking.

**Application Areas**

Training	0	Crisis Management	0	Acquisition	1
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	0

**Type:** Constructive**Status:** In Use**Group:** Defence Science Technology Organisation**Organisation:** Air Operations Division**Contact:** Mr Mauro Iob

(03) 9626 7235

[mauro.iob@dsto.defence.gov.au](mailto:mauro.iob@dsto.defence.gov.au)**Bilbo**

Simulation tool for analysis of stochastic scheduling problems for application to task scheduling in overloaded telecommunications systems. The tool facilitates the examination of various simple and priority scheduling policies, task discard or partial service policies, pre-emption policies and prioritisation policies. The software runs on a PC in the Cygwin environment.

**Application Areas**

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive**Status:** Under Development**Group:** Defence Science Technology Organisation**Organisation:** Command and Control Division**Contact:** Mr Mathew Britton

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## Boundary Packer

A bin-packing and simulated annealing model to determine optimised packing and loading of amphibious watercraft, used for vehicle and cargo loading plans.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	1	Experimentation	2	Research and Development	2

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Operations Division

**Contact:** Mr Jamie Watson

(02) 9692 1302

[jamie.watson@dsto.defence.gov.au](mailto:jamie.watson@dsto.defence.gov.au)

## CAEN

Simulation of land battle from individual soldier to company level in urban environment.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	2	Lifecycle	0
Force Assessment	1	Experimentation	1	Research and Development	1

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Land Operations Division

**Contact:** Mr Justin Millikan

(08) 8259 5371

[justin.millikan@dsto.defence.gov.au](mailto:justin.millikan@dsto.defence.gov.au)

## CASTFOREM

Combined arms and support elements land battle evaluation model. Useful for concept testing of tactics, structure and equipment mixes for company to brigade level scenarios.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	2	Experimentation	1	Research and Development	2

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Land Operations Division

**Contact:** Mr Colin Stanford

(08) 8259 5736

[colin.stanford@dsto.defence.gov.au](mailto:colin.stanford@dsto.defence.gov.au)

## CAVALIER

Organisational network and process modelling and visualisation/analysis tool.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	2	Research and Development	1

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** IND

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## Centre for Evaluation Simulation and Analysis of Weapons (CESAW)

The Centre for Evaluation, Simulation and Analysis of Weapons comprises a suite of configuration controlled reusable tools, model libraries, analysis methodologies, interface standards, and frameworks. This enables modellers in Weapons Systems Division and beyond to access and use existing models for the analysis of weapons systems or their components. Users will be able to test new component models without necessarily having to worry about modelling an entire weapon or system. The CESAW is also intended to be a vehicle for encouraging commonality among simulations, and collaboration between work areas. The tools available within the CESAW include architectural tools, simulation frameworks, revision control tools, validated component models, a centralised repository that is regularly backed up, and visualisation tools (such as Viewpoint). MSTARs, Mars, SimFramework, DIVA (see separate entries) and a Generic Telemetry Viewer (GTV) are some of the technologies that underpin the CESAW. The CESAW is intended to simplify and encourage the reuse and promulgation of weapon system models, and to tie together diverse weapon research and evaluation areas, such as propulsion, seekers, guidance, fusing and lethality.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Various

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons System Division

**Contact:** Mr. Rob Anderson

08 82596743

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## CFX

CFD package including physical models for turbulence, combustion, radiation particle transport as well as multiphase and compressible flows. To be used under licence agreement for fire modelling for Naval platforms.

### Application Areas

Training	0	Crisis Management	0	Acquisition	2
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	0

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Platform Division

**Contact:** Mr Grant Gamble

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## Coalition Readiness Management System (CReaMS)

CReaMS is a US Navy initiative that has been developed to advance coalition training. A project arrangement, jointly initiated by DSTO, the RAN and the US Navy has been entered into that enables DSTO and the RAN to participate in CReaMS. The Project Arrangement has established a virtual environment for coalition naval forces to conduct distributed Command Team training. This will provide the foundation for a future coalition mission rehearsal capability. CReaMS research areas address simulator Wide Area Networking standards for interoperability via Distributed Interactive Simulation, assessment of the effectiveness of the distributed training environment, terrain database and model development, scenario generation, exercise management, coordination and control and use of Computer Generated Forces to enrich the synthetic environment.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	1	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	1

**Type:** Various

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Air Operations Division

**Contact:** CreaMS Project Manager

(03) 9626 7721

## COA-Sim

The aim of Course of Action (COA) Simulation (COA-Sim) is to explore the applicability of simulation to joint military operations training exercises planning support. COA-Sim provides an environment where military operations planners will incrementally develop, refine and analyse a course of action.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Command and Control Division

**Contact:** Mr Carsten Gabrisch

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## COAST

An operational level course of action development and analysis tool for sequencing and scheduling military tasks to achieve military end states.

### Application Areas

Training	0	Crisis Management	1	Acquisition	0
Mission Rehearsal	2	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	0

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Command and Control Division

**Contact:** Dr Karyn I'Anson

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## COGNET

An operational level-planning tool for developing and analysing Centres of Gravity to identify potential vulnerabilities in critical systems. Utilised at both ADFWC and HQ JOC.

### Application Areas

Training	2	Crisis Management	0	Acquisition	0
Mission Rehearsal	1	Conduct of	1	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Command and Control Division

**Contact:** Dr Jayson Priest

(08) 8259 5496

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## Combat Systems Research Centre

The Combat Systems Research Centre provides a key virtual environment for experimentation within Maritime Operations Division

### Application Areas

Training	0	Crisis Management	0	Acquisition	1
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	2

**Type:** Various

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Operations Division

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## Concept Exploration and Analysis Laboratory (CEAL)

The CEAL contributes to Navy experimentation as tasked by Navy Strategic Policy and Futures. The CEAL encompasses a variety of simulation and visualisation tools with primary utilisation on JSAF, MAK Stealth and integration with Boeing's BASE tool for data analysis. The CEAL is a support contributor to the HEADMARK experimentation series. CEAL is a key facility in the Littoral Battlelab program.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	0

**Type:** Various

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Operations Division

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## CONWEP

A model based on empirical results for weapon effect calculations.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Weapon Systems Division

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## dapes/merlin

Computer model for aircraft performance estimation - both RAAF and foreign aircraft.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Air Vehicles Division

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## DICE

Simulation software for modelling of C3I systems allows interoperability of artificial agents, human participants, command support systems, and physical domain models.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	2	Experimentation	2	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Command and Control Division

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## DIVA

DIVA is a standard visualisation interface, which relieves the simulation programmer from having to hard-code their simulation to a specific viewer, or of having to tailor the simulation for more than one viewer.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Various

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons System Division

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## Dsix

USA developed flight dynamic model development application. This is used to develop further modelling

applications.

**Application Areas**

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Air Vehicles Division

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## DSTO\_UNDER

Simulation of mine hunting scenarios and the effects on ship structure, equipment and crew if an underwater mine was triggered.

**Application Areas**

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Platform Division

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## DUEL

Duel is a PC-based, one-versus-one, air combat simulation tool for analysing and comparing the performance of two opposing missiles in realistic combat scenarios. Duel uses WSD's Generic Missile Model (GEMM) to represent a large number of air-to-air missiles.

