DiRAC Resource Allocation Committee Facility Time Opportunity (RAC18)

Guidance notes for Applicants

Closing date: Thursday 18th September 2025 16:00 UK time

These guidance notes are supplementary to the information provided on the UKRI Funding Finder. Applicants are strongly encouraged to fully read these guidance notes as well as the information on the UKRI Funding Finder as the submission process changed in 2023 (RAC16).

Contents

1. Introduction

1.1. The DiRAC (Distributed Research utilizing Advanced Computing) facility is the STFC national HPC resource for the UK theory and modelling communities in astronomy and cosmology, astrophysics, solar system physics, particle astrophysics, particle physics and nuclear physics. This document explains the process for the allocation of computing resources on the DiRAC HPC services for the facility time opportunity (RAC18).

1.2. A table to show the availability of resources for RAC18 is provided at Annex 1. Information on the HPC services that DiRAC offers can be found on the DiRAC website.

1.3. The DiRAC Resource Allocation Committee (RAC) was established to oversee the allocation of computing resources for DiRAC project proposals. The RAC issues one facility time opportunity (call) per year. The membership of the RAC is available on the DiRAC website. To maximise the quality of the scientific output of DiRAC, the allocation of time will be determined via robust, transparent peer review. The RAC has two sub-panels, one for Particle Physics and Nuclear Theory and one for Astronomy and Cosmology, which will consider the proposals within their respective remits. A meeting of the RAC attended by representatives from both Sub-Panels will determine the overall allocation of DiRAC time across the whole portfolio of proposals.

2. Important information: submission process, closing date, and how to apply

2.1. The closing date is **Thursday 18th September 2025 16:00 UK time**.

2.2. Successful awards will be scheduled to begin on 1st April 2026. Later start dates can be requested.

2.3. The submission process is as follows:

1. **Proposals for Short and Thematic projects** must be submitted using The new UKRI Funding Service (TFS) – the replacement for JeS. Applicants are required to complete a technical application form which should be attached within TFS (instructions are provided on TFS). Please do not send the technical case directly to DiRAC as per previous calls. Applications will not be accepted without a completed technical case. The technical application form can be found with the call/opportunity information on the UKRI Funding Finder under the Additional info section. Proposals must be submitted by the closing date of Thursday 18th September 2025 16:00 UK time. The system will close at this time and it will not be possible to submit after this deadline. Please see the UKRI Funding Finder for full details including the link to begin your application.

   Applicants may discuss their request for resources with the DiRAC RSE Team in advance of submitting a technical case by emailing DiRAC support (dirac-support@epcc.ed.ac.uk) and adding the heading ‘RAC 18 technical enquiry’ into the subject of the email.

2. Applicants requesting **Research Software Engineer (RSE) support** must complete the RSE application form and attach it to their computing request on TFS. If applicants are requesting RSE support but no computing resources the RSE application form should be sent directly to DiRAC via email: dirac-support@epcc.ed.ac.uk by the closing date of Thursday 18th September 2025 16:00 UK. Time. The RSE application form and guidance can be found with the call/opportunity information on the UKRI Funding Finder under the Additional info section. Applicants are strongly encouraged to discuss RSE requests with the RSE team in advance of the closing date by emailing dirac-support@epcc.ed.ac.uk.

2.4. Applicants are strongly encouraged to apply to one Sub-Panel only, not both.

2.5. Please visit the UKRI website for full information regarding The new Funding Service including videos to show how to use the system.

2.6. Applicants should ensure they are aware of and follow any internal institutional deadlines that may be in place for the submission of their proposal. These deadlines may be similar to those for standard grant applications and it is the applicant's responsibility to confirm this, as they may be significantly earlier than the STFC submission deadline of Thursday 18th September 2025 16:00 UK time**.**

2.7. **Discretionary and Seedcorn** proposals can be submitted (directly to DiRAC) at any time and these allocations can start at any time.

