

DEFENCE WEEK PREMIUM EDITION



16th Regiment personnel launch a live Bolide missile from an RBS-70 at a target over Lake Hart.

DEFENCE

Upgrades underway on air defence radars

Julian Kerr | Sydney

Army's 16 Air Land Regiment was retitled 16 Regiment Royal Australian Artillery on 2 June, just one change among several that are now underway and set to transform the unit's air defence capability.

These involve major upgrades of the Regiment's three Saab Giraffe Agile Multi-

beam 3D radars, and new trial software for the unit's 31 SRCTec lightweight counter-mortar radars (LCMRs). This software upgrades the LCMRs into air surveillance radars with sufficient sensitivity to provide cueing against unmanned aerial systems and conventional aircraft.

Although Giraffe was procured specifically for the C-RAM (Counter Rocket, Artillery and Mortar) role supporting Australian troops at their Tarin Kot base in Afghanistan, the enhancements enable it to replace the Regiment's ageing Lockheed Martin L-Band PSTAR-ER portable search and target acquisition radars – now withdrawn from service – while retaining its C-RAM capability.

"We've iteratively integrated Giraffe into our existing suite of capabilities which provides a significant

IN THIS ISSUE

IIV TITIO 1000E	
Upgrades underway on air defence radars	1
War in 2025 looks grim: ASPI's international conference highlights	2
BAE Systems joins team for unmanned carrier aircraft	5
Call for proposals to improve network assurance	′е 6
Missile defences integrated onto NATO tankers	7
New icebreaker undertakes harbour tests	8
Forthcoming Events 1	0

"We've iteratively integrated Giraffe into our existing suite of capabilities which provides a significant enhancemen

enhancement, and it's now compatible with our tactical command and control system (TACCS) that gives us our day and night cueing capability to our RBS-70 short-range air defence system and its Bolide missiles," 16 Regiment's Commanding Officer, Lieutenant Colonel Mark Mankowski, said.

"It's also compatible with the latest modification of the Forward Area Air Defence Command and Control Software (FAADC2) which feeds into the Air and Missile Defence Workstation (AMDWS) and provides our sense and locate or C-RAM requirement."

All three Giraffes are also being upgraded in Australia with Mode 5 Identification Friend or Foe (IFF) – the next-generation encrypted

data link between interrogators and transponders to confirm an aircraft is friendly even if the IFF transponder is set to stand-by – and will be back in the Regiment by October.

The LCMR were also acquired specifically for the C-RAM mission but have now also been integrated into TACCS.

16 Regiment is the future operator of the National Advanced Surface to Air Missile System (NASAMS) and will take delivery of the first of two batteries in 2022.

More information on air defence capability upgrades will be available in the July edition of ADM.

War in 2025 looks grim: ASPI's international conference highlights

Naomi Thomas | Canberra

"You may not be interested in war, but war is interested in you," Executive Director of ASPI Peter Jennings said, opening the event.

ASPI's War in 2025 conference at the QT Hotel in Canberra was held between June 13 and 14, examining what war could look like in 2025. The conference explored many challenges and issues facing Defence globally in the near future. Presenters made clear that Defence's eyes are opening to the challenges and opportunities of technological advancements in a much closer timeframe.

There were eight back-to-back panels over the two days with extensive Q&A sessions. Topics included geo-political realities and trends, power trajectories, technologies, multi-domain and informational-age warfare, the US vision for 2025, the White Paper process, and Australian Defence Industry as an enabler for multi-domain warfare. Collaborative industrial partnering for the battlefields of the near future was an underlying theme for many speakers.

This was brought home in the opening keynote by VCDF Vice Admiral David Johnston, who announced that the Department is undertaking its first national mobilisation strategy review for the first time since WWII.

"We need to be more adept at deploying all elements of national power in 2025," VADM Johnston said, noting that the ADF is only as flexible as the supply chain that supports it.

Minister for Defence Senator Linda Reynolds gave a keynote address, her first

to a domestic audience in her new role, about the challenges of re-defining the strategic environment.

"As the rules that have guided our prosperity and security are eroded, so too is the trust that this common purpose is built on," Minister Reynolds said. "New rules also need to be written, especially in relation to potentially disruptive technologies that have advanced faster than have regulations governing their use. To secure the best possible outcomes, we need to ensure a collaborative, equitable

approach to adapting to current rules and writing new ones."

