

# CIORA: Compute Infrastructure at Onsala for Radio Astronomy Policy Document

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## 1 Purpose of this document

The purpose of this document is to define policies for the access and use of the storage and compute resources at the Compute Infrastructure at Onsala for Radio Astronomy (CIORA) managed by Onsala Space Observatory (OSO). Specifically, this document provides guidelines for projects and users that do not fall under the umbrella of SRCNet activities (governed by SRCNet policies<sup>1</sup>), or Nordic ARC node obligations<sup>2</sup>.

This policy document is inspired by OSO’s NaFCI policy<sup>3</sup>, policies developed by the ilifu Research Facility<sup>4</sup>, and existing policies adopted for the SKA Science Data Challenges<sup>5</sup>.

### 1.1 Background

The Onsala National Infrastructure for Radio Astronomy (Onsala Space Observatory, OSO) has a mission to support Swedish and ALMA Nordic astronomers in the use of radio/mm astronomy observing facilities. CIORA supports OSO’s mission to provide computing support for users of radio/mm astronomy facilities,

<sup>1</sup><https://stfc.github.io/IAM-Docs/policies/ska-privacy/>

<sup>2</sup><https://www.oso.chalmers.se/>

<sup>3</sup>[https://www.oso.chalmers.se/access-request/NaFCI\\_DataPolicy\\_20201023\[2\].pdf](https://www.oso.chalmers.se/access-request/NaFCI_DataPolicy_20201023[2].pdf)

<sup>4</sup><https://www.ilifu.ac.za/publications-and-policies/>

<sup>5</sup><https://sdc4.skao.int/hpc-partners/swesrc>

including but not limited to SKA pathfinders and precursors, instruments in which Onsala participates in observations, including EVN/Global VLBI and LOFAR, and other interferometric and single dish telescopes. *The purpose of this document is to outline the policies for projects, utilizing CIORA resources*, that are not governed by the agreement between SRCNet and SKAO, and are not governed by Nordic ARC node policies.

CIORA hardware is hosted and maintained by Chalmers e-Commons<sup>6</sup>. The software stack is managed in collaboration by OSO and Chalmers e-Commons staff.

## 2 User Policy

The computational and storage resources at CIORA are provided on a per research project basis. Each research project is led by a principal investigator (PI). The CIORA facility supports research projects in the fields of radio and mm/submm astronomy, including simulations which support radio and mm/submm science cases.

Any academic researcher with a Swedish affiliation may apply to CIORA for a research project in the fields of radio/mm/submm astronomy. Proposed research projects will be evaluated and successful proposals will become approved research projects supported by the CIORA facility. Once a research project is approved, persons associated with the research project, with permission of the PI, may be granted access to resources allocated for that project.

### 2.1 User access

Principal investigators must submit a resource request form<sup>7</sup> which includes a data management plan. This must include a short science justification, an estimate of the processing requirements (e.g. amount of RAM, number of CPU cores, GPU requirements), storage needs, team membership, and project timeline. This submission is reviewed by OSO staff and CIORA operators who may ask for clarification. It is the PI's responsibility to provide descriptions on a best effort/good faith basis.

Each approved research project is led and managed by a PI. Co-investigators (co-I) may be added to a research project by the PI. The PI is responsible for the use of the resource allocations provided by the CIORA facility and is responsible for the competency and behavior of the users within their research project.

All users are expected to use their CIORA user account, storage, compute resources, and network in a responsible, ethical, lawful, and professional manner, and following the OSO regulations for IT resources<sup>8</sup>.

PI user accounts and research projects must be renewed annually, typically in January. Any account that is not renewed will be deactivated. The PI will be notified in the event that their account is to be deactivated. The account and all associated data will be permanently removed 90 days after deactivation.

If a user (co-I) is no longer a member of a research project, it is the responsibility of the PI to notify the CIORA facility to and revoke that user's access to the research project.

The PI is responsible for providing and keeping up-to-date user information for their research project. This includes name, affiliation, and contact details of their team members. Current and valid information is critical for important system announcements, efficient incident response. CIORA may also use anonymized statistics to measure usage and community engagement.

