# Adapter Scheme
## Information for Applicants
## Updated for the Q4 2023 Call

This document outlines the purpose and role of NCI's merit-based Adapter resource allocation scheme, along with eligibility criteria, details of the available resources and details of how to apply.

This document should be read in parallel with the **Dates and Important Information** document pertinent to the relevant quarter of the Adapter Scheme.

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## Recent Changes to Application Requirements

A number of changes have been made to the application requirements. Applicants are advised to read this document thoroughly to familiarise themselves with the current application requirements. Changes made in this call include:

- Addition of a requirement that researchers who would utilise the computational resources allocated to an Adapter project be based in Australia (see page 6).
- Update to eligibility criteria for emeritus or honorary faculty member wishing to apply for this scheme (see page 6).

Earlier changes included the following:

- Addition of guidelines defining an early-career researcher for the purposes of the Adapter scheme (see page 6).
- Addition of a requirement to describe how the proposed Adapter project builds on the work accomplished in any previous successful Adapter project (pages 7 and 9).

## Adapter Scheme Background

The Adapter Allocation Scheme has been funded for two years by the Australian Government's Department of Education under the National Collaborative Research Infrastructure Strategy initiative.

This new scheme will facilitate access to data, enable high-throughput compute, and support other new and emerging ways of engaging with Tier-1 high-performance computing and high-performance data resources. The Adapter Scheme is intended to identify meritorious research projects and provide them with flexible access to NCI's Tier-1 HPC system, including cloud services and storage.

Adapter is designed to identify meritorious research projects that need flexible compute access over a short period. This scheme caters for those users who need smaller compute and data resources in short bursts, rather than those who need millions of compute hours over the course of a whole year.

Adapter Scheme allocations will be up to 250 kSU per project, valid for a 3-month period from when the grant is awarded. Calls for applications will take place at the start of the quarter preceding the quarter the grant will be allocated in. Applicants may receive a maximum of 2 Adapter allocations per year.

All fields of research are eligible to apply.

## Facility Overview

NCI is Australia's national research computing service. Home to Gadi, the nation's most highly integrated and highest performance supercomputer, NCI provides innovative, world-class services to Australian researchers. NCI's infrastructure was established through Commonwealth Government funding.

Adapter allocations for 2023 will be on NCI's petaflop-scale supercomputer Gadi, Nirin Cloud computer, and on the Gdata filesystems.

The Gadi system comprises:

- 3,024 Intel Xeon Cascade Lake compute nodes, with 24 x 2 cores/node, configured with 192 GB RAM per node.
- 720 Intel Xeon Sapphire Rapids compute nodes, with 52 x 2 cores/node, configured with 512 GB RAM per node.
- 160 nodes with 4 NVIDIA V100 GPUs/node.
- 50 Cascade Lake nodes with 1.5TB of memory, utilising Intel Optane DC Persistent memory.

- Gadi's data interconnect is Mellanox HDR InfiniBand, capable of data transfers at 200 Gb/sec.

The Nirin cloud comprises 18,496 Intel Xeon Broadwell and Sandy Bridge CPU cores, as well as 40 NVIDIA K80 GPUs. The 1,856 Broadwell cores are available with 22TB of memory in a high-availability zone and the 16,640 Sandy Bridge cores are available with 32 TB of memory in a high-capacity zone. The Nirin cloud also has 6 PB of dedicated high-speed Ceph storage.

NCI also offers persistent data storage with capacity in excess of 90 petabytes. Data holdings include significant national and international data collections in the fields of climate, weather, astronomy, earth observation and genomics.

## Available Resources

In 2023, the scheme will provide up to 20 MSU per quarter (80 MSU per annum) to be used for computing and cloud resources and supporting storage.

***Storage-only or cloud-only requests will not be accepted.***

Requests for storage to support the project's computations are made at the time of application. Note that every successful project receives a default scratch storage allocation of 1 Terabyte at no cost. It is expected that for the majority of Adapter projects, this space would be sufficient. Projects requiring additional storage allocation should request and budget for this in their applications.

Requests can be made for a mix of HPC, cloud and storage resources according to the following conversion formula:

1 KSU on Gadi is equivalent to 500 core hours.

1 KSU on Gdata is equivalent to 0.16 Terabytes of storage for one quarter.

A cloud VM with 1 vCPU, 2 GiB Mem and 10 GiB root disk space will need under 3KSU/quarter;  a VM with higher specs like 8 vCPU, 16 GiB Mem and 10 GiB root disk space will cost you around 22KSU for a quarter. For details refer to [Nirin charging rates](Nirin charging rates).