"You may not be interested in war, but war is interested in you"

Many speakers emphasised the role of information warfare in its many forms, with Chief of the Defence Force General Angus Campbell speaking at length at the conference dinner about how Australia needs to lift its game in this regard in comparison to other global players.

Director of the German Marshall Fund's Warsaw Office Michał Baranowski, Group Chief Executive of Asialink Penny Burtt and ASPI's

Peter Jennings spoke on the realities and trends fashioning the world in six years.

"There is a concern over internal control," Burtt said on the differences between democracies and autocracies. "China is increasing their methods of communication and using their technology to extend their control. Australia tends to be narrow-minded with strategic interests, [but also] needs to broaden its view. We're nowhere near predicting strategies for 2025."

The player vs player trajectories between countries was discussed by Adjunct Professor at Chinese University of Hong Kong Dr Willy Lam, Australian National University's Dr Jennifer Hunt, Chancellor of the University of Queensland Peter Varghese, and Senior ASPI Analyst Dr Huong Le Thu. Dr Lam spoke about China's power dynamics, beginning with space warfare.

"China is preparing for space warfare," Lam said. "China has an importance of status, as the middle kingdom, and a dream of military glory."

Varghese explained how the relationship between the US and China is looking gloomy and unrealistic.

"China will become a stakeholder and have more influence on old and new institutions. China has eclipsed the US economy – the US may not remain as the most influential power on the globe."



Competition between China and the US is shaping war in 2025.

@OPSLENS

Strategist, writer and Senior Fellow at New America Peter Singer presented a captivating and thought-stimulating keynote address about the power and dangers of social media in the wake of his new book #LikeWar which looks at the weaponisation of social media.

"We're in a world where virality overwhelms veracity," Singer said. "There's a new set of winners and losers (who understand the rules of the game) and are using it to their advantage. There is no silver bullet solution to the Internet."

"Industry 4.0 is about trying to collaborate better with new technologies"

DST Group's Dr Nigel McGinty, ASPI Fellow Dr Andrew Davies, and Adjunct Fellow at the Centre for New American Security Elsa Kania explored prospective technologies for future warfare.

Dr McGinty presented on advanced 3D printing in the Defence supply chain, economic sensor power systems, using atomic and subatomic level-tailored quantum computers to rapidly solve problems, just to name a few.

Dr Davies presented on hypersonics and the potential of gliders.

"A hypersonic glide vehicle, powered by gravity, uses aerodynamic heating and can fly anywhere in the world in under 40 minutes," Davies said.

"But how can we tell the difference between a delivery glide and a military glide?"

Many presentations examined the importance of advancing Australia's multidomain warfare and operations management.

Microsoft's Jamie Wylly presented on the future prospective of superior military computing.

"Computing will advance how we live our lives and how we win the battle," Wylly said. "We'll move war games into a virtual experience, and 'game-ify' cyber security training for young people and how they want to work."

Charles Sturt University's Nicole Matejic provided a crucial perspective of weaponised online platforms and their damaging effects.

"The weaponisation of online platforms creates moral damage and ethical costs," Matejic explained. "Blaming technology doesn't negate the attacker's decision to attack."

Focusing on the partnership aspects between multi-domain warfare and Defence Industry, Northrop Grumman Australia's new leader Chris Deeble, *ADM* Managing Editor Katherine Ziesing, and Lockheed Martin's Neale Prescott offered insight to the importance of uniting Defence with industry.

"Industry 4.0 is about trying to collaborate better with new technologies. It assumes everyone can access these programs, which may not always be the case," Ziesing said.

All speakers were able to look at examples of how Defence has partnered with industry, large and small, and the benefits of collaboration.

"No one has a monopoly on smart or dumb ideas. As cliché as it sounds, people are our best assets," Ziesing said.

The last panel was from AiGroup's Kate Louis, Dr Malcom Davis, and ASPI's Peter Jennings about the prominence and relevance of a new White Paper for Defence.

"Yes we need a new White Paper, but there are four factors; politics/policy, strategy/military, capabilities and money," Jennings explained. "We can think about the idea of an annual White Paper, but it would be a different process. Money is the ultimate reason for a new White Paper."



BAE Systems will provide vehicle management and identification systems for the MQ-25.