### 2.2 Security

A user must not allow any other individual to use their credentials to access the CIORA facility's resources. If additional persons require access to the CIORA facility's resources as part of their research, each individual must be granted an account by the PI of the project, and obtain their own credentials. Users must apply appropriate security best practices to secure their account, including changing their initial password provided at the time of account creation, and keeping their password secret.

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<sup>6</sup><https://www.chalmers.se/en/infrastructure/ecommons/>

<sup>7</sup><https://www.oso.chalmers.se/ITresources/>

<sup>8</sup>[https://www.oso.chalmers.se/visitor/IT\\_resources.html](https://www.oso.chalmers.se/visitor/IT_resources.html)

## 3 Data storage and compute policy

### 3.1 Appropriate use

All data stored on the CIORA facility must be directly related to an approved research project that a user is associated with and is currently supported by CIORA. If there is any doubt about what is or is not permitted, please contact CIORA user support.

### 3.2 Project allocations & software management

Compute and storage resources are provided via projects in CIORA's OpenStack environment. PI authentication is managed through SUPR<sup>9</sup>. GPU resources are available in the form of L40S and Tesla T4 upon request.

PI's will have access to the project's resources via an OpenStack web portal. From there, the PI can start virtual machines (VMs) as required and grant access to team members/co-I's. If desired, Co-I's may also be registered in SUPR and be granted access to a shared project (shared between PI and Co-I), with the same permissions and VM creation and root access as the PI. The cumulative amount of RAM, CPUs, and storage of all VMs combined must not exceed the amount of resources negotiated based on the project requirements as described in their application, and depending on available resources. Researchers or projects with storage requirements greater than **10 TB** must get approval from the CIORA team.

Different operation systems for the VMs are possible (e.g. Rocky9, CentOS 7, Ubuntu 24.04 among others). Users will have sudo-access on the VMs that they start such that they can manage their required software independently. Teams can run both docker and singularity containers on their VMs.

### 3.3 Project renewals

Storage is granted on a year basis, with the possibility of renewal. Project renewals are undertaken annually, typically in January.

The purpose of the project renewal process is to review user accounts associated with the project in order to ensure access to project data is current and accurate, to release resources associated with completed projects, to determine prospective resource requirements of active projects, and to collect information for reports to funding agencies.

All projects must complete the project renewal process. Projects that have been guaranteed support for longer than a one year period must complete the project renewal process in order to renew PI accounts and information related to the project.

A project whose PI does not complete the project renewal process will be considered completed and will undergo project closure.

### 3.4 Project deactivation and closure

PIs who do not want to renew their project but still want to recover files can request a three month temporary extension.

If a project's PI allows the project to expire, all user accounts associated only with the project will also be deactivated. Upon deactivation, a user is no longer able to login into CIORA services. User accounts associated with other ongoing projects will continue to remain active but will no longer have access to the deactivated project's resources or data.

The PI of a project that is considered complete will be notified of impending project closure. Completed projects will have access to compute resources revoked immediately. Completed projects' files will be removed 90 days after notification of project closure.

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<sup>9</sup><https://supr.naiss.se/>

## 3.5 Data archiving and acknowledgment

### 3.5.1 Archiving

CIORA does not provide resources for archiving data. Archiving data is expected to be the responsibility of the user's university or institution. For Chalmers, this is done through the Data Office<sup>10</sup>.

### 3.5.2 Acknowledgment

It is expected that users of CIORA will acknowledge the use of resources in publications and conference proceedings with the following:

**“[AUTHOR NAME] acknowledges support from the Sweden SKA Regional Center (sweSRC) node operated by Onsala Space Observatory in collaboration with Chalmers e-Commons. The Onsala Space Observatory national research infrastructure is funded through Swedish Research Council grant No 2019-00208.”**

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<sup>10</sup><https://www.chalmers.se/en/infrastructure/eccommons/storage-and-data-management/publish-and-cite-research-data/>