Any data stored through the course of the Adapter project will need to be transferred to an institutional repository or a continuing active project at the conclusion of the grant period.

### Minimum and Maximum Allocations

|  | Minimum Allocation (kSU) | Maximum Allocation (kSU) |
| --- | --- | --- |
| **Combined compute, cloud and storage** | 100 | 250 |

## Software

NCI maintains many software packages for use on its systems. The NCI software catalogue is available online at [https://opus.nci.org.au/display/Help/5.+Software+Applications.](https://opus.nci.org.au/display/Help/5.+Software+Applications.)

## User Support

NCI operates an expert Service Desk for users during normal business hours, Mon-Fri between 9am and 5pm Australian Eastern time. NCI Staff Scientists can provide assistance with user and project registration and operational issues, and can provide advice on code development and performance, and the use of scientific software in NCI HPC environments.

## Application Procedure

Applications to the Adapter scheme are submitted online.

An Adapter application must be submitted by the Lead Chief Investigator of the project.

## To apply:

Go to the online [Adapter Scheme Application Form](#):

1. Fill in your personal details
    a. Name, NCI user ID (if applicable), current position and title, institution, email address
    b. ORCID ID – **Applicants should update their ORCID IDs as soon as possible.**
    c. Current grant reference number
2. Fill in similar details for up to three additional Chief Investigators to be listed on the application
3. Upload your clearly named PDF proposal
4. Fill in your resource request breakdown across compute, cloud and storage.
5. Acknowledge the Adapter Scheme and NCI's Terms and Conditions of Access.


**All submissions are final.**

**No applications will be accepted after the advertised application deadline for each call.**

## Eligibility Criteria

The Lead Chief Investigator (Lead CI) of an Adapter project must fulfil one of the following criteria:

- A researcher who holds at least a 0.2 FTE research-active position (either continuous or fixed duration) at an Australian higher-education institution or research institute and is based in Australia.

- An emeritus or honorary faculty member of an Australian higher-education institution or research institute who is based in Australia.

Researchers employed at publicly funded research agencies are not eligible to apply as Lead CIs.

Each Chief Investigator (CI) of an Adapter project must fulfil one of the following criteria:

- A researcher who holds at least a 0.2 FTE research-active position (either continuous or fixed duration) at an Australian higher-education institution, research institute or publicly funded research agency and is based in Australia.

- An emeritus or honorary faculty member of an Australian higher-education institution or research institute who is based in Australia.

All other investigators (other than Lead CIs or CIs) must also hold at least a 0.2 FTE research-active position or be a research student at an Australian higher-education institution, research institute or publicly funded research agency and be based in Australia.

Lead Chief Investigators and/or Chief Investigators on an application must provide evidence of:
- current independent research funding, for example, grants from the ARC or NHMRC, or
- a fellowship at an Australian university (this could be either an independently-held research fellowship awarded to the applicant, or a research fellow appointment supported by another researcher's grant), or
- be a postdoctoral researcher supported by current grant funding for their supervisor/research group.

Any grants referenced must name that applicant – or in the case of postdocs, their supervisor – as a primary recipient. Applications citing grants on which the applicants are not primary (named) grant recipients will be disqualified for non-compliance.

In the online application, Lead Chief Investigators and Chief Investigators will be asked to indicate if they are an early-career researcher. For the purposes of this scheme, an early-career researcher is defined as a person who has had no more than five years of full-time research activity since the date on which they were awarded their PhD. If the Lead CI or CI has had career interruptions and/or periods of part-time research activity during the time since they were awarded their PhD, then their total amount of research activity should not exceed the equivalent of five years' full-time research activity in order to qualify as an early-career researcher.

A person undertaking a higher degree by research is not eligible to be a Lead Chief Investigator or Chief Investigator on an Adapter application.

An individual may be named as a Chief Investigator or Lead Chief Investigator on:
- **Only one** Adapter project at a time.
- **Only two** Adapter projects in a calendar year. So if you have already availed of Adapter grant (as lead CI) twice in 2023, your quota for this year is over.

Individuals with research needs that are greater than what Adapter can accommodate should

consider applying instead under the [National Computational Merit Allocation Scheme](#).

Note that if any member of the Adapter project team is currently a member of an active NCMAS project (in any capacity), the project for which the Adapter application is being made must be distinct from the NCMAS project. Applications that effectively request top-ups to NCMAS projects, or otherwise fail to clearly show how the work differs from a currently-supported NCMAS project, will be ruled ineligible.