3. Enquiries

3.1. All of the information related to this facility time opportunity can be found on the UKRI Funding Finder. Enquiries should be directed as follows:

- RAC process and remit: STFC Swindon Office DiRACRAC@stfc.ac.uk
- Technical questions: dirac-support@epcc.ed.ac.uk
- Direct allocations or discretionary requests: DiRAC Director, Prof Mark Wilkinson (miw6@leicester.ac.uk)
- UKRI Funding Service: Email: support@funding-service.ukri.org
  Phone: 01793 547490
  Phone lines are open:
  Monday to Thursday 8:30am to 5:00pm
  Friday 8:30am to 4:30pm

3.2. Applicants should not contact individual RAC Panel Members directly.

4. Equality, Diversity and Inclusion

4.1. In line with the UK Research and Innovation Diversity Principles, STFC expects that equality and diversity is embedded at all levels and in all aspects of research practice. We are committed to supporting the research community in the diverse ways a research career can be built with our investments. This includes career breaks, support for people with caring responsibilities, flexible working and alternative working patterns. With this in mind, we welcome applications from academics who job share, have a part-time contract, need flexible working arrangements or those currently

committed to other longer, large existing grants. Please see our Equality and Diversity webpages.

4.2. As part of our commitment to Equality, Diversity and Inclusion (EDI), applicants are asked to address some specific questions related to EDI. Please see the questions within the UKRI Funding Finder for full details. The Panel will not be able to assess or score proposals based on the information provided and the content of answers, but by addressing these questions this should encourage applicants to think more carefully about these issues if they are not already. STFC and the RAC will not be able to take any action or investigate any individuals if there are any unsatisfactory answers, but STFC could go back to the applicant and request further clarification or a strengthened commitment, but proposals will not be penalised as this is not part of the formal assessment criteria.

5. Proposal Types

5.1. The categories of proposals considered in this facility time opportunity are:

- Short Projects
- Thematic Projects
- Research Software Engineer Support (for requests of 3 months or more)
- Discretionary and Seedcorn proposals may be submitted at any time.

5.2. Applicants may apply for computing resources and storage up to 80% of the availability of any individual machine within a given year (please see Annex 1). Requests above this will not be considered by the RAC.

5.3. **Short Projects**
A Short Project is a self-contained research problem typically lasting 3-6 months, up to a maximum of 12 months. This includes proposals intended to develop exploratory study by users new to HPC or to DiRAC.

5.4. **Thematic Projects**
A Thematic Project is a clearly defined research programme of outstanding scientific merit which requires significant HPC resources over a period longer than 12 months and up to 36 months duration. The proposed research should be world-leading, with the expectation of making step changes in knowledge through the use of DiRAC resources. Applicants must demonstrate a track record of the productive use of HPC. Thematic projects must be centred on a singular scientific theme but can contain a small number of sub-projects and activities as long as they are clearly linked and must be within the same scientific theme, rather than a collection of different projects across multiple scientific themes.

5.5. Thematic projects with significantly disparate scientific themes are advised to submit separate proposals. Applicants should consider the range of material contained within submissions as very large proposals can have a detrimental effect on the peer review system due to lack of detail and insufficient justification of resources.

5.6. Thematic proposals can span multiple Research Organisations/Institutes and can consist of a number of Institutions or groups working on a large project /activity.

5.7. **Discretionary / Seedcorn proposals**
These are very small allocations of DiRAC resource (up to 100,000 x86 core hours or 1,000 GPU hours or 1,000 KNL node hours) for projects that fall into the following categories:

- Scientifically outstanding projects where DiRAC resources could enable a breakthrough to be made but where the impact of the research would be lost if the project were submitted according to the scheduled facility time opportunities.
- Very small projects where the researcher is not already a member of an existing Short Project or Thematic Project.

Discretionary / Seedcorn applications cannot be used to uplift existing project activities. Proposals may be submitted at any time and should be sent directly to DiRAC: dirac-support@epcc.ed.ac.uk
Information on how to submit a Seedcorn proposal can be found on the DiRAC website.

5.8. **Research Software Engineering (RSE) Support**
Applications can be made for support from the DiRAC Research Software Engineering (RSE) team to help improve and develop software for the DiRAC community. Applicants must complete the RSE request form and should refer to the specific RSE guidance notes, available with the call/opportunity information on the UKRI Funding Finder under the Additional info section. The RSE application form must be uploaded to the relevant section of TFS. Applicants can request RSE support without requesting computing resources and if so should send their application via email directly to DiRAC dirac-support@epcc.ed.ac.uk by **Thursday 18th September 2025, 16:00 UK time**. Applications will be forwarded to a member of the DiRAC RSE team for technical evaluation. This will then be forwarded to the RAC for their consideration and applicants will be notified of the outcome following the RAC Main Panel meeting.