**Application Areas**

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons Systems Division

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## Duel v3

Duel v3 is a significantly reengineered version of Duel that uses SimFramework to model multiple aircraft, missiles and ground-based air-defence assets in an engagement level simulation, with the primary purpose of facilitating tactics development.

**Application Areas**

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	1

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons Systems Division

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## DUEL-3D

Duel-3D is a PC-based, interactive air-combat missile simulation tool. Duel-3D features realistic virtual reality graphics, interactive aircraft models and virtual reality head-sets to provide the user with a full 360 degree viewing environment. The user can fly the aircraft via a joystick, engage an opposing aircraft, fire missiles and review the engagement outcomes. The program allows the user to fly against the computer or another human player on a networked PC. Duel-3D uses WSD's Generic Missile Model (GEMM) to represent a large number of air-to-air missiles.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Virtual

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons Systems Division

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## Dynamic Agents Representation of Networks Of Systems (DARNOS)

DARNOS aims to portray and examine the dynamic information exchange environment, and assist analysis of the impacts of networking and command and control structures on ADF capabilities. DARNOS will represent and allow variation in the key attributes associated with the Command, Control and Communication (C3) of a force and assess the benefits of dynamic synchronisation of the force elements according to their roles and capabilities to achieve the mission objective. In particular, how the ISR assets and combat platforms use the information received and on which decisions are made, and whether these force elements can be projected to the right place at the right time. DARNOS is under development but some of its features have been utilised to support RAAF Headway 05

### Application Areas

Training	0	Crisis Management	0	Acquisition	2
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	1	Experimentation	1	Research and Development	1

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Defence Systems Analysis Division

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## EADSIM

EADSIM is a third-party-sourced mission-level simulation tool, which enables an experienced analyst to explore the interaction of weapons, launch platforms, radars, countermeasures, etc. within a complex environment that includes terrain. Weapons Systems Division has considerable experience in the use of this tool and in the analysis of results.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	2	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons System Division

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## Electro Optic Missile Engagement Simulator

Models the operation of infra red guided missiles. Includes missile, target and countermeasure model. Used in the development of IR countermeasures.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Electronic Warfare and Radar Division

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## End-To-End

Engagement level model for Electronic Warfare Countermeasure effectiveness in the air environment.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Developed

**Group:** Defence Science Technology Organisation

**Organisation:** Electronic Warfare and Radar Division

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## ESSM

A flyout model of the Evolved Seasparrow Missile. For evaluation purposes WSD has access to an all-digital FORTRAN model of the weapon, sourced from the prime contractor.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Validated

**Group:** Defence Science Technology Organisation

**Organisation:** Weapon Systems Division

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## FEMIRES

Countermeasure effectiveness model for infrared (IR) countermeasure effectiveness studies against IR seeker missiles.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Developed

**Group:** Defence Science Technology Organisation

**Organisation:** Electronic Warfare and Radar Division

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## Flight Dynamic

Variety of 3, 5 and 6-dof models of RAAF models aircraft including F-111 flight dynamic and manoeuvre controller, F/A-18 flight dynamics, and PC 9/A flight dynamics.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Air Vehicles Division

**Contact:** Mr Geoff Brian

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## Force Level Electronic Warfare Synthetic Environment (FLEWSE)

Simulation environment for analysing the effectiveness of force level electronic warfare concepts. Consists of a STAGE software package with a C/C++ Object Orientated framework added. Operations Analysis focus.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	1

**Type:** Various

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Electronic Warfare and Radar Division

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## GAMBIT - Gauss Markov Bayesian Inference Techniques

Suite of analysis and simulation tools for assessing the operational effectiveness of surveillance system

architectures and operations.

**Application Areas**

Training	0	Crisis Management	0	Acquisition	2
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Intelligence Surveillance and Reconnaissance Div

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## GeMM

The Generic Missile Model is a modular, portable, reusable three-degree-of-freedom missile model that can be used to simulate most types of air-to-air, surface-to-air and air-to-surface weapons in real-time. It is augmented by a suite of well-validated weapon data files representing the majority of missiles of interest in the Australia/Pacific region, including regional threat weapons.

**Application Areas**

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons System Division

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## General Campaign Analysis Model

Provides an environment for rapid development of campaign-level simulation models of military operations.

**Application Areas**

Training	0	Crisis Management	2	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	1	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Defence Systems Analysis Division

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## GPS Interface and Navigation Tool (GIANT)

Used to determine navigation (GPS/INS) system performance and operational effectiveness in an electronic combat environment.

**Application Areas**

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Developed

**Group:** Defence Science Technology Organisation

**Organisation:** Electronic Warfare and Radar Division

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## GSM

Generic Sonar Model, US developed. Can model monostatic and bistatic scenarios.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Operations Division

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## Harpoon Weapon System Simulator

A flyout model of the Harpoon missile is integrated with a fire control tactical development model, 3D visualisation, and GIS capability.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons System Division

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## HFSWR performance prediction model

Model that predicts the detection performance of a HF surface wave radar against a given target. Used in model/data comparisons, OA and cross sensor comparisons.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Surveillance Systems Division

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## HPAC

US Defence developed hazard prediction system. Atmospheric dispersion model SCIPUFF available as freeware to approved organisations. Is deployed in support of Army Incident Response Regiment activities. Note that the Urban Dispersion Model is now part of HPAC.

### Application Areas

Training	1	Crisis Management	1	Acquisition	0
Mission Rehearsal	1	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Chemical Biological Nuclear Centre

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## Hull girder

An FE structural model of a Naval frigate for the purpose of ultimate hull girder strength prediction.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Platform Division

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## HUMSSAVE

Models costs and benefits of helicopter HUMS.

### Application Areas

Training	0	Crisis Management	0	Acquisition	1
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Air Vehicles Division

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## IFSAS

Software suite for simulating explosive blast effects (air and water). Utilises semi-empirical and CFD (Computational Fluid Dynamics) methods.

### Application Areas

Training	0	Crisis Management	0	Acquisition	2
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons System Division

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## In-MODE

The Integrated Modelling Environment (In-MODE) for ADF Operational Planning is an integrated suite of models and simulations to support decision-making in Joint Planning.

### Application Areas

Training	0	Crisis Management	1	Acquisition	0
Mission Rehearsal	2	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Command and Control Division

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## Integrated Combat System Model (ICSM)

The Integrated Combat System Model (under development) is to support the acquisition process for surface combatant combat systems. The model is a description of the combat management system and human operators in the COREsim Tool (from Vitech) interfaced to system level models of sensors (eg Radar) and effectors (eg missiles). It is more detailed than an operational analysis model but not as detailed as Operator in the Loop simulations such as the Virtual Maritime System Architecture (MOD), the intent being to connect to either of these

### Application Areas

Training	0	Crisis Management	0	Acquisition	1
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Various

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Operations Division

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## ISARLab

Simulation of inverse synthetic aperture radar (ISAR) images which are generated by radars that have an ISAR mode. ISAR images are similar in many cases to target outlines which greatly increases the chances of long range target recognition. ISAR research and by ADF in ISAR operator training.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Various

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Electronic Warfare and Radar Division

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## JANUS (DSTO POC)

Janus is an interactive, entity-level, multi-sided, tactical-through-brigade level simulation used to train junior leaders and to provide post H-Hour decision training. DSTO utilises the simulation for analysis.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	2	Experimentation	1	Research and Development	0

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Land Operations Division

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## LETHAL

Calculates lethality of weapons against personnel.