An Adapter application must demonstrate a requirement for a scalable or high-throughput computational workflow on one or more HPC systems, or a requirement for cloud resources adjoining NCI's datasets, filesystems, or HPC systems.

Successful applications will be set up as new, dedicated Adapter projects on NCI systems. Adapter allocations are not allowed to be used to top-up existing projects funded through alternate sources. Adapter allocations can only be applied to **new projects**, or projects which received Adapter allocations in previous calls, in accordance with scheme eligibility requirements.

## Assessment Criteria
## Details of Criteria and Scoring

Applications will be assessed by the Allocation Committee using the criteria listed below.

**<u>Project</u>**
- Weighting: 40%
- Quality, innovation, and significance of the research aims.
- Originality and innovative nature of the computational methods and workflows.
- Advancement of knowledge through the goals of the proposed research.
- Potential for the research to contribute to <u>Australian Science and Research Priorities.</u>

**<u>Investigators</u>**
- Weighting: 30%
- Research record and performance relative to opportunity (publications, research funding, recognition and esteem metrics).
- If the the project is to be performed by a team, justification of the contributions of the team members to the project and the expertise of the team in the field of research specific to the project.

**<u>Feasibility</u>**
- Weighting: 20%
- Adequacy of the time commitment of investigators to undertake the research and utilise the resources successfully.
- Capacity to realise the goals of the project within the resources requested and, where relevant, demonstration of growing expertise in use of the systems.
- Appropriate track record demonstrating a capacity to use high-performance computing systems effectively at scale, or a need for access to NCI infrastructure such as a requirement for high-throughput workflows, large-scale parallel jobs or data-intensive workflows using large datasets.
- Suitability of the system to support the research, and an appropriate and efficient use of the system. Before submitting the proposal ensure the workflow is possible across requested systems (gadi/gdata/nirin cloud).

**<u>Benefit and Impact</u>**
- Weighting: 10%
- Ability of the project to generate impactful outcomes and produce innovative economic, environmental and social benefits to Australia and the international community.

If an applicant has previously applied in another Adapter round, and the current application is in a similar research area, evidence must be provided that improvements have been made to

the application in response to previous assessor feedback. If an applicant was awarded an Adapter allocation in any round prior to the current call, then information should be provided to describe how the current proposal builds on the work accomplished in that earlier Adapter project. Such information is to be included in part 7 of the proposal template.

## Track Record

The Lead CI (applicant) is expected to provide evidence of their publication track record and current research funding and/or a fellowship at an Australian University in support of their research through a link to their ORCID ID and research grant IDs. It is not necessary for applicants to submit a separate list of their publications; such information is provided to assessors via applicants' ORCID listings.

Please note that the research track records of Chief Investigators (CIs) on your project will also be considered by the Allocation Committee. ORCID IDs of CIs should also be provided in the application portal. Lead CIs and CIs should ensure that their ORCID profiles are up to date before submitting an application.

Applicants are expected to explain the composition, roles, and expertise of the project team and how they will contribute to the project. Applicants are encouraged to provide information about any relevant aspects of performance relative to opportunity if they wish.

## Improving Applications in Response to Previous Assessor Feedback

Assessors are looking closely for evidence of improvements in application quality over time. Applicants who applied in previous Adapter calls (regardless of whether or not they received an allocation) will be expected to show that they have taken into consideration the feedback provided by assessors on their previous application and have addressed that feedback in their new application.

## Application Requirements

An Adapter application consists of:

(i)     a proposal uploaded as a PDF, and

(ii)    other information uploaded directly into the online application form.

The assessors will evaluate proposals based solely on the information supplied directly by applicants in the proposal and online application form (items (i) and (ii) above) and the information contained the applicants' ORCID records. Any references to other sources of track record data (e.g. Google Scholar or personal websites) will not be used as part of the assessment process.

## Proposal Components

Applicants are strongly encouraged to compose their proposal using the proposal template, which is available as a Word document on the [NCI website here](). The template lists the sections and information required in the proposal. The completed proposal should be converted to PDF before uploading it into the Adapter Scheme Application Form.

The recommended length for the body of an Adapter proposal (i.e. sections 3–6 of the list below) is 1000 words, with a maximum limit of 1500 words. Figures and references do not count towards the word limit.