BAE SYSTEMS

BAE Systems joins team for unmanned carrier aircraft

BAE Systems has been awarded contracts by Boeing to supply the Vehicle Management Control System and Identification Friend or Foe (IFF) System for the MQ-25.

The MQ-25 'Stingray' is the US Navy's first operational carrier-based unmanned aircraft and is designed to provide a refuelling capability for F/A-18 Super Hornets, EA-18G Growlers, and F-35C fighter jets. The contract supports Boeing's engineering and manufacturing development program to provide four MQ-25 aircraft to the USN for Initial Operational Capability by 2024.

The Vehicle Management Control System will control all flight surfaces and perform overall vehicle management duties. The IFF product ensures operation in contested environments by reliably identifying both coalition and enemy vehicles.

"BAE Systems leads the industry in high-integrity fly-by-wire and mission-

"The MQ-25 is the US Navy's first operational carrier-based unmanned aircraft" critical IFF technologies," Corin Beck, director of Military Aircraft Systems at BAE Systems, said. "Our relationship with Boeing started more than four decades ago and has resulted in aircraft that have some of the most advanced avionics and reduced size transponders in the world."

"The MQ-25 program is vital because it will help the US Navy extend the range of the carrier air wing, and Boeing and our industry team is all-in on delivering this capability," Dave Bujold, Boeing's MQ-25 program director, said.

The US Navy has indicated that the first test flights for the MQ-25 could take place shortly, thanks to a build schedule accelerated by Boeing's decision to build an example of the aircraft prior to being awarded the contract.

The company recently moved the aircraft from a manufacturing facility in Missouri to a regional airport next to Scott Air Force Base, Illinois.

MOST READ ONLINE AT WWW.AUSTRALIANDEFENCE.COM.AU



- Former Canadian Navy chief to run UNSW Defence Research Institute
- 2. NZ selects C-130J-30 Hercules
- 3. HMAS Melbourne makes final return to Australia
- 4. Self propelled howitzers back on the cards
- 5. Last call for RAN's longest serving ship

Call for proposals to improve network assurance

The Defence Innovation Hub is seeking innovative proposals in network assurance.

In a statement, Defence said it is looking for innovations that can advance Army's network resilience, boost network defences or deceive adversaries about the disposition and characteristics of land networks.

"Whilst the contested battle space is enduring, technological disruption is rapidly changing war's character. These characteristics include the convergence of big data, AI, machine-learning, robotics and unmanned and autonomous systems," the statement said.

"Our challenge is to underpin technological change with a focus on conducting land combat operations in a more effective and efficient manner by leveraging new technologies to provide a balanced, agile and sustainable fighting capability.

"Defence is seeking innovative proposals that increase network resilience and redundancy; defend the network through reducing an adversary's ability to deny,



Defence is looking to improve network resilience and redundancy.

DEFENCE

disrupt or exploit our information; and/or deceive an adversary as to the nature, disposition and characteristics of land networks and associated force elements."

Following an initial assessment, 15 respondents will be invited to display and pitch their ideas at Army Innovation Day 2019 on 25 September. The day is an opportunity for Australia's defence industry to present unique, innovative ideas directly to capability managers and potential users.

Previous concepts to emerge from Innovation Day include SYPAQ's <u>small</u> <u>unmanned aerial systems</u> and DefendTex's <u>modular shotguns</u>.

Full details are available here.

PEOPLE ON THE MOVE

ASD Director-General Mike Burgess has announced that Rachel Noble will lead the Australian Cyber Security Centre. Currently serving as Deputy Secretary Executive in the Department of Home Affairs, Noble has held a series of leadership positions in Home Affairs, Defence (including ASD) and the Department of the Prime Minister and Cabinet.

Airbus has announced the appointment of Melissa Thomson as Communications Manager Pacific. In this role, Melissa becomes Airbus' first point of contact for media in Australia, NZ and the Pacific islands. She will also oversee other areas of the company's communication activity, including brand management, events and employee communications.

Missile defences integrated onto NATO tankers

NATO, Airbus and Elbit Systems have successfully integrated the J-MUSIC Direct Infrared Countermeasures (DIRCM) self-protection system on-board the A330 tanker aircraft that form NATO's Multinational Multi Role Tanker Transport Fleet (MMF).

The three-day long integration flight tests, performed at the end of May, were led by Airbus' team, supported by Elbit Systems engineers and monitored by representatives of NATO's Support and Procurement Agency and the Organization for Joint Armament Co-operation.