### Application Areas

Training	0	Crisis Management	0	Acquisition	2
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons System Division

**Contact:** Chief - Weapon Systems Division

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## Littoral Battlelab

The Littoral Battlelab is a DSTO initiative that integrates operational research and analysis, drawing on areas where DSTO has a strong littoral warfare program – acoustics, magnetics, mine warfare, low observables, tactical exploitation of the environment, decision support systems, and domain-specific expertise such as land attack by naval platforms and amphibious operations. The major objectives of the Littoral Battlelab are to explore novel warfighting concepts and to provide feedback to reshape the technology plan and skills base. The key facility in the Littoral Battlelab program is a multi-role reconfigurable laboratory known as the Concept Exploration and Analysis Laboratory (CEAL).

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	2	Experimentation	1	Research and Development	2

**Type:** Various

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Operations Division

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## Maritime Combat System Experimentation

Conduct of human-in-the-loop experimentation within a realistic synthetic environment that is built upon the Virtual Maritime System Architecture. This provides a methodology for detailed evaluation of future capabilities and concepts, measurement of Network Centric Warfare (NCW) parameters and an understanding and reduction of

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	0

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Operations Division

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## Mars-Modelling Architecture Standard

Mars is a C++ modelling architecture standard and tool suite suitable for building high fidelity component models of missiles and other platforms. A model written to the Mars standard will be portable to a large range of synthetic environments, including Hardware-In-the-Loop and SimFramework. 6DOF missile models with current or near-future implementation in Mars include the Generic Template Model (GEM), MSTARS, ASRAAM and ESSM.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons System Division

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## MECA

MECA (Missile Engagement & Coverage Analysis) is a PC based missile simulation tool for the analysis of air-to-air and surface-to-air missiles. MECA allows the user to simulate kinematic missile flyouts and automatically generate weapon engagement zones. MECA uses WSD's Generic Missile Model (GEMM) to represent a large number of anti-air

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons System Division

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## MODRAY (Maritime Operations Division Ray Tracer)

Underwater acoustic time series simulator. Active and passive simulations for moving targets and/or platforms in depth-dependent but range-independent model ocean. Includes reverberation and scattering models. Extends the capabilities of SIMDOP.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Operations Division

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## MoDSAF

Modular semi-automated force simulation used primarily to model land battle scenarios. To be used for research and linkage to other programs. Utilised for constructive simulation element of synthetic environments within LOD. Likely tasks include support to Tactics Techniques and Procedure (TTP) development. Also utilised for C4ISR domain research. ModSAF is to be subsumed by OneSAF OTB.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Land Operations Division

**Contact:** Mr Ion Menadue

(08) 8259 6323

[ion.menadue@dsto.defence.gov.au](mailto:ion.menadue@dsto.defence.gov.au)

## MSTARS

MSTARS is a Matlab/Simulink-based graphical weapon simulation, designed to permit "plug and play" swapping of simulated weapon components. Its starting-point components are also implemented in C++ to the Mars standard.

New weapon components may be programmed in a wide range of languages, including Simulink, VisSim and C/C++.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons Systems Division

**Contact:** Mr David Wilson

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## OneSAF Testbed Baseline (OTB)

Modular semi-automated force simulation used primarily to model land battle scenarios. To be used for research and linkage to other programs. Utilised for constructive simulation element of synthetic environments within LOD. Likely tasks include support to Tactics Techniques and Procedure (TTP) development. Also utilised for C4ISR domain

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Land Operations Division

**Contact:** Mr Ion Menadue

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## OSIE

Operator System Integration Environment - software environment for operator in the loop evaluation of mission systems. Supports scenario generation, Measures of performance and analysis. To be used in the evaluation of automatic target detection. Currently used in the evaluation of automatic target identification and automatic situation and threat assessment for Airborne Early Warning and Control.

### Application Areas

Training	0	Crisis Management	0	Acquisition	2
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Air Operations Division

**Contact:** Mr Jeff Twedale

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[jeff.twedale@dsto.defence.gov.au](mailto:jeff.twedale@dsto.defence.gov.au)

## OSTRAY

System of models used to predict acoustic propagation in shallow water over a wide frequency band and at short range.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	1
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Operations Division

**Contact:** Mr David Matthews

## Parakeet Trunk System

OPNET model of VoIP option for Parakeet trunk communications.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Information Networks Division

**Contact:** Mr Ian Grivell

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## PC-SWAT

High-frequency active sonar models used for predicting sonar object detection performance.

### Application Areas

Training	0	Crisis Management	0	Acquisition	2
Mission Rehearsal	0	Conduct of	0	Lifecycle	2
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Operations Division

**Contact:** Mr Stuart Anstee

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## Planimate

Theatre Distribution System - Simulation. Discrete event simulation of the land force distribution system in support of JP126.

### Application Areas

Training	0	Crisis Management	0	Acquisition	1
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Land Operations Division

**Contact:** Mr Ray Janus

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## Radar System Signal Simulation Framework

A modular framework for simulating radar signals in the RF environment and signal processing chain for researching waveforms and signal processing algorithms.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Electronic Warfare Radar Division

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## Ship Air Defence Model (SADM)

Engagement level model for simulating the defence of a maritime task group against one or more attacking aircraft and anti-ship missiles

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Developed

**Group:** Defence Science Technology Organisation

**Organisation:** Electronic Warfare and Radar Division

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## SHOCKVAM

Shock loading vulnerability assessment model used to determine vessel vulnerability to underwater explosion.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	0

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Platform Division

**Contact:** Mr Warren Reid

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[warren.reid@dsto.defence.gov.au](mailto:warren.reid@dsto.defence.gov.au)

## SHOCKVAM/TM SS

Total mine simulation system in conjunction with shock loading vulnerability assessment model.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	0

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Platform Division

**Contact:** Mr Warren Reid

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## SHOCKVAM/XV AM

Model determines total ship vulnerability to underwater explosion and probability of equipment failure.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	0

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Platform Division

**Contact:** Mr Warren Reid

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## Sigma 2100

Optical design software. Allows some design and analysis of free space optical systems.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Electronic Warfare and Radar Division

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## SimFramework

An in-process simulation architecture written in C++ that supports simulations built from componentised models wrapped to common user-defined data interfaces. Through an easy-to-use script file it allows the user to define a scenario, initialise models and define data logging requirements. In addition there exists the ability to manipulate the timing of model propagation and data exchange and also to define data filtering between models.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons System Division

**Contact:** Mr David Munro-Ford

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## SimFramework V

SimFramework V is a highly domain-independent, component-based, networked architecture capable of composing large and complicated simulations in a flexible way. The architecture supports a hierarchical approach to simulation composition, allowing coarse systems-level models and detailed engineering-level models to interact in the same simulation in different ways at different levels of abstraction.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Various

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons Systems Division

**Contact:** Mr David Munro-Ford

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## STAGE

Scenario Toolkit And Generation Environment (STAGE) developed by Virtual Prototypes (now under eGENUITY Technologies Inc.) allows simulation of air land and sea platforms and systems. Also used for EW mission level

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Developed

**Group:** Defence Science Technology Organisation

**Organisation:** Various

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(08) 8259 6593

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## Survivability Integration Laboratory

Survivability of air platform studies using a combination of mission level simulations, Human In The Loop (HITL) and EW Hardware In the Loop (HWIL).

