# Position Details

## Research Projects- CSOF7

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| The following information is for applicants |
| Advertised Job Title | Principal Software Engineer/Architect |
| Job Reference | 99526 |
| Tenure and work schedule | IndefiniteFull-time (preferred)*We will explore options for part-time, job-share and flexible work arrangements based on needs of the role and individual circumstances.* |
| Salary Range | AU$157,833 – AU$174,631 per annum (pro-rata for part-time) plus up to 15.4% superannuation |
| Location(s) and office arrangements | Canberra (Black Mountain) ACT **preferred**; Brisbane (Dutton Park) QLD; Adelaide (Waite Campus) SA*Other CSIRO sites may be considered, if required, based on needs of the role and individual circumstances.**Flexible work options available.* |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | Australian Citizens Only |
| Position reports to the | Team Leader, Resilient Supply Chains & Logistics |
| Client Focus – Internal | 20% |
| Client Focus – External | 80% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Andrew Higgins (he/him), Team Leader – Resilient Supply Chains & Logistics, via email at andrew.higgins@csiro.au or phone +61 409 661 364 |
| Support and workplace adjustments | We offer a range of reasonable supports and workplace adjustments. Please let us know via email Piumi.Desilva@csiro.au (Piumi De Silva – Talent Acquisition Partner) if we can help you to equitably participate in our recruitment process or the role itself. |
| How to apply | Apply online at <https://jobs.csiro.au/> Internal applicants please apply via **Jobs Central**If you experience difficulties when applying, please email careers.online@csiro.au |

**Acknowledgement of Country**

CSIRO acknowledges the Traditional Owners of the land, sea and waters, of the areas that we live and work on across Australia. We acknowledge their continuing connection to their culture and pay our respects to their Elders past and present. View our [vision towards reconciliation](https://www.csiro.au/en/about/Indigenous-engagement/Reconciliation-Action-Plan).

### About CSIRO

As Australia's national science agency, CSIRO is solving the greatest challenges through innovative science and technology. Many of our iconic innovations were once considered impossible until someone, just like you, joined us and took on the challenge.

As one of the world’s largest multidisciplinary mission-driven research organisations, we are focused on the issues that matter the most: for our quality of life, for the economy and for our environment. We believe diverse teams are more effective and deliver more innovative outcomes. When we all focus on the big things that really matter, and work in partnership with our communities and [Indigenous Australia](https://www.csiro.au/research/indigenous-science), Australian science and technology can solve seemingly impossible problems and create new value for all Australians. Visit [CSIRO.au](https://www.csiro.au/) for more information.

### Role Overview

The role of Research Projects staff in CSIRO is to collaborate in scientific and technological activities with other research staff usually by assisting with detailed planning, undertaking or assisting with experimental, observational or technology development work, and in carrying out the more practical aspects of the work. At senior levels, Research Projects staff may be involved in providing consulting services, science and technology management and/or industry liaison.

The Principal Software Engineer/Architect will join the Resilient Supply Chains and Logistics team, contributing to the development and enhancement of products and applications for the Transport Network Strategic Investment Tool (TraNSIT). TraNSIT is a widely used tool across all three levels of government, with increasing demand to support Australia’s future infrastructure investments and supply chain resilience.

Currently, there are two web-based tools under TraNSIT:

* TraNSIT Web
* Supply Chain Benchmarking Dashboard (benchmark.transit.csiro.au)

A key focus of this role is to expand the capabilities of existing tools and develop next-generation versions that support scenario analysis for infrastructure planning, natural disaster response, and defence strategy. More information about TraNSIT can be found at [www.csiro.au/TraNSIT](http://www.csiro.au/TraNSIT).

As part of the CSIRO Environment Research Unit, the Principal Software Engineer/Architect will be responsible for leading the design, development, deployment, and maintenance of the data, software, and infrastructure that power TraNSIT and TraNSIT Web. This includes ensuring the long-term sustainability of the platform and providing software development support for other major research projects within the unit.

This role involves high-level system architecture and design, selection of technology stacks and cloud services, integration of HPC (high-performance computing), database management, and web platform development. The successful candidate will be instrumental in enhancing the analytical capabilities of existing web interfaces, optimising database performance, integrating data with other platforms, and handling large-scale data analysis.

