

**REGULATIONS CONCERNING
APPLICATIONS
FOR THE USE OF THE
FLEMISH TIER-1 SUPERCOMPUTING
PLATFORM**

Effective as of 01 January 2023

PART I. PRELIMINARY PROVISIONS

§ 1 – Definitions

For the purposes of these regulations, the following terms shall have the following meanings:

1. **Application:** an application for resources on the Tier-1 Compute, Tier-1 Cloud or Tier-1 Data components of the Flemish Tier-1 Supercomputing platform;
2. **Applicant:** a Researcher who submits an Application;
3. **Core-hour:** unit of computing time, corresponding to one hour on one CPU core; kcore-hour and Mcore-hour represent a thousandfold and a millionfold respectively;
4. **GPU-hour:** unit of computing time, corresponding to one hour on one graphics processing unit; kGPU-hour and MGPU-hour represent a thousandfold and a millionfold respectively; with every GPU-hour allocated, the applicant automatically receives an amount of core-hours that can be used exclusively on the CPU cores of the node(s) on which the graphics processing units are installed;
5. **Researcher:** a natural person who, within the framework of a statutory appointment or assignment, an employment contract, a contracting contract, a research grant, a voluntary collaboration or a collaboration as a student, performs research at a Public Research Institution;
6. **Public Research Institution:**
 - a. a university within the Flemish Community;
 - b. a college of higher education within the Flemish Community;
 - c. a research institution under the authority or supervision of a university or a college of higher education, such as a special university institution, as referred to in article III.73 et seq. of the Higher Education Code of 11 October 2013;
 - d. a university hospital, as referred to in article 4 of the law on hospitals and other care facilities, coordinated on 10 July 2008;
 - e. the Flemish strategic research institutions;
 1. Flemish Institute for Biotechnology (VIB);
 2. Imec;
 3. Flemish Institute for Technological Research (VITO);
 4. Flanders Make;
 - f. an institution for post-initial education;
 - g. a centre for policy-relevant research as referred to in the Decision of the Flemish Government of 15 September 2006 concerning centres for policy-relevant research;
 - h. The Expertise Centre for Research and Development Monitoring as referred to in Title V, Chapter VI, of the Decree of 30 April 2009 on the organisation of science and innovation policy;
 - i. research institutions whose activities are fully or partially financed or subsidised by the Flemish Community or the Flemish Region;
 - j. a research institution under the authority or supervision of the Flemish government, as referred to in article III.73 et seq. of the Higher Education Code of 11 October 2013;

- k. research institutions whose activities are fully or partially financed or subsidised by the Federal Science Policy Office;
 - l. a research institution or an institution under the authority or supervision of the Federal government
7. **Starting Grant:** the opportunity to try out the Tier-1 Compute, Tier-1 Cloud or Tier-1 Data components, such as for benchmark or software testing, to prepare a future Application;
 8. **Tier-1 compute:** all of the partitions of the compute component of the Flemish Tier-1 supercomputing platform;
 9. **Tier-1 compute partition:** a part of the Tier-1 compute infrastructure, logically split according to installation location and hardware specifications; this currently concerns the logical partition 'dodrio' on Hortense at UGent and a second partition that will become available during 2023;
 10. **Tier-1 data:** the data component of the Flemish Tier-1 supercomputing platform;
 11. **Tier-1 cloud:** the cloud component of the Flemish Tier-1 supercomputing platform;
 12. **Queue:** the list of tasks that are waiting to be carried out;
 13. **Wall clock time:** the time that elapses according to the regular clock between the start and the end of a (sub-)task.
 14. **SCRATCH:** temporary, fast storage used to store input data for calculations or output data from calculations. This storage is not backed up Data that has been deleted cannot be recovered.
 15. **Default quota:** the maximum amount of disk storage available for one application on storage systems and file systems allocated to the Applicant on the Tier-1 Compute, Tier-1 Cloud or Tier-1 Data , as well as an upper limit on the total number of files one application can create;

PART II. REGULAR APPLICATIONS

Chapter 1. Scope and Institutional Provision

§ 2 – Scope

(1) With effect from 1 January 2023, this section regulates the submission and processing of Applications for resources on the Tier-1 Compute, Tier-1 Cloud or Tier-1 Data components, as well as the execution of granted Applications.

(2) Applications submitted and approved before 01 January 2023 will be processed and implemented in accordance with the regulations effective at the time of submission of the Application.

§ 3 – Evaluation Committees

(1) The Board of Trustees of the FWO delegates the decision-making competence regarding Applications to several Evaluation Committees, which operate under the authority of the Board of Trustees.

(2) The Evaluation Committees evaluate Applications against the admissibility criteria referred to in § 4, and, insofar as they are admissible, against the evaluation criteria referred to in § 5.

(3) The Evaluation Committees consist of:

Tier-1 Compute

1. at least three experts appointed by the Board of Trustees who are not active within the Flemish Community and have wide experience in the field of using large computing capacity;
2. a representative of the FWO.