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Various

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Electronic Warfare and Radar Division

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(08) 8259 5906

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## Synthetic Environment Research Facility (SERF)

The SERF has been developed to assist Land Operations Division to examine Task Force modernisation, control, communications, intelligence, surveillance and reconnaissance (C3ISR), training and human systems integration. It is playing a crucial role in support of the ADF's acquisition of an armed reconnaissance helicopter capability, tactics and doctrine prior to delivery of the new aircraft. The SERF employs OneSAF Testbed Baseline as a constructive context within which other virtual, prototype and modelled systems can be immersed.

### Application Areas

Training	0	Crisis Management	0	Acquisition	1
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	2	Experimentation	1	Research and Development	1

**Type:** Various

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Land Operations Division

**Contact:** Executive Officer - Land Operations Division  
(08) 8259 6484

## Terminal Effects Modelling System

TEMS is a terminal effects simulation tool that is able to use component models running on different operating systems over a network.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons Systems Division

**Contact:** Des Kay  
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## THIRSTY

A model to predict the sustainability of RAN assets under operational conditions.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	0

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Platform Division

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## Tidegap

Tide-step simulation that determines the tidal windows in which amphibious operations may be conducted.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Operations Division

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## TMSS

Total mine simulation system - a software shell containing a system of models for the simulation of the interactions between mines and platforms.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** RFT

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Operations Division

**Contact:** Mr David Wilson

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## TRIREME

Suite of engagement level models for Electronic Warfare Countermeasure effectiveness studies in the air environment

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	1

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Electronic Warfare and Radar Division

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## Underwater Objects

An imaging model of underwater objects viewed above the sea's surface.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Operations Division

**Contact:** Mr Alexei Kouzoubov

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## Virtual Maritime System GEMM Federate

WSD'S Generic Missile Model (GEMM) implemented as an HLA federate that interoperates within MOD's Virtual Maritime System Architecture.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons System Division

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### Virtual Maritime System Harpoon Federate

WSD's Harpoon MatrixX model plus a basic Fire Control model implemented as an HLA federate compliant with the Virtual Maritime System FOM.

#### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons System Division

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### Virtual Ship

Utilises the Virtual Maritime System Architecture to bring together simulation models of system components to create virtual representations of surface combatants. Typical components of the Virtual Maritime System will model the behaviour of sensor, weapon, navigation, countermeasure and command and control systems. In addition, components will model the physical behaviour of the platform, including its hydrodynamics and the effect on it of

#### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Operations Division

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### Virtual Submarine

Utilises the Virtual Maritime System Architecture to bring together simulation models of system components to create virtual representations of submarines. Typical components of the Virtual Maritime System will model the behaviour of sensor, weapon, navigation, countermeasure and command and control systems. In addition, components will model the physical behaviour of the platform, including its hydrodynamics and the effect on it of

#### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Maritime Operations Division

**Contact:** Mr John Stobie

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## Vulcan

Overlays predictions of nuclear fallout and chemical contamination from unconventional weapons onto world maps.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Under Development

**Group:** Defence Science Technology Organisation

**Organisation:** Air Operations Division

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## Weapons End-to-End Simulation Capability

The capability is in the form of a template Windows based simulation application for modelling mission level scenarios in which weapons systems are the primary focus. The application is built on the SimFramework simulation architecture. The template application provides a starting point for development of applications tailored to specific user

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons Systems Division

**Contact:** Mr David Munro-Ford

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## WSD Legacy Simulations

Many ADF weapons are no longer subject to development, upgrade or tactical evaluation. AIM-9, AIM-7, RBS-70 and Rapier are examples of these weapons. WSD has a repository of legacy simulations relating to many such weapons. These simulations are not actively being maintained, and often do not take advantage of modern simulation methods, languages and visualisation tools. Nonetheless, the mathematical models and weapon data comprising such simulations remain valid.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** Available for Use

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons Systems Division

**Contact:** Mr Matthew Robinson

(08) 8259 6582

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## Zemax

This tool allows design and analysis of optical systems.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Electronic Warfare and Radar Division

**Contact:** Mr Michael Gillyon

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## ZOFRAG

A model to predict warhead fragmentation.

### Application Areas

Training	0	Crisis Management	0	Acquisition	2
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Defence Science Technology Organisation

**Organisation:** Weapons System Division

**Contact:** Chief - Weapon Systems Division, (08) 8259 5138

## 5 Current Defence Simulation

### AFS Model

Predicts AFS usage on an annual basis.

#### Application Areas

Training	0	Crisis Management	1	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Model

**Status:** In Use

**Group:** Defence Personnel Executive

**Organisation:** Directorate of Workforce Modelling and Analysis

**Contact:** Lieutenant Colonel Tony Wallace

(02) 6265 4614

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### Air Force Recruiting Target Model

Forecasts future personnel numbers (and therefore recruiting and promotion requirements) using forecast separations and wastage.

#### Application Areas

Training	0	Crisis Management	1	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Model

**Status:** In Use

**Group:** Defence Personnel Executive

**Organisation:** Directorate of Workforce Modelling and Analysis

**Contact:** Wing Commander Paul Reith

(02) 6265 5383

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### Air Force Separation Forecasting Model

Provides a Survivor Curve based on cohort data and allows calculation of Probability of specific length of service group leaving in the next year.

#### Application Areas

Training	0	Crisis Management	1	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Model

**Status:** In Use

**Group:** Defence Personnel Executive

**Organisation:** Directorate of Workforce Modelling and Analysis

**Contact:** Wing Commander Paul Reith

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### Air Force Structural Overlay Model

Forecasts the personnel numbers required to maintain the correct number of people at the highest rank in an employment group based on various separation and recruiting scenarios.

#### Application Areas

Training	0	Crisis Management	1	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Model

**Status:** In Use

**Group:** Defence Personnel Executive

**Organisation:** Directorate of Workforce Modelling and Analysis

**Contact:** Wing Commander Paul Reith

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## Air Power Development Centre

The Air Power Development Centre provides experimentation and force assessment capability to the RAAF. It facilitates, coordinates and analyses the HEADWAY series of experiments. Key tools and processes centre around the provision of computer aided seminar wargaming and includes BattleModel, DARNOS and the ABF.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	1	Experimentation	1	Research and Development	0

**Type:** Various

**Status:** In Use

**Group:** RAAF

**Organisation:**

**Contact:** Wing Commander Neil Lacey

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## Air Warfare Systems Centre (AWSC)

The AWSC coordinates: Sea King simulator - a 3 DOF pilot simulator and static rear compartment trainer, Sea Hawk simulator - 6 DOF 3 crew full mission simulator, LSO Part task trainer - static base interactive projection system.

When it has been accepted, the ASWC will also operate the Seasprite simulator - 6 DOF 2 crew full mission

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** Navy

**Organisation:** FEG

**Contact:** Commander Mike MacNeill

(02) 4424 1873

[mike.macneill@defence.gov.au](mailto:mike.macneill@defence.gov.au)

## AP-3C Advanced Flight Simulator (AFS)

AFS provides full flight simulation to 92WG AP-3C pilots and flight engineers. The simulator is contracted to be accredited to CASA Level 5 (zero flight time simulator). The acquisition project has not yet been completed.

