



Australasian Leadership Computing Grants Information for Applicants 2022

23 March 2022	EOI call open
31 March 2022	Online information session
10 April 2022	EOI deadline (5pm AEST)
15 April 2022	Shortlisted EOIs invited to submit an application
8 May 2022	Invited application deadline (5pm AEST)
11/12 May 2022	Allocation Committee meeting
16 May 2022	Allocations announced



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Background

- The ALCG Grants are funded by the Australian Government’s Department of Education, Skills and Employment under the NCRIS initiative.
- The ALCG Call for Applications is intended to identify meritorious research projects with demonstrated ability to use HPC systems effectively at scale, and to provide these projects with large allocations for extreme scale computational science.
- ALCG allocations are **uncapped**, up to the scheme limit of 150 MSU, and are valid for a 12-month period from 1 July 2022 – 30 June 2023.
- All fields of research are eligible to apply.
- The Expression of Interest phase of this call is open to all prospective applicants. EOIs are expected to demonstrate HPC competence, experience at an Australian or international HPC facility, and a high degree of application scalability.
- Applicants are expected to propose highly ambitious and innovative projects suited to the large allocations available through the scheme.
- The Allocation Committee will invite successful EOIs to submit a full ALCG application.

Eligibility Criteria

Applicants are expected to have demonstrated experience using HPC at an Australian or international facility and a record of research outputs in one or more areas of computational science.

Lead Chief Investigators (Lead CI*) of projects must hold at least a 0.2 FTE research position at an Australian higher-education institution or research institute, and be based in Australia.

(Lead CIs must hold a position at an Australian higher-education institution or research institute, not a publicly-funded research agency).

Chief Investigators (CI) must hold at least a 0.2 FTE research position at an Australian higher-education institution, research institute or publicly-funded research agency, and be based in Australia.

If a Lead CI holds a fixed duration contract at an Australian higher-education institution or research institute for at least 0.2 FTE for the financial year 2022-23, they are eligible to apply.

Lead Chief Investigators and Chief Investigators on an application must provide evidence of independent research funding, for example, grants from the ARC or NHMRC. Any grants referenced by a Lead CI or CI must name that applicant as a primary recipient. Applications citing grants on which the applicants are not primary (named) grant recipients will be disqualified for non-compliance.

A person holding a Postdoctoral appointment or undertaking a higher degree by research is not eligible to be a Lead Chief Investigator on an ALCG EOI or application.

An individual may be named as a Chief Investigator or Lead Chief investigator on **only one** ALCG EOI or application.

An ALCG application must demonstrate scalability on one or more HPC systems, at an Australian or international HPC facility. Proposals based on serial, single-cpu workflows will not be considered.

Important Dates

23 March 2022	EOI call open
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HPC Facility

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 HPC and HPD services to Australian researchers.

NCI operates as a formal collaboration between:

- The Australian National University – ANU
- The Commonwealth Scientific and Industrial Research Organisation – the national research agency – CSIRO
- The Australian Bureau of Meteorology – the national meteorological agency – BoM
- Geoscience Australia – the national geosciences agency – GA
- The University of New South Wales – UNSW

Since 2007, NCI's user base has expanded to include a further 27 Australian research institutes and collaborators. NCI's infrastructure was established through Australian Government funding under the National Collaborative Research Infrastructure Strategy (NCRIS).

ALCG allocations for 2022-23 will be on NCI's Gadi supercomputer, which comprises approximately 3000 Intel Xeon Cascade Lake compute nodes, with 24 x 2 cores/node, configured with 192 GB RAM per node. Gadi also provides 50 Cascade Lake nodes with 1.5TB of memory, utilising Intel Optane DC Persistent memory, and 640 NVIDIA V100 GPUs in 160 nodes. Gadi's data interconnect is Mellanox HDR InfiniBand, capable of data transfers at 200 Gb/sec.

NCI also offers persistent data storage in excess of 70 petabytes. Data holdings include significant national and international research data collections. NCI also operates a compute cloud for ancillary computing and data services.

ALCG allocations in this Call for Applications are uncapped. Applicants may apply for resources up to the 150 MSU scheme limit. Extremely strong justifications are expected for large requests to the scheme.

Successful allocations will be valid for a 12-month period from 1 July 2022 to 30 June 2023, with allocations distributed evenly across each quarter unless there is a technical reason for a non-uniform pattern of use.

For accounting purposes, successful projects will be set up as new, dedicated projects on NCI systems.

Application Procedure

Applying for an ALCG allocation is a two-stage process.

1. Expression of Interest (*deadline 5pm AEST 10 April 2022*)

NCI invites eligible applicants to submit an Expression of Interest through the NCI user registration system <https://my.nci.org.au>.

Expressions of Interest are shortlisted by the Allocation Committee.

Successful EOIs are invited to submit an application.

NCI User Support ran one online information briefing on Thursday 31 March at 2pm AEDT. To view slides and recording from the information session click [this link](#).

Please note, all fields of research are eligible to apply.