Tier-1 Cloud and Tier-1 Data

1. at least three experts designated by the VSC Management Team who have extensive experience in managing and using cloud and data infrastructure;
 2. a representative of the FWO.
- (4) The FWO lead official and representatives of or persons delegated by the VSC Management Team may be invited as observers to participate in the meetings of the Evaluation Committees.
- (5) The secretariat of the Evaluation Committee is held by the FWO, referred to in (3), 2.

Chapter 2. Grounds for evaluation

§ 4 – Admissibility Criteria

(1) An Applicant electronically submits an Application to the FWO using standard application forms, attached as enclosure and also available at <https://www.vscentrum.be>. The standard application form must be completed and submitted via the relevant online EasyChair platform in accordance with the instructions, found under:

- a. Tier-1 Compute: <https://www.vscentrum.be/compute>
- b. Tier-1 Cloud <https://www.vscentrum.be/cloud>
- c. Tier-1 Data: <https://www.vscentrum.be/data>.

(2) An Application concerns a project with:

- a. Tier-1 Compute: at least the equivalent of 500 kcore-hours or 1 kGPU-hour and not more than the equivalent of 7.5 Mcore-hours and/or 40 kGPU-hours for a period of eight months;
- b. Tier-1 Cloud: at least one virtual machine, with a minimum term of eight months and maximum of two years;
- c. Tier-1 Data: minimum 5 TB and maximum 1 PB with a minimum duration of eight months and maximum of four years.

Upper resource limits can be exceeded, subject to a detailed justification.

(3) The scientific quality of the relevant research project which is assessed:

- a. if the research project is part of an ongoing research project, by the Evaluation Committee established by the university, the research institution or the strategic research centre, or by an external funding agency;
- b. if the research project is not part of an ongoing research project, by a declaration from the relevant institution in which the proposed research is approved.

(4) Applications shall be drawn up in English.

(5) Above that, the following eligibility criteria are set, specific to each component:

Tier-1 Compute

- (1) The wall clock time of the different sub-tasks described in an application, shall amount to maximum 72 hours; where appropriate, the Applicant shall specify the available restart options for sub-tasks that require more than 72 hours of wall clock time.
- (2) The standard quota for an Application shall be 2 TiB for "SCRATCH" disk storage and 200,000 for the total number of files, unless justification for exceeding these limits is attached to the Application. "SCRATCH" disk storage must always be specified:
 - in multiples of one TiB for storage,

- in multiples of 100,000 for the number of files, and
 - for the total duration of the Application.
- (3) A standard Linux HPC software stack is available on Tier-1 compute. Where necessary, additional (Linux) software can be installed in accordance with the provisions in § 16.
- (4) The Application clarifies:
- which software will be used;
 - that the required software, which is at the Applicant's expense:
 - may be validly installed on the Tier-1 compute partition(s) involved, and
 - may be validly used by the Applicant and by the persons mandated by the Applicant;
 - that any licences that may be required are valid for use on the Tier-1 compute partition involved and are sufficient to cover the computing capacity applied for.

Tier-1 Cloud

- (1) The Application clarifies:
- a. as regards content and schematically for which workflow the Tier-1 Cloud resources will be used.
 - b. which software and/or services will be deployed to set up this workflow and which virtual machines (specifying flavour and type) will be used for this.
 - c. describes how the virtual machines will be maintained.
 - d. the procedures that will be followed to guarantee the security of the virtual machines.
 - e. the exit strategy to be followed at the end of the project.
- (2) the Application declares acceptance of the UGent Acceptable Use Policy (AUP) and procedures for maintenance and security of the virtual machines.

Tier-1 Data

- (1) Tier-1 focuses on active data used within the context of the VSC. The applicant should clearly indicate which of the VSC systems (e.g: Tier-1 Compute, Tier-2 or in the Tier-1 Cloud) will be used to analyse or process the data.
- (2) The Application clarifies:
- a. total requested capacity and expected capacity growth for the duration of the project
 - i. in multiples of one TiB for storage,
 - ii. in multiples of 100,000 for the number of files
 - b. the type of datasets to be stored in the Tier-1 Data platform, the formats and possible
 - c. applicable ethical and privacy regulations and restrictions for storing and processing the research data

- d. the exit strategy to be followed at the end of the project.

§ 5 – Evaluation criteria

Admissible Applications are evaluated on the basis of the criteria referred to in the application form, such as:

1. the Applicant's substantiated experience regarding the use of Tier-0, Tier-1 and/or Tier-2 computing infrastructure;

Tier-1 Compute

2. the technical feasibility of the computing task, which is assessed on the basis of:
 - a. the justification of the reasons why the Tier-1 compute is appropriate to perform the proposed computing task;
 - b. the number of nodes/cores/GPUs applied for per computing task, with division of the computing time into sub-tasks, indicating the sequence of the sub-tasks and the estimated wall clock time;
 - c. where appropriate, the use of parallel processing (Open MP, MPI, OpenMP + MPI (hybrid), worker framework, atools, etc.) and the parallel efficiency of the executed tasks;
 - d. the estimated memory use of a computing task;
 - e. the requirements for disk storage on the Tier-2 "HOME" and "DATA" volumes and the Tier-1 compute "SCRATCH" volume (estimated volume in TiB and total number of files) during execution of the computing tasks.

