# Position Details

## Research Management - CSOF7

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| The following information is for applicants | |
| Advertised Job Title | Head of Computing and Software – SKA-Low Telescope |
| Job Reference | 80615 |
| Tenure | Indefinite  Full-time. Part-time considered, minimum 60 hours per fortnight required.  *Note that visa sponsorship may not be available for part-time positions.* |
| Salary Range | AU$141k to AU$157k pa (pro-rata for part-time) + up to 15.4% superannuation  Salary range is negotiable where necessary to meet market rates. |
| Location(s) | Perth, Western Australia |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All Candidates |
| Position reports to the | This role will be line managed by the SKA-Low Deputy Telescope Director. Project reporting and work management will be to the SKA-Low Telescope Director, and the appointee will have close working relationships with the SKAO Computing & Software team in the UK. |
| Number of Direct Reports | 3-5 (the overall team is expected to be 30-40 people) |
| Enquire about this job | George Simpson, SKA-Low Deputy Telescope Director, George.Simpson@csiro.au |
| 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](mailto:careers.online@csiro.au) or call 1300 984 220. |

### Background

The SKA Observatory (SKAO) is a next-generation global radio astronomy facility that will revolutionise our understanding of the Universe and the laws of fundamental physics. It is one observatory with two telescopes: SKA-Low in Western Australia and SKA-Mid in South Africa. Australia is a co-host member of the SKAO, an intergovernmental organisation headquartered at Jodrell Bank (near Manchester in the United Kingdom) responsible for SKAO construction and operations globally.

The first phase of the SKA will consist of two telescopes:

* Australia will host the SKA’s low-frequency telescope (SKA1-Low). SKA-Low will comprise up to 131,072 antennas in clusters along spiral arms spanning 65 km at CSIRO’s Murchison Radio-astronomy Observatory (MRO) in Western Australia.
* South Africa will host the mid-frequency telescope (SKA-Mid). SKA-Mid will comprise up to 197 dishes spread along spiral arms spanning 150 km.

CSIRO is involved in several facets of the SKA-Low in Australia:

* Operating partner: SKAO will partner with CSIRO to operate the SKA-Low Telescope and support construction.
* Construction: CSIRO has been allocated work in digital processing, infrastructure, and antenna station management and deployment, integration and verification, and software.

CSIRO also operates the MRO which hosts multiple national and international radio astronomy telescopes and is where the SKA-Low Telescope will be located. CSIRO is responsible for land management, subleases, maintaining radio quiet protections, provision of services to the telescopes, and managing the Indigenous Land Use Agreement.

Further Reading: [SKA Phase 1 Executive Summary](https://www.skatelescope.org/wp-content/uploads/2021/03/22380_SKA_Project-Summary_v4_single-pages.pdf).

### Role Overview

The SKA-Low Head of Computing and Software will deliver novel computing, scientific software, and technology solutions to meet the unique requirements of SKA (read more [here](https://www.skatelescope.org/software-and-computing/)). The SKA Observatory is driven by software and the systems this role is responsible for include:

* An integrated control system that controls and monitors over 2 million process variables.
* Data processing systems that process the vast quantities of data produced by SKA-Low, which will require a high-performance supercomputer capable of more than 100 petaflops and will result in hundreds of Petabytes of data archived per year.
* Networks that move the data at rates exceeding TBytes/second across hundreds of km within the telescope and providing it to the scientific community using a world-wide 100 GBit network.
* The corporate services to support the staff that are needed to commission and operate the telescope and keep it at the forefront of science technology during the lifetime of the Observatory.

Consequently, CSIRO and the SKAO are looking for a leader to work as part of the SKA-Low management team in Australia and lead the local SKAO Computing & Software group. This is the first hire in a group which will grow to around 30-40 people and be responsible for the needs of SKAO in Australia as well as the operational support and local development of the computing and software aspects of the telescope. The appointee will work closely with their counterpart Heads of Computing and Software at the SKA Headquarters in the UK and at SKA-Mid in South Africa. This role provides an excellent opportunity for someone wanting to build a computing and software group from the ground up to support one of the world's premier science facilities.

The SKA-Low Head of Computing and Software has significant reporting responsibilities to several SKAO positions. Locally, their work is managed by the SKA-Low Telescope Director and they are also a key part of the wider SKAO team, led by the SKAO Head of Computing and Software based at the Global HQ in the UK. The position will be line managed in CSIRO by the SKA-Low Deputy Telescope Director.

