# Position Details

## Research Projects- CSOF6

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| The following information is for applicants |
| Advertised Job Title | Senior Software Engineer / Systems Architect |
| Job Reference | 78587 |
| Tenure | IndefiniteFull-time or part-time (minimum 0.8 FTE) |
| Salary Range | Attractive salary package offered |
| Location(s) | Brisbane, Adelaide or Canberra preferred, however all locations will be considered |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | Australian Citizens and Australian Permanent Residents Only |
| Position reports to the | Team Leader |
| Client Focus – Internal | 0% |
| Client Focus – External | 100% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Andrew Higgins via email at Andrew.Higgins@csiro.au or phone +61 7 3833 5738 |
| 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 or call 1300 984 220. |

### Role Overview

The Senior Software Engineer / Systems Architect position will join a growing team developing products and applications for the Transport Network Strategic Investment Tool (TraNSIT). TraNSIT is widely used across all three levels of government, with a rapidly growing demand to inform Australia’s future infrastructure investments and increase the resilience of our supply chains. There are two existing web-based tools from TraNSIT, called TraNSIT Web and the Supply Chain Benchmarking Dashboard. A goal of this position will be to expand the capability of existing tools and develop next generation versions capable of scenario analysis, meeting the Australia growing needs to plan for infrastructure investments and natural disasters. Further information about TraNSIT can be found on [www.csiro.au/TraNSIT](http://www.csiro.au/TraNSIT).

As part of the CSIRO Land and Water Business Unit and working with the existing team, and other areas of CSIRO as needed, the role will be responsible for designing and overseeing the technical aspects of TraNSIT’s external facing tools. This will be necessary to meet the demand and service reliability standards now required for external clients and to future-proof ongoing software development efforts. The position will also support high level applications of TraNSIT for big projects and support development of visualization tools.

Demand for TraNSIT continues to grow, and external clients are now increasingly reliant on TraNSIT to do their day-to-day core business. As well as increasing the load on computational systems, this means TraNSIT must be continually available, fast, stable, robust and technologically current. To support this, our software needs to transition from R&D software to production software. This includes upgrading speed, and reliability, investigating HPC and cloud-based solutions, and aligning our software development with best practice information technology standards.

The position will involve high level systems architecture and systems design, the selection of technology stacks and services, HPC, cloud service, databasing options, and web services and web platform design. This will support adding necessary functionality and analytical capability to the existing web interfaces, database solutions including deployment and management and query refinement, as well as integration of database connection to other web platforms, and analysis of big data. This is for the web based versions for external access as well as for contributing to major national priority projects involving the use of TraNSIT team.

This role is offered on a full-time or part-time basis (minimum 0.8 FTE).

### Duties and Key Result Areas

* Drive and oversee the transition of TraNSIT from R&D software to production level software including systems design and architecture, technology stack selection, HPC and cloud-based solutions investigation, web services design.
* Lead web platform design and development, including meeting cyber security protocols, managing contributions from junior team members, liaising with external stakeholders as part of defining system and functionality requirements and compatibility with internal systems.
* Design the web based products for TraNSIT outputs from Australian Climate Service and working with key government agencies such as BoM and the Department of Infrastructure Freight Data Hub to integrate into the external platforms.
* Design web based products for other major initiatives such as Supply Chain Benchmarking Tool v2,TraNSIT Web 2, and WA food security dashboard.
* Determine suitable database solutions for TraNSIT and its products to improve performance, allow more complex functionality and accommodate larger data sets in the future.
* Future-proof software development and provide guidance to other staff members in the contribution of programming and functionality development in the tools.
* Run the TraNSIT tool for projects to provide additional capacity in times of high demand.
* Contribute to or lead the production of client reports and executive summaries, along with presentation of work to industry or scientific conferences.
* Ensure that client or end-user needs are met and typically have a leading role in the effective transfer of new technology to industry/community.
* Continue personal development in the latest software development and web design through training courses and liaising with others in CSIRO who develop other major software products (e.g. projects in Data 61, IM&T, Atlas of Living Australia).
* Maintain confidentiality when working with commercially sensitive information.
* 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.
* Work collaboratively as part of a multi-disciplinary, regionally dispersed research team to carry out tasks in support of CSIRO’s scientific objectives.
* Adhere to the spirit and practice of CSIRO’s Values, Code of Conduct, Health, Safety and Environment procedures and policy, Diversity initiatives and Making Safety Personal goals.
* Other duties as directed.

## **Selection Criteria**

#### Essential

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

1. A relevant degree or equivalent relevant work experience in Computer Science or Information Technology.
2. Proven experience in software development and code optimisation in a team environment.
3. Knowledge of professional software engineering practices and the full software development life cycle, including coding standards, architecture/design patterns, code reviews, source control management, build processes, testing, and operations.
4. Demonstrated experience in:
* Front-end web and back-end API development.
* JavaScript and modern JavaScript web frameworks (for example Vue.js).
* Node.js or alternatives.
* Building efficient SQL queries.
1. Demonstrated ability to build relationships, work collaboratively and manage complex professional relationships.
2. Excellent communication skills with an ability to deliver outputs to stakeholders, conferences or seminars.

## **Desirable**

1. Demonstrated skills in other programming languages such as Python for web development, C++, SQL and relational databases.
2. Experience leading a team of relevant technical staff.

## **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 team as well as industry colleagues.
* **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:** Sets up and maintains effective and efficient work teams and manages performance and resources, to achieve objectives. Chooses appropriate management strategies and communication styles to maintain high levels of motivation and productivity. Gives feedback for development purposes and provides support and direction for improvement.
* **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:**Demonstrates flexibility in thinking and adapts to and manages the increasing rate of organisational change by adjusting strategies, goals and priorities.

Special Requirements

Appointment to this role may be subject to conditions including provision of a national police check as well as other security/medical/character clearance requirements.

* The successful candidate will be asked to obtain and provide evidence of a National Police Clearance or equivalent. Please note that individuals with criminal records are not automatically deemed ineligible. Each application will be considered on its merits.
* It is anticipated that successful candidate for this position will be required to obtain an Australian Government security clearance in the future.
* To be willing and able to undertake domestic travel as required.

## **About CSIRO**

We solve the greatest challenges through innovative science and technology. Visit [CSIRO Online](http://www.csiro.au/), CSIRO [Land and Water](https://www.csiro.au/en/Research/LWF) and [TraNSIT](http://www.csiro.au/TraNSIT) for more information.

CSIRO is a values-based organisation.  In your application and at interview you will need to demonstrate behaviours aligned to our values of:

* People First
* Further Together
* Making it Real
* Trusted