Development work is still underway. At the same time, the RAAF are utilising the AFS for training, although not to the level of fidelity that is anticipated by completion of the project.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** RAAF

**Organisation:** 92WG

**Contact:**

## AP-3C Integrated Test and Training Facility

These facilities include system hot benches, in circuit emulators, high fidelity simulation and stimulation systems, displays, actual mission systems and equipment, specialist test equipment, and various system and software development tools.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	1
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** In Use

**Group:** RAAF

**Organisation:** 92WG

**Contact:**

### AP-3C Operational Mission Simulator

High fidelity mission simulator allowing for realistic training in Undersea and Anti-Surface Warfare as well as Surveillance and Direct Support to a naval task force.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** RAAF

**Organisation:** 292SQN

**Contact:** Flight Lieutenant Matthew Stuckless

(08) 8393 4195

[matthew.stuckless@defence.gov.au](mailto:matthew.stuckless@defence.gov.au)

### Army Simulation Capability

The ASC is an amalgamation of current capability, personnel and expertise, doctrine, training methodologies and some additional technology under a framework designed to maximise Army's warfighting performance. It will incorporate the Army Synthetic Environment.

#### Application Areas

Training	1	Crisis Management	2	Acquisition	3
Mission Rehearsal	1	Conduct of	2	Lifecycle	0
Force Assessment	1	Experimentation	1	Research and Development	1

**Type:** Various

**Status:** Under Development

**Group:** Army

**Organisation:** Army Simulation Wing

**Contact:** Lieutenant Colonel Grant Tudor

(03) 5735 6903

[grant.tudor@defence.gov.au](mailto:grant.tudor@defence.gov.au)

### Army Technology Training Centre

The TTC produces Army's Flexible Learning products (technology-based training and distance education training products). It has developed a range of e-learning simulations that are applied in a range of individual training

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** Army

**Organisation:** Training Command

**Contact:** Army Technical Training Centre

(02) 9377 2111

### Artillery Indoor Range System (AIRS)

Combination photo realistic CGI arty fwd observer simulator

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** Army

**Organisation:** Combat Arms Training Centre

**Contact:** Major Robin Leach (DMO Logistic Manager)

(03) 9282 6692

[robin.leach@defence.gov.au](mailto:robin.leach@defence.gov.au)

## Australian Mining Capability

Consists of an exercise capability in maritime mine warfare, particularly the laying of mines (with Stonefish mines) and their subsequent interaction with surface platforms. The simulation component lies in training in mine warfare operations in the practical aspects of mine laying and subsequently with the exercise of surface platforms, mine warfare assets and clearance divers using the Stonefish exercise mine. The Stonefish exercise mine simulates the effects of a mine by emitting an underwater acoustic signal when set off. This can be recorded by the mine for later evaluation or monitored by a nearby vessel or buoy with a receiver in real time. The surface platform that actuated the mine can immediately be informed by signal, though this is somewhat artificial. The present phase of this project aims to acquire pyrotechnics to make the effects of the exercise mine more realistic. A series of loud explosions, a flare on the surface and an airborne light source call attention to the mine actuation, which cannot be

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** Navy

**Organisation:** Maritime Warfare Training Group

**Contact:** Commander Ralph MacDonald  
(02) 9337 0655

[ralph.macdonald@defence.gov.au](mailto:ralph.macdonald@defence.gov.au)

## Battle Effects Simulation System (BESS)

The Battle Effects Simulation System (BESS) is a radio controlled remote initiation system and specialist pyrotechnics used to simulate battlefield noises and obscuration during training. Qualified operators are able to plan, install and initiate a range.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Live

**Status:** In Use

**Group:** Defence Materiel Organisation

**Organisation:** Land Systems Division

**Contact:** Major Robin Leach  
(03) 9282 6692

[robin.leach@defence.gov.au](mailto:robin.leach@defence.gov.au)

## Blackhawk Full Flight and Mission Simulator (FFMS)

The FFMS was acquired under project AIR5046 Phase 3C and is located at the Army Aviation Centre, Oakey QLD. It was built by CAE Electronics Inc. of Canada and has a 60 degree by 220 degree collimated glass mirror visual display system with separate chin window displays and includes a mission training capability using an interactive tactical environment simulation. It is used for day and night unaided, Night Vision Goggle (NVD) and NVD HUD modes of flying. It is accredited to CASA FSD-1 Level 5 using FAA AC120-63 Level D criteria without waivers (was the first helicopter simulator to meet this requirement in 2001). It is primarily used for the training of pilots, qualified flying instructors, unit maintenance test pilots and Blackhawk maintenance personnel on courses run by the Army

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** Army

**Organisation:** Army Aviation Centre

**Contact:** Major Ken Gwynne  
(07) 4691 9127

[ken.gwynne@defence.gov.au](mailto:ken.gwynne@defence.gov.au)

## Bridge Training Facility (Bridge Simulator)

HMAS WATSON has a bridge simulator for ship pilotage training.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** Navy

**Organisation:** Training Authority Maritime Warfare

**Contact:** Lieutenant Andrew Halliday  
(02) 9337 0428

[andrew.halliday@defence.gov.au](mailto:andrew.halliday@defence.gov.au)

## Brigade/Battalion Battle Simulation (BBS)

BBS is a constructive simulation designed to enhance procedural training. It simulates the battle environment providing a full range of logistic functions and processes. It is primarily utilised to support Command Post Exercises.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	2	Experimentation	2	Research and Development	0

**Type:** Constructive

**Status:** Under Development

**Group:** Army

**Organisation:** Army Simulation Wing

**Contact:** Mr Glen Bethel

(03) 5735 7191

[glen.bethel@defence.gov.au](mailto:glen.bethel@defence.gov.au)

## Cockpit Emergency Procedures Trainer (CEPT)

CEPT is a networked PC based classroom emergency procedural trainer for Army aircraft.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** Army

**Organisation:** Army Aviation Centre

**Contact:** Major Robin Leach

(03) 9282 6692

[robin.leach@defence.gov.au](mailto:robin.leach@defence.gov.au)

## Collins Class Combat System Trainer

The CST provides a tactical, navigational, engagement and Command Team Training environment. It includes a virtual periscope, multiple vessels and scenario control system. It is used for crew operational training.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** Navy

**Organisation:** Training Authority - Submarines

**Contact:** Lieutenant Commander Stephen Hussey

(03) 9553 3655

[stephen.hussey@defence.gov.au](mailto:stephen.hussey@defence.gov.au)

## Collins Class Diving and Safety Console (Part Task Trainer)

The trainer will compliment current ship control system training at the Submarine Training and Systems Centre. The trainer will interact with the Manoeuvring Control Console. It is funded through SEA1439

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Under Development

**Group:** Navy

**Organisation:** Training Authority - Submarines

**Contact:** Lieutenant Commander Ian Jimmieson

(08) 9553 3716

[ian.jimmieson@defence.gov.au](mailto:ian.jimmieson@defence.gov.au)

## Collins Class Manoeuvring Console Part-Task Trainer

This trainer complements current Ship Control System training at the Submarine Training and Systems Centre at HMAS Stirling. It is funded through SEA1439.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** Navy

**Organisation:** Training Authority - Submarines

**Contact:** Lieutenant Commander Ian Jimmieson

(08) 9553 3716

[ian.jimmieson@defence.gov.au](mailto:ian.jimmieson@defence.gov.au)

## Collins Class Submarine Ship Control System - Platform Simulation Trainer

Comprises submarine engineering and manoeuvring control simulators for team and operator training of Collins Class

crew at HMAS Stirling. It is used for crew certification.