Due to the locations involved in the SKA project, in particular South Africa and the United Kingdom, this role will require an ability and willingness to work outside normal hours. It will also require occasional domestic travel to the Murchison Radio-astronomy Observatory and Geraldton and may require occasional international travel. Both CSIRO and SKAO value and respect difference and are committed to building an inclusive culture by creating an environment where you can balance a successful career with your commitments and interests outside of work. We believe that you will do your best at work if you have a work / life balance. Some roles lend themselves to flexible options more than others, so if this is important to you, please raise this during your interview, as we are open to discussing flexible working opportunities during the hiring process.

### Duties and Key Result Areas

* Provide the vision and leadership for a group of 30-40 staff who will be responsible for the computing needs of SKAO in Australia as well as the operational support and local development of the SKA-Low telescope, building an inclusive and high performing culture.
* Work as one of the senior staff of the SKAO in Australia as a core member of the SKA-Low Management Team.
* Work with CSIRO and SKAO to hire a diverse and talented team of staff to support the computing, software, network and data management needs of the SKAO in Australia.
* Contribute as a major stakeholder in the development and definition of relevant features and objectives in the SKA’s Lean/Agile/Scaled Agile processes.
* Work closely with their counterpart Heads of Computing and Software at the SKAO Headquarters in the UK and at SKA-Mid in South Africa to present a joint vision and aligned expectations across SKAO computing, software, and IT.
* Provide updates and reports as necessary on the status of SKA-Low Computing and Software in Australia.
* Travel, as required, to national and international meetings to represent the SKAO and the Computing and Software of SKA-Low in Australia in particular.
* Communicate openly, effectively, and respectfully with all staff, clients, and suppliers in the interests of good business practice, collaboration, and enhancement of SKAO and CSIRO’s reputation.
* Adhere to the spirit and practice of both SKAO and CSIRO’s Values as well as the Code of Conduct, Health, Safety and Environment procedures and policy, Diversity initiatives and Zero Harm goals.
* Undertake any other reasonable duties as directed.

## **Selection Criteria**

#### Essential

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

1. Qualified to degree level in a relevant subject or with equivalent level of experience and expertise.
2. A demonstrated record of successful leadership and management of teams, promoting diversity and developing an inclusive, high-performing culture. Experience of all aspects of people management including recruitment, capability development and performance management.
3. Significant experience (>5 years) leading operational technical or scientific support teams with an excellent understanding of best practice (e.g., ITIL, SRE) and areas such as data management and networks.
4. Significant experience (>5 years) leading IT, software, and computing development teams with an excellent understanding of system architecture concepts and the relationship between architecture and system quality (e.g., SEI Views and Beyond, ISO 42010, TOGAF).
5. An understanding of Lean/Agile/Scaled Agile and DevOps processes, including the importance of customer focus and the minimisation of waste in business processes.
6. Ability to communicate effectively to a wide audience and a wide range of stakeholders, gathering and distilling information and tailoring it appropriately for the target audience.
7. Experience and ability to reliably estimate and plan large IT developments with long (multi-year) time horizons.

## **Desirable**

1. A record of successful leadership and management of scientific teams on similar or comparable projects.
2. Significant experience (>5 years) leading computing, software, network and data management development projects.
3. A good understanding of the domain issues of radio astronomy and the SKA.
4. Experience of commissioning large scale hardware/software projects.

## **Required Competencies**

* **Teamwork and Collaboration:** 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:** Uses complex influencing strategies, for example, assembling strategic coalitions, building behind the scenes support and the tactical use of information to gain support.
* **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, understanding, integrity and patience. Plans, seeks, allocates and monitors resources to achieve outcomes.
* **Judgement and Problem Solving:** Resolves major conceptual scientific, technical, commercial or management problems, which have a significant impact upon the field of research, professional function, the Business Unit or the Organisation. Situations faced have little or no precedent and require original concepts and approaches.
* **Independence:** Commits significant resources in the face of uncertainty and takes calculated risks to improve performance and achieve challenging goals. Uses personal energy to drive change strategies. Formulates and implements contingency plans to minimise the impact of potential risks. Accepts personal responsibility for the outcomes of decisions/risks taken.
* **Adaptability:**Is flexible in response to external change or when faced with external constraints. Identifies and promotes the opportunities arising as a result of change.

**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.

If the successful candidate is not an Australian Citizen or Permanent Resident, they may be required to undergo additional security clearances, which may include medical examinations and an international standardised test of English language proficiency (i.e. IELTS test).- <https://ielts.com.au/>

## **About CSIRO**

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

## **About SKAO**

## SKAO is coordinating a global effort to deliver the largest science facility on the planet. The SKA Observatory will build next-generation radio telescopes that will help to answer key questions in astrophysics, drive technological innovation and support human capital development. Visit [SKA Observatory](https://www.skatelescope.org/) online for more information.

## SKAO’s values are:

* Diversity and Inclusion
* Excellence
* Collaboration
* Creativity and Innovation
* Sustainability