



Research Services Division: delivering advanced scientific computing and eResearch capabilities

DST's Research Services Division (RSD) delivers a range of services that enable science and technology research across the organisation.

Focused on the needs of researchers, RSD delivers on-demand access to modern and agile research computing resources and technologies that significantly improve eResearch performance, and reduce the time and effort required by DST researchers to establish their own individual ICT environments and infrastructure.

Advanced scientific computing

DST's Science Research Computing Environment (SRCE) is optimised for scalability and agility, ideal for horizontally scalable workloads such as software development, windows-based simulation, graphical virtual desktops and isolated virtual environments.

SRCE provides an advanced on-premise cloud-like computing infrastructure available to all DST researchers on the research networks. SRCE provides Windows and Linux virtual desktops, as well as self-service Windows and Linux server operating systems for research workloads and applications. Virtual desktops contain DST data and intellectual property in secure data centres and have the ability to connect virtual systems to physical scientific devices.

High Performance Computing (HPC) is optimised for performance, ideal for vertically scalable workloads and single instance application

of variable compute node requirements such as computational fluid dynamics and machine learning.

HPC systems are the pinnacle of contemporary computer technology, bringing together a dense matrix of computer processors, storage systems and networking technology to provide computing capability that can analyse large data sets, run complex models and solve real world problems of orders of magnitude faster than any other available system. This High Performance Computing capability enables DST to explore and take advantage of new or developing areas of technology that have the potential to provide a capability edge for Australia's relatively small Defence Force.

In May 2018, DST commissioned a small pilot HPC capability in Fishermans Bend to mitigate technology risks and provide enhanced and experiential skilling of the science and technology workforce, facilitate code readiness, and improve DST's capacity to manage the large-scale HPC capability from 2020. The team has successfully recruited computational, data and network specialists to partner with DST researchers in order to maximise the benefit of HPC to Defence clients. DST will have HPC specialists resident in South Australia, Victoria and Canberra. The pilot capability will be available to all DST researchers from March 2019.





Research software development

New DST software development environments assist DST researchers with scientific programming projects. DST's Information Management & Technology staff partner with DST researchers to provide relevant research software development platforms and tools, including a suite of Atlassian products (Bitbucket, Confluence, Bamboo, FishEye, JIRA Software and Crucible). These tools support best-practice in programming, enabling the reuse and sharing of computer code, maximising collaboration and improving efficiency.

Research Information Services – innovative capabilities in information and eResearch

DST's Research Information Services team enables research capability by providing a range of critical information services across the organisation. DST researchers have access to:

- World-class scientific information collections: anywhere, anytime access is facilitated by the EBSCO-driven SearchLight discovery tool, linking to a digital collection of books, journals, scientific databases, and analysis tools. This extensive collection is complemented by comprehensive access to globally-held resources via a direct-to-desktop rapid document supply service.
- Current research awareness: keeping up to date with research in the latest issues of subscription journals is easy on any device with the BrowZine journal engagement platform.
- Collaborative information expertise: Research librarians are embedded in DST divisions providing ready access to their deep knowledge and expertise. Sustained and context-specific engagement across the lifecycle of research ensures that research librarians can best capture information and eResearch requirements to optimise value and solutions for research capability.
- Specialised business intelligence services: close partnering between research librarians and DST researchers provides a firm foundation for focussed research business intelligence services such as: technology scanning and forecasting; Defence research; competitive intelligence; collaboration impact; research trends and other analytical requirements using authoritative data sources; and leading research business intelligence tools.
- DST science and technology information assets: the Research Information Services team is rebuilding its DSpace-powered reports repository to provide quick and easy access to over 40,000 digitised DST scientific reports.

Partnering opportunities

Industry and academia are invited to partner with DST researchers to develop or bring to market algorithms or technologies that address Defence client needs. The HPC team is happy to consider external collaborations on the development of HPC capabilities relevant to



Defence research. The HPC team can also facilitate external collaboration with Defence researchers with a clear requirement for HPC capabilities.

DST researchers and their partners who feel they have a potential need for HPC resources – large numbers of processors, fast network interconnects, large data analysis capabilities or advanced visualisation services – are invited to contact the HPC engagement lead.

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SRCE is the product of a proud partnership with VMware.

DST researchers and their partners wishing to make use of SRCE or the DST software development environments are invited to contact the IM&T help desk.

IM&T Help Desk

Telephone: 1300 378 648

Email: IMT.ServiceDesk@dst.defence.gov.au