A RAC award of RSE effort to a DiRAC project will enable the employment of a Research Software Engineer (RSE) to work specifically on the relevant software to enable new features or improve the performance of the code. Examples of this could be:

- Implementation of algorithmic improvements within an existing code in a portable manner
- Improving the scalability of software on higher core counts in a portable manner
- Improving a code to enhance sustainability and maintainability
- Improvements to code that allow new science to be carried out on current and future DiRAC services
- The integration of new algorithms/functionality into a code;
- Porting and optimising a code to run efficiently on current and future DiRAC services
- Code development to take a code from a Tier-2 (Regional) or local university cluster to DiRAC level bringing new communities onto DiRAC

Applicants should note that RSE support is technical in nature and is not research support. RSE effort is not meant to be a replacement for PDRA/Post-grad student

activity. The construction of a piece of scientifically valid code is the project's responsibility and is not the role of RSE support. If the initial review process identifies activities which are deemed to be out of scope, the Project Lead will be contacted to discuss the appropriateness of DiRAC RSE effort for the required work prior to the proposal being considered by the RAC.

We expect applications to be for 3 to 12 months of effort in most cases. If you require shorter amounts of RSE time (for example to help profile or port an application), these are available to all funded DiRAC projects; please contact the DiRAC helpdesk: dirac-support@epcc.ed.ac.uk with your request. (Note that RSE time is finite and we cannot guarantee to support every such request).

6. General guidance and important points to note:

6.1. No single application may request more than 80% of the available computing time and storage on any individual machine within a given year (please see Annex 1).

6.2. Existing Thematic Projects wishing to apply for more computing time due to additional resources becoming available at DiRAC can submit using the following methods:

- Applications with scientific themes distinct from the existing award can be submitted as a separate proposal.
- Applications building on the same scientific theme as an existing award should apply as a new project, and this new award would then replace any existing compute award. **PIs requesting for a revised or updated thematic project must justify this request fully; the RAC will take into account all currently active projects which are based on a comparable science case.**

6.3. Proposals should be focused on scientifically coherent themes and should contain sufficient technical and scientific detail. It should be noted that proposals with greater numbers of themes will generally result in poor coverage and potentially weaker reviews. In these cases it is advised that applicants submit multiple proposals.

6.4. Proposals should include adequate detail to justify the requested allocation and should be written in a way that is accessible to the RAC Panel.

6.5. The resources requested in the scientific case should match those requested in the technical case.

6.6. DiRAC resources are divided into four allocation periods per year, starting 1st April, 1st July, 1st October and 1st January. Successful applicants will be advised of the total amount of resources they have been allocated and the periods within which the allocations must be used. Resources must be used in the allocation period to which they were assigned; they cannot be carried over to the next allocation period. For Thematic awards the first year allocation will be fixed and subsequent years are subject to change. The allocations for each period will be shown in the DiRAC SAFE system. Applicants are required to specify the resource usage profile within the technical application form. Significant deviations from uniform profiles may be requested with adequate justification, but it is not guaranteed that they can be

accommodated.

6.7. It is possible to request a delay to the start date of a project. This should be specified in the application (start dates must be on the first day of a month).

7. Code Efficiency

7.1. The aim of the RAC process is to maximise the output of high quality research by the DiRAC facility. Scientific excellence will be the primary driver for allocation decisions and the RAC will balance 'time to science' against reasonable requirements on the operational efficiency of approved projects and simulation codes. It is recognised that the cutting-edge and novel nature of research across the DiRAC community means that many DiRAC codes are under active development and may not be as efficient or scalable as more mature codes. Further, results obtained in a timely manner with a sub-optimal code will often have greater impact than results delayed by extended periods of code optimisation work. However, while it is recognised that new HPC users, or users of new codes, may not have sufficient resources or experience to provide full details of code efficiency, applicants will be required to demonstrate that their operational plan is as efficient as possible and that the architecture requested is the most appropriate for the work.