The position will play a critical role in supporting both the external, web-based TraNSIT tools and their application in national priority projects, ensuring that the system evolves to meet the growing needs of Australian infrastructure and supply chain planning.

### Duties and Key Result Areas

* **Software Architecture & Development Leadership:**
	+ Lead the transition of TraNSIT from research-grade software to a scalable, production-level platform.
	+ Provide technical leadership in systems design, architecture, and technology stack selection.
	+ Develop and implement high-performance computing (HPC) and cloud-based solutions.
	+ Oversee the design and integration of web services and interoperability with external platforms.
	+ Design software solutions that enable TraNSIT’s deployment to classified environments.
* **Web-Based Product Development:**
	+ Design and develop web-based applications and API-driven services for TraNSIT outputs.
	+ Ensure the system meets the requirements of government agencies and external platforms.
	+ Collaborate with project teams to build scalable web and software products.
* **Database & Performance Optimisation:**
	+ Design and implement scalable database solutions for TraNSIT.
	+ Optimise system performance to accommodate larger datasets and enhance functionality.
	+ Future-proof software architecture to support long-term growth and complex data processing.
* **Software Development & Technical Expertise:**
	+ Contribute to software development in Python, C++, JavaScript, and SQL.
	+ Apply specialist expertise to solve complex technical challenges.
* **Strategic Planning & Thought Leadership:**
	+ Influence and define long-term strategic plans for software and systems development.
	+ Guide decision-making on scientific and technological directions.
	+ Provide expertise in cutting-edge software methodologies and cross-functional technology areas.
	+ Stay current with industry trends and participate in professional forums.
* **Mentorship & Collaboration:**
	+ Provide mentorship and technical guidance to software development teams.
	+ Work closely with project leaders, researchers, and external stakeholders to integrate various models and datasets.
	+ Promote best practices and ensure adherence to professional standards in software architecture.
* **Client & Stakeholder Engagement:**
	+ Act as a trusted advisor for internal and external stakeholders.
	+ Collaborate with government agencies, industry partners, and research institutions.
	+ Represent the organisation in scientific and technological forums.
	+ Gain support from influential clients to advance TraNSIT’s adoption and impact.
* **Organisational Contribution:**
	+ Work as part of a multi-disciplinary, regionally dispersed team to achieve research objectives.
	+ May lead and/or participate in many projects simultaneously (including multi-disciplinary or multi-Business Unit projects).
	+ Communicate openly, effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
	+ Adhere to the spirit and practice of CSIRO’s Values, Code of Conduct, Health, Safety and Environment procedures and policy and diversity initiatives.

## **Selection Criteria**

#### Essential

*Under CSIRO policy only those who meet all essential criteria can be appointed.*

1. A relevant degree in Computer Science, Information Technology, or a related field, or equivalent work experience.
2. Proven experience in software development and code optimisation within a team environment.
3. Strong knowledge of professional software engineering practices and the full software development lifecycle (SDLC), including:
	1. Coding standards and best practices.
	2. Software architecture and design patterns.
	3. Code reviews and source control management.
	4. Build processes, testing, and deployment operations.
4. Demonstrated experience in:
	1. Front-end web development and back-end API development.
	2. JavaScript and modern JavaScript web frameworks (e.g., Vue.js).
	3. Node.js or alternative backend technologies.
	4. Writing and optimising efficient SQL queries.
5. Proven ability to build and maintain professional relationships, collaborate effectively, and manage complex stakeholder interactions.
6. Excellent communication skills, with the ability to present outputs to stakeholders, conferences, or seminars.
7. Proficiency in additional programming languages such as Python (for web development), C++, SQL, and experience working with relational databases.
8. Experience in leading a team of technical staff and mentoring team members.

## **Not sure if you meet all the criteria?**

While it is CSIRO policy that the successful candidate must meet all the essential criteria, there are many ways to demonstrate this. Don’t let the list discourage you. If you are unsure about applying, please reach out to the contact on page 1 of this document so we can discuss the role further.