**Application Areas**

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** Navy

**Organisation:** Training Authority - Submarines

**Contact:** Lieutenant Commander Ian Jimmieson  
(08) 9553 3716

[ian.jimmieson@defence.gov.au](mailto:ian.jimmieson@defence.gov.au)

### Collins Class Weapons Handling Rig

Provides weapon handling training for operators and maintainer. It includes scenario control system for introducing faults including weapon discharge anomalies and system failures. Use for crew certification.

**Application Areas**

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** Navy

**Organisation:** Training Authority - Submarines

**Contact:** Lieutenant Commander Ian Jimmieson  
(08) 9553 3716

[ian.jimmieson@defence.gov.au](mailto:ian.jimmieson@defence.gov.au)

### Combat System Operational Trainer (CSOT)

The Combat System Operational Trainer (CSOT) is an integrated suite combining tactical data system, and sonar suites and a Propulsion System Operational Trainer (PSOT). Both are installed in HMAS Waterhen.

**Application Areas**

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** In Use

**Group:** Navy

**Organisation:** HMAS Waterhen

**Contact:** HMAS Waterhen Balls Head Road, Waverton NSW 2060

### Combat System Tactical Trainer (CSTT)

The CSTT provides a simulated operations room for the ANZAC Class frigate and is the main simulation system associated with the class. There are two identical units – one located at HMAS Watson and the other at Fleet Base West, Rockingham WA. The system in WA has been relocated from Melbourne and is expected to be operational by June 2005. Each unit consists of a mock up of the FFH operations room, using milspec equipment and some emulation systems. A separate room contains milspec Command and Control computers and interface units. A third room houses nine 'instructor consoles'. CSTT is used for Command Team training – a series of graduated warfighting exercises; Principal Warfare Officer Training – graduated procedural exercises; Fire Control Officer Training – drill scenarios and assessment; General Operator Training; SS2000 software testing; Link 11 combined

**Application Areas**

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Operational Systems Trainer

**Status:** In Use

**Group:** Navy

**Organisation:** Maritime Warfare Training Group

**Contact:** Warrant Officer Brian Collins  
(02) 9337 0360

[brian.collins@defence.gov.au](mailto:brian.collins@defence.gov.au)

## F-111 Weapon System Support Facility (WSSF)

F111 support facility comprising assembly of general purpose computing equipment, avionics hardware, software development tools and simulation and test software. It provides a real-time dynamic test environment to support integration and testing of the F-111 flight software in a realistic environment. The system includes real-time aircraft simulation software to simulate the F-111 aircraft, avionics, external world and display interfaces.

### Application Areas

Training	2	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	1
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Constructive

**Status:** In Use

**Group:** RAAF

**Organisation:** Strike Reconnaissance SPO/82WG

**Contact:**

(07) 5461 3059

## F-111C Mission Simulator

The F-111C mission simulator is to provide training for Air Combat Group aircrew on the base. The training device simulates the performance and function of the RAAF post-avionics Update Program Aircraft and is supportable for the LOT of the aircraft. The Simulator will continue to be upgraded in conjunction with the rest of the F-111C weapon system as part of the Block Upgrade Program (BUP) and 'running system' changes via the Weapon System Business Unit (WSBU) at RAAF Amberley. The simulator provides operational flight training for F111 aircrew and F111 technical training (eg, RADAR and engine runners courses).

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	2	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** RAAF

**Organisation:** Strike Reconnaissance SPO/82WG

**Contact:** Flight Lieutenant Marcus DePuit

(02) 4964 6180

[marcus.depuit@defence.gov.au](mailto:marcus.depuit@defence.gov.au)

## FFG Trainer

Fulfills the role of the CSTT for the Guided Missile Frigates.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** Navy

**Organisation:** Maritime Warfare Training Group

**Contact:** Warrant Officer Brian Collins

(02) 9337 0360

[brian.collins@defence.gov.au](mailto:brian.collins@defence.gov.au)

## HARPOON

COTS game with wide applicability. It has been used to support Service experimentation.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	0

**Type:** Constructive

**Status:** In Use

**Group:** Capability Development Group

**Organisation:** Australian Defence Simulation Office

**Contact:** Wing Commander Tom Wickham

(02) 6265 7823

[thomas.wickham@defence.gov.au](mailto:thomas.wickham@defence.gov.au)

## Harpoon Interactive Tactical Trainer System (HITTS)

HITTS provides Harpoon Anti-Ship Missile Training through PC Based simulations for up to six students. Tactical scenarios are executed from a generic Combat Data Systems screen which lead to Harpoon Engagements. The system allows the operator to act as the Principal Warfare Officer for a ship, providing manoeuvring, aircraft control, and tactical decision making. While this is a significant portion of the training, the real focus is on the use of the Harpoon Fire Control system itself. The FFG trainees use the SWG1A 9/10 panel while the ANZAC trainees employ AHWCS 2.0, which accurately model the actual systems.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** Navy

**Organisation:** Maritime Warfare Training Group

**Contact:** Lieutenant Ben Hilliker

(02) 9337 0395

[benjamin.hilliker@defence.gov.au](mailto:benjamin.hilliker@defence.gov.au)

## Hawk Tactical Weapon Systems Training System

Provides operational flight training for Hawk aircrew. Located at RAAF Base Williamstown and RAAF Base Pearce

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	1	Conduct of	0	Lifecycle	1
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** RAAF

**Organisation:** ACG

**Contact:** Flight Lieutenant Marcus DePuit

(02) 4964 6180

[marcus.depuit@defence.gov.au](mailto:marcus.depuit@defence.gov.au)

## Hornet Operational Flight Trainer

Provides operational flight training for Hornet aircrew, Hornet technical training (eg, RADAR and engine runners courses), simulation for crash investigations, simulation of new capability, and test and evaluation of OFP upgrades. One located at RAAF Base Tindal and another located at RAAF Base Williamstown

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	1	Conduct of	0	Lifecycle	1
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** RAAF

**Organisation:** ACG

**Contact:** Flight Lieutenant Marcus DePuit

(02) 4964 6180

[marcus.depuit@defence.gov.au](mailto:marcus.depuit@defence.gov.au)

## Human Resource Decision Support System (HRDSS)

Modelling application based on 'CHOICE' (as in humans make 'choices' with all behavioural situations). HRDSS allows quantitative assessment of human resources issues for business case development.