7.2. In cases of similarly ranked proposals, applicants who demonstrate more efficient use of DiRAC resources either in terms of actual code efficiency or more efficient operational strategies will be given preference.

8. Requesting exclusive use of a DiRAC system

8.1. Some projects may include (or may consist entirely of) sub-projects which require usage of an entire DiRAC machine, or significant fraction of a machine, for a period of longer than two days. This mode of use must be explicitly justified in the proposal, and a detailed timeline for the sub-project must be included. The technical assessment of such sub-projects will include an assessment of the efficiency of machine use.

8.2. If the request is approved, a fixed start date for the sub-project exclusive usage will be agreed to enable re-scheduling of other users to other machines during the period of unavailability. Time lost due to failure to meet the approved start deadline will not be compensated.

8.3. No more than two DiRAC machines will be operating in this mode at any one time. Where this mode of operation directly impacts on another project (for example due to technical requirements which mean it cannot be moved to another machine) it may be necessary to sub-divide periods of exclusive use or reserve a fraction of the cores for other projects. In cases where multiple project proposals with overlapping scientific goals are received, if appropriate the RAC may invite the applicants to consider merging their proposals.

9. Project Reporting

9.1. The project reporting exercise has been discontinued. Project Leads are no longer required to submit interim and final reports. It has been agreed that DiRAC and the

STFC DiRAC Oversight Committee will monitor under usage. Anyone continuing to under use their allocation will be contacted directly.

10. Storage Policy

10.1. Please note the following information regarding the DiRAC Storage Policy:

Quota - an amount of disk that you cannot exceed.

Allocation - an amount of disk that you are guaranteed to have access to.

/home - this will be small and have quotas applied of, say, 10GB. This is for storing code, key input files, etc. but is not a working space.

/scratch, /work or /data (depending on the system) - this is the main working area and is not usually backed up. It is left to the users to manage their data within the limits of any set quotas.

Archive: This is tape storage. Applicants must specify what data products they wish to have backed up to tape. Note that DiRAC is not currently able to provide long-term data storage/curation.

Note that not all DiRAC sites have all categories of storage types described above available and the naming may vary. DiRAC will endeavour to assign storage aligned to the categories requested but this may not be technically possible.

Annex 1: Availability of DiRAC systems for RAC 18

Please note all figures detailed in the tables below are approximate.

Compute:

			Year 1 (Q2 2026 - Q1 2027)	Year 2 (Q2 2027 - Q1 2028)	Year 3 (Q2 2028 - Q1 2029)	Units
Data Intensive - Cambridge	CSD3_CPU	Intel icelake	124.29	131.18	186.53	Mcore-h
	CSD3_GPU	Nvidia A100	0.178	0.145	0.154	MGPU-h
Data Intensive - Leicester	DIaL-3	AMD Rome	60.83	170.57	176.71	Mcore-h
Extreme Scaling - Edinburgh	Tursa GPU	Nvidia A100	2.92	3.33	4.93	MGPU-h
	Tursa CPU	AMD Rome	4.47	4.03	5.38	Mcore-h
Memory Intensive – Durham	Cosma7 (16 GB/core)	Intel Skylake	29.94	64.10	66.91	Mcore-h
	Cosma8 (7.8 GB/core)	AMD Rome	68.68	180.87	381.24	Mcore-h
	2 Fat nodes (4 TB RAM)	AMD Rome	1.91	0.76	0.76	Mcore-h

Year 1 = 1st April 2026 (Q2) – 31st March 2027 (Q1)
Year 2 = 1st April 2027 (Q2) – 31st March 2028 (Q1)
Year 3 = 1st April 2028 (Q2) – 31st March 2029 (Q1)

Storage:

		April 2026 onwards	Units
Data Intensive - Leicester	DIaL-3	1.25	PB

Until new hardware becomes available storage is very limited, particularly on the CSD3 and Cosma systems which are presently almost full. Continuing projects may be required to make use of existing quotas and storage for new projects on CSD3 and Cosma is likely to be very limited. This should be taken into account when requesting disk and deciding on where to request compute resources.