"The completion of this milestone is a significant step that paves the way for the delivery of the first A330... for the MMF fleet by 2020," Alberto Gutiérrez, head of Military Aircraft at Airbus, said. "It also underlines the excellent work done by the Airbus team together with Elbit and the customers to ensure Europe's strategic air-to-air refuelling capabilities for decades to come."

During these flight tests the J-Music DIRCM system defeated multiple threat types directed at the A330 MRTT aircraft whilst conducting a series of flight manoeuvres. The integration flight tests also established that the system could handle simultaneous threat scenarios and overcome head-on, tail-on and side-on threats from several ranges and at different altitudes.

Elbit Systems' DIRCM integrates laser technology with a high frame-rate



Denis Lizandier of OCCAR, Peter Dohmen of NATO, Didier Plantecoste of Airbus, and Sasson Meshar of Elbit Systems at the signing event.

"The J-Music DIRCM system defeated multiple threat types directed at the A330 MRTT aircraft"

thermal camera and a small sealed-mirror turret.

"The successful integration of the Elbit J-Music self-protection system adds security and operational flexibility to the fleet, making it even more interesting for other nations to join this program," Peter Dohmen, General Manager, NATO Support and Procurement Agency (NSPA), said.

"Managing European armament programmes is at the core of OCCAR, so I am very proud that the Organisation for Joint Armament Cooperation is playing a major role in the MMF

program," Arturo Alfonso Meiriño, Director of OCCAR, said.

"We are proud to take part in the MMF programme and to deliver the J-Music, a mature DIRCM system, to protect the entire fleet," Elad Aharonson, General Manager of Elbit Systems ISTAR Division, concluded.

The new-generation A330 MRTT extends the endurance and range of fighter aircraft and provides strategic transport capability for passengers and freight. The RAAF's KC-30As are a heavily modified version of the A330, capable of keeping 50 tons of fuel ready for up to four hours at a distance of 1800 kilometres from its home base.

New icebreaker undertakes harbour tests

Antarctic icebreaker RSV *Nuyina* is being put through its paces with a barrage of tests on the propulsion, bilge, ballast and other auxiliary systems.

The 190 tests are part of formal Harbour Acceptance Tests (HATs) and require all the systems on the ship to be powered up for the first time.

Antarctic Modernisation Branch General Manager Rob Bryson said the HATs were the first of three phases of tests and trials before the ship is finally delivered to its home port of Hobart.



The RSV Nuyina will be able to break two-metre thick ice at a continuous speed of three knots. DAMEN, DAMEN

"The HATs will ensure the ship is ready for the next stage in the trials process, which will be the Sea Acceptance Trials in the Black Sea," Bryson said.

"These trials will test the propulsion system, sensor suites and all the main machinery, to make sure they meet the function and performance specifications.

"The HATs will ensure the ship is ready for the next stage in the trials process"

"We'll then move into the third phase of testing – Special Sea Trials – which will test the vessel in sea ice conditions in the Arctic. These trials will also test that the ship meets the noise requirements of its 'Silent R' rating, for silent operations when undertaking acoustic science."

The HATs will run for about six months.

The RSV Nuyina will offer scientists unprecedented and extended access to the Southern Ocean and Antarctica. Replacing the Aurora Australis, the 160-metre long ship will face stresses normally expe-

rienced by a vessel of 300 metres due to imposing Antarctic conditions.

The word 'nuyina', meaning 'southern lights', is from the Tasmanian palawa kani language.

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Forthcoming Events

ADM EVENTS

More detail on **ADM** Events can be found on our dedicated website:

- Women in Defence Awards 11 July 2019
- ADM STEM and Defence Summit 14 August 2019
- ADM Defence Estate and Base Services Summit 12 September 2019
- ADM North Australian Defence Summit 23-24 October 2019

ITAR, EAR and Export Controls Training

Date 25 June 2019

Location 50 Queen St, Melbourne
Website www.stickytickets.com.au

Need help understanding ITAR, EAR and Export Controls? Join us for a 1-day face-to-face training course to de-mystify the complex area of Export Control regulations. The course will address: an overview of the ITAR, EAR and DEC; how the ITAR and EAR applies to all areas of your business, including technical, operations and management; advice on employing dual and third country nationals; how to establish a compliance program within your business; licensing and permit requirements, and much more.