### Application Areas

Training	0	Crisis Management	1	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Constructive

**Status:** In Use

**Group:** Defence Personnel Executive

**Organisation:** Directorate of Personnel Planning and Research

**Contact:** Mr John Hearps

(02) 6266 3297

[john.hearps@defence.gov.au](mailto:john.hearps@defence.gov.au)

## Indirect Fire Observer Trainer (IFOT)

'Indirect Fire Observer Trainers (IFOT) supports field artillery units and training institutions (Offensive Support Division (OSD) and Royal Military College). It includes mobile field units and static systems at the OSD. IFOT is used for training various combat teams in the drills and procedures required for the effective employment of

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** Army

**Organisation:** Combat Arms Training Centre

**Contact:** Major Robin Leach

(03) 9282 6692

[robin.leach@defence.gov.au](mailto:robin.leach@defence.gov.au)

## Integrated Maintenance Training System (IMTS)

The IMTS is a computer based maintenance trainer. The trainers consist of two large smart boards, connected to a simulated cockpit. Virtual faults can be induced, or items virtually removed or installed, on the boards and the cockpit will simulate the aircraft's response to the change. The IMTS has no flight model as it is purely a maintenance trainer. There are three units located at RAAF Base Williamtown with a further unit being acquired for

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	1
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** RAAF

**Organisation:** 78WG

**Contact:** Warrant Officer Dave Slattery

(02) 4964 6331

[david.slattery@defence.gov.au](mailto:david.slattery@defence.gov.au)

## Integrated Operations Team Training Facility

The IOTTF is an emulated simulation system for DDG and FFG team training. It comprises a simulated operations room as well as instructor stations and asset cubicles capable of representing consorts and other forces.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	2	Research and Development	0

**Type:** Operational Systems Trainer

**Status:** In Use

**Group:** Navy

**Organisation:** Maritime Warfare Training Group

**Contact:** Commander Ralph MacDonald

(02) 9337 0655

[ralph.macdonald@defence.gov.au](mailto:ralph.macdonald@defence.gov.au)

## Interactive Computer Aided Trainer (ICAT)

F-111 simulation for maintenance training.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	1
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** RAAF

**Organisation:** Strike Reconnaissance SPO/82WG

**Contact:**

## Janus AS V8.0 (Army)

Constructive simulation for tactical decision training post H-Hour. Also used for experimentation by the Army Experimental Framework.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	1	Experimentation	1	Research and Development	0

**Type:** Constructive

**Status:** In Use

**Group:** Army

**Organisation:** Army Simulation Wing

**Contact:** Mr Glen Bethel

(03) 5735 7191

[glen.bethel@defence.gov.au](mailto:glen.bethel@defence.gov.au)

## Joint Experimentation Facility

A proposal to be generated by Strategic Policy Division to articulate that current Canberra facilities for Joint, Navy and Airforce experimentation programs are sub-optimal and that a JEF (potential to be renamed as the Defence Experimentation Facility) should be developed to produce a better result.

### Application Areas

Training	0	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	1

**Type:** Various

**Status:** Under Development

**Group:** Strategy Group

**Organisation:** Directorate of Future Warfighting

**Contact:** Lieutenant Colonel Steve Lovaszy

(07) 3332 4080

[steven.lovaszy@defence.gov.au](mailto:steven.lovaszy@defence.gov.au)

## Joint Semi-Automated Forces (JSAF)

JSAF is a collection of HLA-based simulation federates used to model military entities including air, ground and naval individual combatants and aggregate units with their associated behaviours. JSAF is an entity level, interactive constructive simulation that can be used for training and experimentation activities at the operational and tactical level of war.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	3	Lifecycle	0
Force Assessment	1	Experimentation	1	Research and Development	1

**Type:** Constructive

**Status:** In Use

**Group:** Vice Chief of the Defence Force

**Organisation:** Australian Defence Force Warfare Centre

**Contact:** Lieutenant Commander Ian Allan

(02) 4964 6072

[ian.allan@defence.gov.au](mailto:ian.allan@defence.gov.au)

## Joint Theatre Level Simulation (JTLS)

JTLS is an interactive, computer-assisted simulation that models multisided air, ground and naval combat, with logistical, Special Operation Force (SOF), and intelligence support at the Operational and Strategic level of war. JTLS is a proven simulation in use in a number of countries, particularly the USA. ADFWC has a software maintenance agreement with Rowlands and Associates plus a voting position on the US Configuration Review board. JTLS is used for experimentation and Course of Action analysis.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	3	Lifecycle	0
Force Assessment	1	Experimentation	0	Research and Development	0

**Type:** Constructive

**Status:** In Use

**Group:** Vice Chief of the Defence Force

**Organisation:** Australian Defence Force Warfare Centre

**Contact:** Lieutenant Commander Ian Allan

(02) 4964 6072

[ian.allan@defence.gov.au](mailto:ian.allan@defence.gov.au)

## Land Mine Effects Simulation System (LMESS)

LMESS is a live simulation system to be used to improve mine awareness of soldiers. The mine simulator, when triggered, will initiate a coded radio frequency signal that indicates a kill or near miss on a Tactical Engagement Simulation System (TESS) harness and a vehicle hit indicator, out to a range of 30 metres.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Live

**Status:** In Use

**Group:** Army

**Organisation:**

**Contact:** Major Robin Leach (DMO Logistic Manager)

(03) 9282 6692

[robin.leach@defence.gov.au](mailto:robin.leach@defence.gov.au)

## Landing System Officer Simulator

The Landing System Officer Simulator is a part task trainer offering a capability to train LSO's ashore at HMAS Albatross.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Crew Procedural Trainer

**Status:** In Use

**Group:** Navy

**Organisation:** Air Warfare Systems Centre

**Contact:** Commander Mike MacNeill

(02) 4424 1873

[mike.macneill@defence.gov.au](mailto:mike.macneill@defence.gov.au)

## Location and Scenario Training System

3D walkthrough of the Collins Class Submarine (proof of concept development). It provides interactive familiarisation and procedural training for Submariners. It is a joint project with Navy Systems Command Computer Modelling

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** Under Development

**Group:** Navy

**Organisation:** Training Authority - Submarines

**Contact:** Lieutenant Commander Ian Jimmieson

(08) 9553 3716

[ian.jimmieson@defence.gov.au](mailto:ian.jimmieson@defence.gov.au)

## Maritime Warfare Training System

The MWTS is a self sufficient simulation environment consisting of the Integrated Operations Team Training Facility (IOTTF) and the ANZAC Combat System Team Trainer (CSTT). SEA 1412 is enhancing the capabilities of the MWTS.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	0

**Type:** Various

**Status:** In Use

**Group:** Navy

**Organisation:** Maritime Warfare Training Group

**Contact:** Commander Ralph MacDonald

(02) 9337 0655

[ralph.macdonald@defence.gov.au](mailto:ralph.macdonald@defence.gov.au)

## Mine Hunter Simulation System

Provides support to Combat and Platform System Operator and gunnery training.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Crew Procedural Trainer

**Status:** In Use

**Group:** Navy

**Organisation:** HMAS Waterhen

**Contact:** HMAS Waterhen Balls Head Road, Waverton NSW 2060

(02) 9926 2604

## Mine Warfare Command Support System

The MWCSS provides a simulated mine warfare planning and training capability. It resides at HMAS Waterhen

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Mission Simulator

**Status:** In Use

**Group:** Navy

**Organisation:** HMAS Waterhen

**Contact:** HMAS Waterhen Balls Head Road, Waverton NSW 2060  
(02) 9926 2604

### Officer Profile

Provides data on Defence Officer population for supporting other modelling applications

#### Application Areas

Training	0	Crisis Management	1	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Model

**Status:** In Use

**Group:** Defence Personnel Executive

**Organisation:** Directorate of Workforce Modelling and Analysis

**Contact:** Lieutenant Colonel Tony Wallace

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### On Board Operational Trainer (OBOT)

Navy concept to stimulate onboard sensors to produce a realistic threat environment for the ship's command team. OBOT may use a DIS interface to allow ships to network with similar units or shore establishments.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Stimulation

**Status:** Concept Only

**Group:** Navy

**Organisation:** Maritime Warfare Training Group

**Contact:** Commander Ralph McDonald

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### OneSAF Objective System (OOS)

Based on OneSAF Test Bed (OTB) the OneSAF Objective System (OOS) is a modular semi-automated force simulation used primarily to model land battle scenarios.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	1	Conduct of	2	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	0

**Type:** Constructive

**Status:** Under Development

**Group:** Army

**Organisation:** Army Simulation Wing

**Contact:** Mr Glen Bethel

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### Other Ranks Profile

Provides data on Defence Other Ranks population for supporting other modelling applications.