## **Required Competencies**

* **Teamwork and Collaboration:** Cooperates with others to achieve organisational objectives and may share team resources in order to do this. Collaborates with other teams as well as industry colleagues. Creates and fosters an environment in which there is a high level of cooperation within and between teams. Facilitates positive team relationships to build interactions across Business Units and the organisation.
* **Influence and Communication:** Identifies critical stakeholders and influences them via an influential third party, for example through an established network, to gain support for sometimes contentious, proposals / ideas.
* **Resource Management/Leadership:** Provides leadership that fosters an environment that encourages new ideas and provides support for the development of emerging skills. Creates trust by displaying consistency and understanding through integrity and patience. Plans, seeks, allocates and monitors resources to achieve outcomes.
* **Judgement and Problem Solving:** Anticipates and manages problems in ambiguous situations. Develops and selects an appropriate course of action and provides for contingencies. Evaluates, interprets and integrates complex bodies of information and draws logical conclusions, synthesises proposals and defends options with reasoned arguments.
* **Independence:** Assesses the risk and opportunity of identified strategies, options and actions. Overcomes problems and setbacks in achieving goals. Invariably includes consideration of value-added future impact on bottom line when determining the optimal and efficient use of resources.
* **Adaptability:**Is flexible in response to external change or when faced with external constraints. Identified and promotes the opportunities arising as a result of change.

## **Setting you up for success**

We understand that not everyone works in the same way and sometimes people may require reasonable support and adjustments to perform at their best. Whether related to the recruitment process and or the role itself, this may include options such as providing different methods of communication, flexible hours or physical adjustments to work methods. If you feel comfortable, we encourage you to share any support and adjustments you may need to carry out the inherent requirements of the role. Please let us know via email Piumi.Desilva@csiro.au (Piumi De Silva – Talent Acquisition Partner) if we can help you to equitably participate in our recruitment process or the role itself.

## **Life at CSIRO and flexible working arrangements**

We [work flexibly at CSIRO](https://www.csiro.au/en/careers/life-at-csiro/Flexible-work), offering a range of options for how, when and where you work.  We can discuss flexible work arrangements with you during the recruitment process. CSIRO also offers a range of leave entitlements, [benefits](https://www.csiro.au/en/careers/life-at-csiro/Benefits) and [career development](https://www.csiro.au/en/careers/life-at-csiro/Career-development) opportunities. To learn more, visit [Careers at CSIRO](https://www.csiro.au/en/careers).

We celebrate the uniqueness of our workforce and are committed to creating [diverse and inclusive teams](https://www.csiro.au/en/careers/life-at-csiro/Diversity-inclusion-belonging) where everyone feels they belong. CSIRO is an equal employment opportunity organisation dedicated to recruiting people based on merit, and reflecting the diversity of the community we serve. We recognise true diversity encompasses all ages, nationalities, abilities, cultures, genders, sexualities, faiths, levels of education, diversity of thought and many more aspects of identity. By empowering diverse teams, our community is reflected in the solutions we create.

## **CSIRO values**

CSIRO is a values-based organisation committed to values-based leadership.

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| **Value** | **Descriptor** | **Behaviour** |
| **People first** | Our priority is the safety and wellbeing of our people. We believe in, and respect, the power of diverse perspectives. We seek out and learn from our differences.  | * Respectful
* Caring
* Inclusive
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| **Further together** | We achieve more together than we ever could alone. We listen and collaborate, in teams, across disciplines, across boundaries. We embrace ambiguity and use discussion and persistence to generate unique solutions to complex problems. | * Accountable
* Authentic
* Courageous
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| **Making it real** | We do science with real impact. We thrive when taking on the big challenges facing the world. We take educated risks and defy convention. We celebrate successes and failures and leverage them to learn as we strive to be the force for positive change. | * Partnering
* Cooperative
* Humble
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| **Trusted** | We’re driven by purpose but remain objective. We fight misinformation with facts. We earn trust everywhere through everything we do. We trust each other and we hold each other accountable. Together our actions drive Australia’s trust in CSIRO. | * Curious
* Adaptive
* Entrepreneurial
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## **Child safety**

CSIRO is committed to the safety and wellbeing of all children and young people involved in our activities and programs. View our [Child Safe Policy](https://www.csiro.au/en/about/policies/child-safe-policy).

Special Requirements

Appointment to this role is subject to provision of a pre-employment background check and may be subject to other security/medical/character clearance requirements.

* The successful candidate will undertake a pre-employment background check. Please note that individuals with criminal records are not automatically deemed ineligible. Each application will be considered on its merits.
* The successful candidate will be required to obtain and maintain a **security clearance at the** **Negative Vetting 1** level.
* The successful candidate should be willing and able to undertake domestic travel as required.