DTC Defence Industry Dinner & Awards Ceremony 2019

Date 04 July 2019

Location Adelaide Convention Centre

Website dtc.org.au

The Defence Teaming Centre's Annual Defence Industry Dinner & Awards Ceremony is the premier event of its type and last year attracted more than 540 guests, from more than 200 companies. The event is well attended by both State and Federal Government representatives, defence primes and industry SMEs who connect and network throughout the evening.

ITAR, EAR and Australian Export Controls Training

Date 04 July 2019

Location SMC Conference Centre, Sydney

Website www.internationaltradeadvisors.com.au

International Trade Advisors is proud to offer our third annual training on US and Australian Export Controls. The one-day workshop is focused on how these regulations affect Australian industry. It will be held on 4 July 2019 at the SMC in the Sydney CBD.

The Future of Australia-Indonesia Relations in a Contested Indo-Pacific Order

Date 05 July 2019

Location Tattersalls Club, Brisbane

Website www.rusi.org.au/event-3331760

This seminar is RUSI Queensland's blue-ribbon event for 2019. Constant examination of the Australia-Indonesia bilateral relationship is required to understand the dynamic shifts in political, diplomatic and social foundations of these two close neighbours. This year provides a special opportunity to recalibrate the strengths and weaknesses in this key regional relationship.

Women in Emergency Services, Enforcement & Defence Leadership Workshops

Date 9-10 July, 24-25 July, 30-31 July Location Sydney, Brisbane & Adelaide

Website www.eventbrite.com.au/e/women-in-emergency-services-enforcement-

defence-leadership-workshop-tickets-59135290245

The Defence Force, Emergency Services and Enforcement agencies are the cornerstone of a functional society, ensuring the health, safety and wellbeing of the communities they serve. The high pressure and ever-changing nature of this work requires a unique blend of reactive and proactive leadership skills and an awareness of not only how to deal with a situation, but to ensure the safety and wellbeing of your team. This two-day workshop explores resilience, stress and confidence as weapons in the leadership arsenal, and will give you the ability to apply them to their own behaviours and work.

AIDN QLD Annual Gala Dinner 2019

Date 18 July 2019

Location Figs on Sylvan Toowong, Brisbane

Website www.eventbrite.com.au/e/2019-aidn-qld-annual-gala-dinner-tick-

ets-61677344598

Join guests from across the Australian SME community, Defence Primes, Defence Force and industry organisations for an evening of unmissable entertainment, great food and wine. The event will feature keynote and guest speakers from Defence and Industry.

Defence Maritime Environment Working Group

Date 24 July 2019

Location National Gallery of Australia, Parkes, Canberra

Website www.business.gov.au

The Maritime Environment Working Group (MEWG) is a forum for engagement between Defence and the Maritime Industry to consider opportunities for innovation and collaboration early in the capability life cycle. It provides an opportunity to test the strength of capability requirements and proposals, to inform industry regarding future capability programs and challenges and to foster the development of Navy's capability modernisation program.

ADM Essington Lewis Awards

Date 31 July 2019

Location National Convention Centre, Canberra Website www.defence.gov.au/casg/dplusi

ADM's Essington Lewis Awards will return to the National Convention Centre on Wednesday 31 July 2019 to recognise excellence in Defence projects. The event is limited to the first 1000 attendees wishing to network and interact with Defence and defence industry leaders, celebrate the achievements of their peers and be entertained by our celebrity MCs. This black tie gala event is not to be missed!

Defence + **Industry Conference**

Date 01 August 2019

Location National Convention Centre, Canberra Website www.defence.gov.au/casg/dplusi

The Defence + Industry Conference is the premier Defence and industry conference held in the national capital. Consistently attracting in excess of 1100 delegates to hear from Defence and industry leaders discussing collaboration in the acquisition and sustainment space. Thursday 1 August will see the National Convention Centre come alive with informative, thought-provoking presentations from Defence decision makers and industry leaders, along with interactive Q&A sessions and networking opportunities.

DST Scindicate 2019: Partnering for Impact

Date 15-16 August Location Adelaide, SA

Website Scindicate@dst.defence.gov.au

Once again, industry, universities and research agencies are invited to participate in the two-day activities which will include technology demonstrations, business matchups, workshops, briefings and laboratory tours, as well as opportunities for networking and forging new collaborations. A Next Generation Technologies Fund Showcase will be a special feature of the event.