#### Application Areas

Training	0	Crisis Management	1	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Model

**Status:** In Use

**Group:** Defence Personnel Executive

**Organisation:** Directorate of Workforce Modelling and Analysis

**Contact:** Lieutenant Colonel Tony Wallace

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### RAAF Simulator Complex (285SQN)

The Simulator Complex contains three level five full flight simulators (C130H, C130J and B707). They are used for pilot, navigator and flight engineer training on each aircraft type as applicable. The simulators are also utilised for aircrew currency and recency flying exercises.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0

Force Assessment 0 Experimentation 0 Research and Development 0  
**Type:** Virtual  
**Status:** In Use  
**Group:** RAAF  
**Organisation:** Air Lift Group  
**Contact:** Wing Commander Michael Stone  
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### Simulation Control and Monitoring System - FFH ANZAC

The SCMS is used to provide operator training to Marine Engineering sailors in the operation of the engineering propulsion plant. Limited team training is provided. The system is currently being relocated from Melbourne to the ANZAC ship support centre at Fleet Base West.

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	3
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Constructive

**Status:** In Use

**Group:** Navy

**Organisation:**

**Contact:** Lieutenant Commander Brian Nitschinski  
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### Simulation Mode FHH Command and Control System -ANZAC Class Frigate

Simulation mode is a simple software program within the FFH Command and Control system. Simulation Mode allows the user to build a game onboard the ship. The game can have a number of entities with pre-defined trajectories and profiles, ESM and RCS characteristics. Trajectories and characteristics can be altered during the game. Simulation Mode may be used for low key on board training. It is particularly beneficial for the conduct of drill

#### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** Navy

**Organisation:** Maritime Warfare Training Group

**Contact:** Chief Petty Officer Clive Chadwick  
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### Structural Sustainability Model (ANUBIS)

Determines whether a particular hierarchical rank structure is sustainable based on different separations and recruitment flows.

#### Application Areas

Training	0	Crisis Management	1	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Model

**Status:** In Use

**Group:** Defence Personnel Executive

**Organisation:** Directorate of Workforce Modelling and Analysis

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## Submarine Training and Systems Centre (HMAS Stirling)

Incorporates simulators for team and operator training of Collins Class crew.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Various

**Status:** In Use

**Group:** Navy

**Organisation:** Training Authority - Submarines

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## SYRUS Workforce Modelling System

Dynamic POWERSIM-based model used for workforce supply forecasting of Navy Officer and Sailor Trades

### Application Areas

Training	0	Crisis Management	1	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Model

**Status:** Endorsed Concept

**Group:** Defence Personnel Executive

**Organisation:** Directorate of Workforce Modelling and Analysis

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## Tacops ANZAC

TacOps ANZAC is a tactical decision game ( sometimes called a constructive simulation or wargame) that runs on a desktop computer. It is a military adaptation of a commercial recreational computer wargame named "TacOps". The Australian Department of Defence has licensed TacOps ANZAC for free distribution to all members of the Australian and New Zealand Defence Forces. The intent of the TacOps ANZAC license is:

A. To provide an economical, limited fidelity, unclassified, tactical level battle simulation that can run on an average desktop computer and that can be freely distributed to Australian and New Zealand Defence Forces personnel.

B. To support limited usage in supervised training activities, particularly where time, money, or personnel limitations discourage the use of more sophisticated training simulations. TacOps ANZAC is intended only to augment, not replace, the usage of more sophisticated training simulations.

C. To create and exploit semi-recreational training opportunities through widespread distribution to junior personnel.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Constructive

**Status:** In Use

**Group:** Army

**Organisation:** Army Simulation Wing

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## Tactical Engagement Simulation System (TESS)

An eye safe laser based system used to train dismounted soldiers in infantry minor tactics in the live environment.

It is direct fire simulations using Laser Transmitters mounted on firing weapons to engage laser receivers mounted on possible targets. Laser Transmitters emit coded laser beams containing information about the player identity, weapon system, ammunition, and type of event (kill or near miss, injury) is generated. Manworn Direct Fire Laser Detection Harnesses (MWLD) affixed to a man, or vehicle mounted laser detectors, decode the incoming laser pulses and determine the correct effect, if any, on the target and relay/store event details.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Live

**Status:** In Use

**Group:** Defence Materiel Organisation

**Organisation:** Land Systems Division

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## Tactical Training Simulation Capability

The TTSC is four permanent Tactical Training Simulation sites (facilities) to facilitate tactical, command and staff training in a computer-simulated environment. The TTSC rationale provides for a powerful tool for training combat and combat support commanders and command teams in operational planning and post H-Hour decision-making. It will also support the development, testing and rehearsal of operational and contingency plans. Each TTSS is capable of being linked to enable distributed simulation activities. It is envisioned that multiple simulation applications will be

### Application Areas

Training	1	Crisis Management	2	Acquisition	0
Mission Rehearsal	2	Conduct of	3	Lifecycle	0
Force Assessment	0	Experimentation	1	Research and Development	0

**Type:** Various

**Status:** In Use

**Group:** Army

**Organisation:** Army Simulation Wing

**Contact:** Mr Glen Bethel

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## Virtual Battlespace System (VBS1)

VBS is a virtual simulation designed to represent real world tactical operations from a first person perspective and up to combat team level. VBS is a core component of VICE.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	2	Experimentation	2	Research and Development	0

**Type:** Virtual

**Status:** Under Development

**Group:** Army

**Organisation:** Army Simulation Wing

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## Virtual Immersive Combat Environment (VICE)

Project to deliver a virtual simulation based combined arms tactical training environment. It will consist of one or more virtual simulations drawn from the commercial sector in an effort to provide low cost low risk training solutions.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	1	Experimentation	1	Research and Development	0

**Type:** Virtual

**Status:** Under Development

**Group:** Army

**Organisation:** Army Simulation Wing

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## Weapons Training Simulation System (WTSS)

This project acquired nine indoor, laser-based simulation systems that are used primarily to train soldiers in marksmanship principles by simulating every day and night Live Fire Practices.

### Application Areas

Training	1	Crisis Management	0	Acquisition	0
Mission Rehearsal	0	Conduct of	0	Lifecycle	0
Force Assessment	0	Experimentation	0	Research and Development	0

**Type:** Virtual

**Status:** In Use

**Group:** Army

**Organisation:** Headquarters Training Command

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