The proposal must include the following sections:
1. Lead CI name
2. Proposal title
3. Project description:
    a) a brief description of the project,
    b) justification of the significance, originality and innovative nature of the project,
    c) an explanation of demonstrable contributions to economy, society, environment and culture beyond the contribution to academic research
4. Information about investigators:
    a) a brief description of team members' roles and expertise in the specific field of

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research specific to the project, including details of their expertise in running the types of jobs to be performed,

b) any relevant details of track record relative to opportunity (do not include a list of team members' publication outputs in this section; that information will be available to assessors through the ORCID profiles of the Lead CI and any CIs)

5. Technical plan:

   a) details of the code(s) to be used,

   b) an execution and workflow plan, and

   c) a well-justified resource budget outlining the types and costs of resources requested

6. Data plan:

   a) a plan for managing project data during the project,

   b) indicative plans for data management at completion of the Adapter allocation period. The data plan can include descriptions of data repatriation, archiving, or deletion within 4 weeks of project completion.

7. Relationship to other projects:

   a) If any member of the project team currently holds an active NCMAS allocation, describe how this Adapter project is distinct from the NCMAS project, and

   b) If the applicant(s) have been awarded an Adapter allocation in any previous round prior to the current call, describe how this proposal builds on the work accomplished in that Adapter project.

## Proposal Formatting Guidelines

- The recommended length for the body of an Adapter proposal (i.e. sections 3–6 of the list above) is 1000 words. Proposals significantly in excess of this length will be viewed unfavourably. Applicants are advised to check the length of their proposal body before uploading it into the Adapter Scheme Application Form.

- Applicants are welcome to include references, graphs and figures in their applications as required.

- **Do not** list all of your publication outputs in the application form.
  - Your ORCID ID will be used for viewing publications.

- Proposal PDFs uploaded into the Adapter Scheme Application Form must be given a descriptive filename that clearly identifies the Lead CI's surname and the proposal title according to the template "CIFirstnameLastname_Adapter2023Q4.pdf".

## Timeline for the Application, Assessment and Allocation Process

The Call for Applications allocation process comprises the following stages:

| | Process | Responsible Party |
|---|---|---|
| 1 | Call for Adapter applications announced | Secretariat |
| 2 | Applications accepted | |
| 3 | Administrative assessment: eligibility and compliance | |
| 4 | Merit assessment of applications | Committee, supported by Secretariat and NCI Technical staff |
| 5 | Allocation Committee meeting | |
| 6 | Notification of outcomes | Secretariat |

The Secretariat will review all applications for compliance as soon as possible following the submission deadline. Applications that are deemed non-compliant will be rejected and the Lead CI notified. Applications that are non-compliant will not progress any further in the application process. Feedback will be provided to allow the applicant to apply in the next Adapter round.

NCI will assess each application for suitability for its systems in the technical assessment. NCI may contact an applicant for further information as part of the technical assessment before the application is consided by the Committee.

## Assessment and Allocation Protocol

Assessment of proposals will be based on a combination of technical and research merit (see the section above on selection criteria) based on material provided in the proposal. All applicants are expected to provide a justification of the resources requested and are expected to demonstrate the capacity to use the requested resources effectively. The Committee reserves the right to allocate all or part of the resources available, and all or part of any specific request.

Assessment and allocation decisions are made by the Allocation Committee with support from NCI staff.

Applicants will be notified of the outcome via email, with instructions on how to set up their projects and access the system.

## Successful Applicant Requirements

**Acknowledging NCI**

A condition of accepting an Adapter allocation is that the Project must acknowledge the NCI resources that they have used in all publications and presentations of the associated work. The following is standard acknowledgement wording:

> *This work was supported by the NCI Adapter Scheme, with computational resources provided by NCI Australia, an NCRIS-enabled capability supported by the Australian Government.*

The Lead CI also must agree to provide input, if asked, to assist NCI Australia in communicating (via research highlights, case study videos, articles and interviews) the importance of NCI's computational research environments to Australian research.

**Project Completion Survey**

Lead CIs of successful applications will be required to complete a project completion survey. Project completion surveys will involve providing progress details and basic user experience information to assist NCI's reporting to the Department of Education, Skills and Employment on its use of NCRIS funds to support the Adapter scheme, and to inform future improvements.

## Appeal Process

**All decisions of the Adapter Scheme Allocation Committee are final**. Appeals will be considered only against administrative or procedural issues and not against decisions of the Committee, assessor ratings or comments.

## Getting Help

Make sure to read all supporting documentation if you have any questions. Contact help@nci.org.au if you require further assistance with your application.