PGCS 2019

Date 20 – 22 August 2019

Location The Canberra Rex Hotel, Canberra Website www.pgcsymposium.org.au

Now in its 7th year, PGCS 2019 will focus on ways to build the foundations needed to create project and program success. Creating the organisational capability needed to underpin the consistent delivery of successful projects in the 2020's starts at the top. Leadership and a sustained focus are required to build a culture of excellence that can balance innovation with surveillance and accountability, encourage learning, and manage knowledge effectively.

Hunter Defence Conference 2019

23 August

Location Crown Plaza Hunter Valley

www.trybooking.com/book/event?eid=503298 Website

The 2019 10th anniversary Hunter Defence Conference will focus on driving collaboration between Defence Primes, NSW regional SMEs, academia and the Department of Defence. Key presentations at this year's conference will include capability development staff from Army, Navy and Air Force Headquarters, Defence Primes articulating the support requirements they will have over the coming decade from regional SMEs as well as a policy outline from the office of the new Minister of Defence.

Australasian Simulation Congress

02 - 05 September 2019 Date

Location Gold Coast Convention and Exhibition Centre, Gold Coast

www.simulationcongress.com

The Australasian Simulation Congress provides a focused opportunity for industry development, business growth, training, discussion and distribution of information related to Simulation, Modelling, Training and Decision Support. Simulation Australasia can help you directly engage with industry, policy makers, Government and relevant stakeholders to facilitate you and your organisation achieving the success only a truly international Congress can provide.

Australian Cyber Conference 2019

07-09 October 2019 Date

Location Melbourne Convention and Exhibition Centre

Website cyberconference.com.au

The Australian Cyber Conference 2019 will provide business leaders with insights and best practices taught by the industry's top experts through keynotes, panel sessions and live demonstrations. Attending the conference will enable you to network with these practitioners to help you better understand and manage current threats, as well as identify and prepare to meet emerging challenges.

Pacific 2019

Date 08-10 October 2019 **Location** Sydney Convention Centre Website www.pacificexpo.com.au

As the only comprehensive international exhibition of its kind in the Indo-Asia-Pacific region, PACIFIC 2019 will again provide the essential showcase for commercial maritime and naval defence industries to promote their capabilities to decision-makers from around the world.

2019 Parari Australian Explosive Ordnance Safety Symposium

Date 05-07 November

Location ADFA

Website parari@defence.gov.au

This year's symposium brings together delegates from around the world to discuss the latest innovations and advances in explosives, munitions and weapons safety. International and local experts from industry, academia, military and government will share their research to explore Explosive Ordnance Safety opportunities and challenges as a community.

MilCIS 2019

Date 12-14 November 2019
Location Canberra Convention Centre

Website www.milcis.com.au

In November each year, the Defence Chief Information Officer Group (CIOG) partners with the UNSW Canberra and the Institute of Electronic and Electrical Engineers (IEEE) to present MilCIS. The annual Military Communications and Information Systems (MilCIS) Conference welcomes military and government organisations, academia, and defence industries to contribute to the future direction of military communications and information systems.

SubSTEC 5 Conference

Date 18-21 November

Location Esplanade Hotel, Fremantle

Website www.submarineinstitute.com

The 5th Submarine Science, Technology and Engineering Conference (SubSTEC 5) will be held at the Esplanade Hotel, Fremantle, WA 18th-21st November 2019. The theme of the Conference will be: 'Innovation and Investment in the Sub-Sea Environment'. SubSTEC5 will be held with the support of the Institute of Marine Engineering, Science and Technology (IMarEST).

Corrosion and Prevention 2019

Date 24-27 November

Location Crown Promenade, Melbourne Website conference.corrosion.com.au

Corrosion and Prevention 2019 will bring together leading researchers and industry practitioners who combat corrosion daily. Diverse technical streams will showcase the latest developments in corrosion, ranging from fundamental corrosion science to hands-on application.

Land Forces 2020

Date 01-03 September 2020
Location Brisbane Convention Centre
Website www.landforces.com.au

The biennial LAND FORCES exposition is an international industry event to showcase equipment, technology and services for the armies of Australia and the Indo-Asia-Pacific. The Land Forces 2020 team is now setting about ensuring the event will achieve its goals of providing an effective platform for the exchange of ideas on key land forces issues and of taking Australian industry to the world.