2. Invited Application (*deadline 5pm AEST 8 May 2022*)

The applicant (Lead CI) provides additional track record information in the NCI registration system, and submits a 9-page written application (PDF document) to help@nci.org.au

Note that an Invited Application will be accepted only for EOIs which have been favourably assessed and shortlisted by the Allocation Committee.

EOIs will be notified of the outcome as soon as possible following assessment.

Stage 1 – Expression of Interest

Expressions of Interest to the ALCG scheme are submitted as NEW project proposals in the NCI online registration system: <https://my.nci.org.au> (hereafter referred to as “MyNCI”). An Expression of Interest must be submitted by the Lead CI of the proposed project.

Expressions of Interest submitted in previous ALCG calls will not be available for re-use. New and returning applicants should submit an Expression of Interest for the 2022 call through the process described below. The steps below roughly follow the pages in the online form.

To submit an ALCG Expression of Interest:

1. Log in to MyNCI and update all tabs of your ‘About me’ profile: personal, email, SMS, ORCID ID, career, publication record.
2. Select “Propose a Project” on your MyNCI home page.
3. Enter a title and executive summary for your proposed ALCG project in the form fields labelled “Title” and “Proposal”, respectively. Note that full body of the EOI is provided at a later step in the form.
4. Enter FOR (Field of Research) and SEO (Socio-Economic Objective) codes for your EOI.
5. Select “Australasian Leadership Computing Grants” as the resource allocation scheme for your EOI.
6. Select Gadi as the computational resource.
7. Set the compute resource request for your proposal. Applicants can request quarterly allocations. Note that for EOI purposes this is an indicative request. You

have the option to specify a final resource request in your full application.

8. Add members to your research team.

It is important to **add additional Chief Investigators at this stage of the proposal process** so that their research track records are included for assessment of the EOI. Note that the Lead CI of a successful application can invite additional Researchers (technical or management staff, or students) to join the ALCG project after it is set up on Gadi.

If you need to bring CIs and Researchers on board who do not have NCI user accounts please contact NCI User Support (help@nci.org.au) for advice.

9. Enter your **full, detailed Expression of Interest** in the form field, following the instructions provided.

10. Acknowledge the NCI terms and conditions of use.

11. Final review and submission.

All submissions are final.

Track Record

The Lead CI (applicant) is expected to provide evidence of current peer-reviewed funding in support of their research, and a link to their Google Scholar profile. A list of publications is not required for an EOI.

Please note that the research track records of Chief Investigators (CIs) on your project will also be considered by the Allocation Committee. CIs can update their profiles independently of the Lead CI's Expression of Interest; however, profile updates must be completed before an Expression of Interest is assessed by the Committee.

It is the responsibility of the Lead CI to ensure that all CIs on a project update their MyNCI profiles before submission deadlines – 10 April for the EOI phase of the call, and 8 May for the invited application phase of the call.

Expression of Interest - Proposal

The proposal body is the most important component of the EOI. It should contain two sections:

1. Technical plan:

- a) details of the code(s) to be used,
- b) an execution and workflow plan, and
- c) evidence of rigorous application performance benchmarking.

2. 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

The recommended length for the EOI proposal body is 1000 words. The MyNCI system does not enforce word limits on the proposal text-entry dialogue so all applicants are advised to prepare the proposal in advance using a word processing application and check the length of their proposal body before completion of the MyNCI proposal form.

EOI Formatting Guidelines

- Adhere strictly to the 1000-word page limit for the EOI body.
- An EOI must contain the sections described above: (a) technical plan, and (b) project description.
- Include information which is pertinent to the project.
- Application should effectively justify the size of the compute resource request being made, particularly for large requests using a large amount of the available 150MSU resource.

Assessment

- Expressions of Interest will be assessed by the Allocation Committee.
- Shortlisted EOIs will be invited to complete an application, as outlined below.

Applicants will be notified of the EOIs outcome via the MyNCI system, which will send an email notification to the applicant (Lead CI).

Stage 2 – Invited Application

Successful EOI applicants will be invited to submit a detailed application containing more extensive information on the track records of Chief Investigators, technical aspects of the proposed workflow, scientific foundations of the work, and a plan for data visualisation and dissemination of outcomes.

Two steps are required for an invited application:

1. Update the profiles and track records of the Lead CI and all Chief Investigators in the MyNCI system.
2. Submit a detailed application document per the format and content specification described in the Invited Application section.
3. The Secretariat will merge track record information from the MyNCI system with PDF application forms to present complete proposals for Committee review at the time of assessment.

Researcher Track Records

The applicant (Lead CI) should ask all Chief Investigators on the proposal to update their track record information in MyNCI.

For the ALCG applications, each CI should provide:

1. A link to their Google Scholar profile and their ORCID ID
2. Evidence of funding for the research project
3. Evidence that the approach is world-leading, such as publications in high-impact journals.

