# Position Details

## Research Projects- CSOF5

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| The following information is for applicants | |
| Advertised Job Title | Research Software Engineer - ASKAP |
| Job Reference | 68019 |
| Tenure | Specified term of 2 years  Full-time |
| Salary Range | AU$98k - AU$106k pa (pro-rata for part-time)  plus up to 15.4% superannuation |
| Location(s) | Kensington (Perth) Western Australia or  Marsfield (Sydney) New South Wales |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | Australian Citizens and Permanent Residents, New Zealand (onshore) Citizens, or Australian (onshore) Temporary Residents with full work-rights for the duration of the proposed term (visa sponsorship will not be provided) |
| Position reports to the | Team Leader, Science Data Processing |
| Client Focus – Internal | 100% |
| Client Focus – External | 0% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Mr Eric Bastholm via email [Eric.Bastholm@csiro.au](mailto:Eric.Bastholm@csiro.au) or telephone 08 6436 8505 |
| How to apply | Apply online at <https://jobs.csiro.au/>  Internal applicants please apply on **Jobs Central** via ‘People Hub’  If you experience difficulties when applying, please email [careers.online@csiro.au](mailto:careers.online@csiro.au) or call 1300 984 220. |

### Role Overview

Research Software Engineers in CSIRO conduct innovative software development within a research environment, leading to scientific achievements that are aligned with CSIRO’s strategies. The Research Software Engineer – ASKAP will participate in the development of software components that perform efficient flow of radio astronomy data within a High-Performance Computing (HPC) environment.

ASKAP, the Australian SKA Pathfinder, is CSIRO’s new-technology radio telescope in the remote Murchison region of Western Australia. A unique feature of ASKAP is that a supercomputer forms an integral part of the telescope. ASKAP produces data at an unprecedented rate (3GB/s), that is sent to the Pawsey High Performance Computing (HPC) centre in Perth in real time. The computing resources of Pawsey are critical to ingesting the data, forming the image cubes and other data products to keep pace with observing, and to archiving and curation of the user-ready data products. The need for ASKAP to produce science ready data products, combined with the need to process extremely large volumes of data very quickly in a supercomputing environment, creates an extremely challenging software ecosystem.

### Duties and Key Result Areas:

* Liaise with project stakeholders to determine their requirements and priorities.
* Assist in the design, implementation and testing of software components using originality, creativity and innovation.
* Address issues promptly and in a constructive manner, selecting the best lines of attack to solve problems.
* Develop and maintain software in the areas of: data ingest (streaming), exploration and implementation of scientific workflows (pipelines), and/or continuous improvement of application HPC facets like parallel I/O and compute.
* Participate in operational support of ASKAP by contributing to fault analysis and prompt defect rectification of software components.
* Draw on professional expertise and knowledge of other disciplines to recognise opportunities for innovation.
* Formulate software solutions by pursuing new ideas/approaches and networking with scientific and engineering colleagues across a range of disciplines.
* Work with the team to create software frameworks to facilitate the development of robust, maintainable astronomy software solutions to support the ongoing demands of ASKAP.
* 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 Code of Conduct, Health, Safety and Environment procedures and policy, Diversity initiatives and Making Safety Personal goals.
* Other duties as directed.

## **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.
* **Influence and Communication:** Uses knowledge of other party's priorities and adapts presentations or discussions to appeal to the interests and level of the audience. Anticipates and prepares for others reactions.
* **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:** Investigates underlying issues of complex and ill-defined problems and develops appropriate response by adapting/creating and testing alternative solutions.
* **Independence:** Plans, sets and works to meet challenging standards and goals for self and/or others. Recognises where endeavours will make the most impact or difference, decides on desired outcome and sets realistic goals to reach this target.
* **Adaptability:**Copes with ambiguity or situations that lack clarity. Adapts readily to changing circumstances and new responsibilities (which may include activities outside own preferences) in the interests of achieving team objectives. Recognises the need for and undertakes personal development as a result of changes.

## **Selection Criteria**

#### Essential

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

1. A relevant Bachelor’s or Master’s degree, or equivalent relevant work experience in Computer Science and Programming.
2. Extensive experience (~3-5 years) developing distributed software solutions using high level programming languages (C/C++ and Python) and driven by software engineering methodologies and standards.
3. A familiarity with Unix/Linux.
4. Demonstrated experience in parallel programming and High-Performance Computing (HPC) technologies.
5. Proven high-level software design and documentation skills.

## **Desirable:**

1. Experience with:

* agile software development methodologies (e.g. SCRUM, KANBAN)
* formal software modelling and design techniques (e.g. UML, ERM, micro-services, functional programming, design patterns, etc)
* messaging and RPC middleware products and concepts
* scientific workflow systems for HPC such as Dask, DALiuGE, Nextflow or CWL

1. Skills in Bash scripting.
2. Knowledge in:

* SAFe (scaled agile framework)
* HPC hardware

1. Knowledge/interest in [radio] astronomy.

Special 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.

## **About CSIRO:**

We solve the greatest challenges through innovative science and technology. Visit [CSIRO Online](http://www.csiro.au/) and [CSIRO Astronomy and Space Science](https://www.csiro.au/en/Research/Astronomy)