# Position Details

## Technical Services - CSOF6

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| The following information is for applicants | |
| Advertised Job Title | Senior Network Engineer – SKA-Low Telescope (SKA-Low) |
| Job Reference | 80622 |
| Tenure | Indefinite  Full-time, job-share or part-time – minimum 60 hours per fortnight |
| Salary Range | AU$117k - AU$138k pa (pro-rata for part-time) + up to 15.4% superannuation |
| Location(s) | Perth, Western Australia |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All Candidates  *Note: Visa sponsorship may not be available for part-time appointments* |
| Position reports to the | This role will report to the Reliability Engineering Manager in the Computing & Software team. |
| Number of Direct Reports | 1-3 |
| Enquire about this job | George Simpson, SKA-Low Deputy Telescope Director [George.Simpson@csiro.au](mailto: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. |

**Acknowledgement of Country**

CSIRO acknowledges the Traditional Owners of the land, sea and waters, in the areas where we live and work 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).

## **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 operation globally.

Among the major science goals for the first phase will be to study the history and role of neutral Hydrogen in the Universe from the dark ages to the present-day, and to employ pulsars as probes of fundamental physics.

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 65km 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 150km.

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; antenna station management and deployment; assembly 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 Computing and Software team delivers novel computing 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 involved in this role will 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 the 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 Tbits/second across hundreds of km within the telescope and then ship it to the scientific community using a world-wide 100 Gbit network.
* The corporate services to support the staff that are needed to commission the telescope and keep it at the forefront of science technology during the lifetime of the Observatory.

The Senior Network Engineer – SKA-Low, leads the network deployment of the SKA-Low telescope. The position works alongside the SKAO’s Network Architect, Computing Infrastructure Lead, other domain specialists, project managers and system engineers, to ensure the networks for the SKA-Low telescope are fit for purpose, providing the quality needed for a system that will have to last, and be continually developed, for decades. The role will initially report to the Head of Computing & Software for SKAO Australia.

The system will be based on designs submitted by worldwide-based design consortia, but it is anticipated that there will be continual evolution as the systems are delivered and the commercial-off-the-shelf market evolves during telescope construction.

Due to the locations involved in the SKA project, in particular South Africa and the United Kingdom, this role will require work outside normal hours, such as evenings. It will involve domestic travel to the Murchison Radio-astronomy Observatory and Geraldton, and some international travel. Wherever possible CSIRO offers a range of flexible options for how, when and where you work including a blend of work from home and from the office, noting this role is based in Perth, Western Australia.

### Duties and Key Result Areas

* Work with the stakeholders to continually refine network requirements for the SKA telescopes to ensure they meet the system requirements in an appropriate and cost-effective manner.
* Support the ongoing network design activities required for procurement.
* Develop the technical content of the network procurement packages once the designs have been agreed.
* Assist in the deployment and support of the telescope networks.
* Assist with security audits and risk assessments undertaken by specialists inside and outside of the organisation.
* Be an integral member of an international networking team.
* Provide updates and reports as necessary on the status of the SKA network installation in Australia.
* Travel, as required, to national and international meetings to represent the SKAO and the data networks of SKA 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.
* Other 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 an equivalent level of experience and expertise.
2. Significant experience in the architecture and design of large network systems with a demonstrable understanding of new and emerging networking and security technologies.
3. Demonstrated experience of data centre and long haul networking technologies.
4. Proven experience in the installation, optimisation and maintenance of network and security devices and services, and the ability to assure compliance with SKAO security policies and applicable legislation and regulations.
5. A demonstrable understanding of Lean Principles, including the importance of customer focus and the minimisation of waste in business processes.
6. Experience in a leadership position, or evidence of potential to fulfil a leadership position, promoting diversity and developing an inclusive, high-performing culture.

## **Desirable**

1. Knowledge and understanding of:
   1. High performance computing environments,
   2. Software defined networking systems,
   3. Zero trust networking principles,
   4. Automation,
   5. Cloud based security services,
   6. Apple and Google computing devices and management systems,
   7. System Information and Event Management (SIEM) systems and Syslog tools,
   8. Telemetry.
2. Ability to communicate effectively with a wide range of stakeholders including gathering and distilling information and tailoring it appropriately for the target audience.
3. Knowledge and background with IT Service Management disciplines and Frameworks such as ITIL and Change Management.
4. Experience in the procurement, management, and delivery of network contracts in a complex, high value environment.

## **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:** 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, understanding, 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 the 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**

* 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/>).
* Candidates must be able and willing to undertake domestic travel to the Murchison Radio-astronomy Observatory and Geraldton, and some international travel.

## **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