A list of key publications must be included at this stage

Invited Application

The PDF application document should contain the following sections:

1. Cover sheet (1 page)
 - a) Title and MyNCI project reference from the successful EOI
 - b) Name and contact information for the Lead Chief Investigator
2. Technical Plan (2 pages)
 - a) Evidence of capability and readiness to use extreme scale computational resources, and justification for the size of the request being made
 - i. including details of the code to be used
 - b) Detailed workflow and execution plans
 - i. including evidence of readiness to commence use of resources at scale,
 - c) Evidence of rigorous application performance benchmarking
3. Project Description (3-4 pages)
 - a) An executive summary of the project
 - b) Justification of the significance, originality and ambitious nature of the project
 - c) Demonstrable contributions to economy, society, environment and culture beyond the contribution to academic research
4. Visualisation/Dissemination Plan (1 page)
 - a) A plan to communicate the impact and outcomes of the research, including how data visualisation may be incorporated, to demonstrate the importance of HPC to Australian research.
5. Data Management Plan (1 page)
 - a) Outline what short term project data storage is required and how datasets generated by the project will be managed.

Application documents should be submitted by email (attachment) to help@nci.org.au. Include the text "ALCG2022" and the surname of the Lead CI in the subject line of the email.

Application Formatting Guidelines

- Document format must be PDF.
 - The PDF file name must include, at a minimum, the Lead CI's surname and MyNCI project reference (e.g. *ALCG2021-mysurname-12345.pdf*).
- Use black type, which can include occasional coloured type for highlighting or emphasis.
- Single column on A4 page size with at least 0.5 cm margins.
- Use a highly legible font type.
 - Recommended fonts are Arial, Helvetica, Palatino and Times New Roman
 - Recommended font size is 12 point.
 - Variants such as mathematical typesetting languages may also be used.
- Adhere strictly to the **nine (9) page limit** for the application document.
- Include information which is pertinent to the project.
- Up to three (3) figures may be included.
- **Do not** provide a list of references in the application document.
 - Use your MyNCI profile to provide publications. Use of ORCID is strongly encouraged.
 - MyNCI track record information will be merged with your PDF application document for assessment.

Getting Help

Read all supporting documentation if you have questions. Contact help@nci.org.au if you require assistance with your application.

Information Session

NCI User Support ran one [online information briefing](#) on Thursday 31 March at 2pm AEDT. The presentation slides and recording from the information session are available at [this link](#).

Assessment Criteria and Scoring

Applications will be scored on the following criteria.

Project

- Quality and innovation
- Significance of the research
- Originality, ambition 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 [Australian Science and Research Priorities](#).

Investigators

- Research record and performance relative to opportunity (publications, research funding, recognition and esteem metrics)

Feasibility

- 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
- Appropriate track record demonstrating a capacity to use high-performance computing systems effectively at scale.
- Suitability of the system to support the research, and an appropriate and efficient use of the system

Benefit and impact

- Ability of the project to generate impactful outcomes and produce innovative economic, environmental and social benefits to Australia and the international community.

Application, Assessment and Allocation Process

The Call for Applications allocation process comprises the following stages:

	Process	Responsible Party
1	Call for EOI announced	Secretariat
2	EOIs accepted	
3	Administrative assessment: eligibility and compliance	
4	EOI assessment	Committee and NCI
5	Invitation to successful EOIs to submit applications	Secretariat
	Notification of unsuccessful EOIs	
6	Merit assessment of invited applications	Committee
7	Allocation Committee meeting	Committee Supported by Secretariat and NCI Technical staff
8	Notification of outcomes	Secretariat

The Secretariat will review all applications for compliance as soon as possible following the EOI and invited application deadlines. Potential cases of non-compliance will be referred to the Committee Chair for a final decision. The Secretariat will notify the Lead CI of an EOI or invited application confirmed as non-compliant within seven (7) days of the submission deadline.

NCI will assess each application for suitability/fit for its HPC systems in the technical assessment. NCI may contact an applicant for further information as part of the technical assessment. Technical assessments are provided as advice to the Allocation Committee, and do not constitute a full assessment of a proposal. The Committee may also recommend that an applicant consult NCI for further technical advice during merit assessment or after an allocation is awarded.

Assessment and Allocation Protocol

Assessment of proposals will be based on a combination of technical and scientific merit (see the section above on selection criteria) based on material provided in the proposal. All applicants are expected to provide a detailed justification of the resources requested and are expected to demonstrate the capacity to use the requested HPC 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 only. NCI provides advice or supporting information to the Allocation Committee but is not otherwise involved in determining allocations.

Minimum and Maximum Computing Request and Allocation

The ALCG2022 scheme does not give guidance for minimum and maximum request size. Rather, requests are expected to start above 20 MSU and may be as large as required for the proposed research project. The total size of the ALCG scheme is 150 MSU. Requests for a large proportion of the total scheme resource should provide a suitably strong justification for the value and impact of the proposed research.

Appeal Process

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

Acknowledging NCI

A condition of accepting an ALCG 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 a standard acknowledgement template:

This work was supported by the Australasian Leadership Computing Grants scheme, with computational resources provided by NCI Australia, an NCRIS enabled capability supported by the Australian Government.

The Lead CI also must agree to providing input to assist NCI Australia in communicating, (via research highlights, case study videos, articles, interviews) the importance of HPC to Australian research.