Tier-1 Cloud

3. the technical feasibility of the workflow, which is assessed on the basis of:
 - a. the justification of the reasons why the Tier-1 Cloud is appropriate to perform the proposed workflow;
 - b. the number of virtual machines requested, with a breakdown of workflow components by virtual machine flavour and type;
 - c. the requirements for the shared NFS file system between the virtual machines (estimated volume in GB);
 - d. the requirements for the persistent local disk space for all virtual machines (estimated volume in GB);
 - e. the requirements for access to the VSC network;
 - f. the requirements for access to the public network, including the requested number of public IPv4 addresses and justification.

Tier-1 Data

4. the technical feasibility of the workflow, which is assessed on the basis of:

- a. the justification of the reasons why the Tier-1 Data or a specified partition is appropriate to perform the proposed computing task;
- b. the description of the data workflow: the processes to bring data from the source to Tier-1 Data, the data analysis and the accessibility of the data
- c. what approach will be taken to capture the accompanying information needed to keep data understandable and usable, for the requestor himself and for others, now and in the future (e.g. .txt files, Codebook.tsv etc. where this information is captured)
- d. what metadata (standard or customised) will be used to make research data easier to find and reuse

Chapter 3. Assessment Procedure

§ 6 – Possibility of Remediation

The Evaluation Committees may request an Applicant to clarify or amend the Application. This possibility of remediation shall not serve to fill in the gaps in an incomplete or vague Application.

§ 7 – Cut-Off Dates

(1) Before the start of each calendar year the Evaluation Committees shall draw up an evaluation calendar with a number of cut-off dates. The cut-off dates for 2023 are: February 6, June 5 and October 2.

(2) In exceptional cases, the Applicant may include in the Application a reasoned request clarifying why the Application cannot wait until the next cut-off date. The chairman or deputy chairman of the relevant Evaluation Committee shall within five working days decide on the urgent character of the Application and notify the Applicant of their decision through the most appropriate communication channel. If the urgent character of the Application is recognised, the Application shall be further evaluated in accordance with this chapter, it being understood that the decision periods for application of § 8 shall commence from the date of recognition of the urgent character.

§ 8 – Decision Periods

The Evaluation Committees shall decide on Applications within an indicative period of 30 days from the cut-off date following the date of submission of the Application.

§ 9 – Decision modalities

(1) In the context of the overall management of the Tier-1 Compute, Tier-1 Cloud or Tier-1 Data components of the Flemish Tier-1 Supercomputing platform, the Evaluation Committees may make a reasoned decision to award only part of the requested resources or to limit per cut-off date the number of approved Applications submitted by Applicants working in the same scientific subdisciplines.

(2) The Evaluation Committees shall define the period within which the allocated resources have to be used for each granted Application.

Tier-1 Compute

(3) The Evaluation Committee must allocate storage capacity to each Applicant for the Tier-1 Compute component according to the Standard Quota. The Standard Quota can only be deviated from on the basis of a special justification in accordance with § 4 (5).

(4) After three months of the period (allocated in accordance with §9 (2)) have passed, the Applicant loses 20% of the initially granted number of core-hours and GPU-hours on the Tier-1 Compute component, if that 20% has not yet been used.

(5) Combined applications from institutions belonging to categories k and l (in accordance with §1 (6)) for the Tier-1 Compute component, can be granted a maximum of 10% of the total available computing time per call round.

§ 10 – Notification of the decision

(1) The FWO shall send an e-mail message regarding the decision of the Evaluation Committees on the Application within a period of 10 days from the decision of the Evaluation Committee.

(2) The granting of an Application shall be published in the annual report of the Flemish Supercomputer Centre (VSC).

Chapter 4. Appeal procedure

§ 11 – Appeal Modalities

- (1) The Applicant who is of the opinion that the decision of an Evaluation Committee is contrary to a written or unwritten legal rule or general legal principle, can lodge an appeal against the decision with the Board of Trustees of the FWO.
- (2) The appeal shall be lodged within an expiry term of five days, which commences on the day following the day of sending, stated in § 10 (1).
- (3) The appeal shall be lodged by means of a signed and dated notice of appeal, to be submitted to the Board of Trustees by registered mail, failing which it shall be inadmissible. It shall contain at least the identity of the Applicant concerned, the challenged decision(s) and a factual description of the objections invoked. At the same time, the Applicant shall, by way of information, send an electronic version of the notice of appeal by e-mail to the FWO (fwo@fwo.be). The date of the postmark of the registered mail shall count as the date of the appeal.

§ 12 – Hearing of the appeal

- (1) The Board of Trustees shall process the appeal on the exhibits. However, it can invite anyone whose presence it considers helpful to facilitate the hearing of the appeal.
- (2) The Board of Trustees has the right to demand or gather any exhibits and information it considers useful to facilitate the hearing of the appeal.
- (3) The Board of Trustees can obtain the advice it considers useful for the hearing of the appeal.

§ 13 – Relativity rule

The Board of Trustees can uphold a decision against which an appeal has been lodged, despite infringement of a written or unwritten legal rule or general legal principle, if it is plausible that the interested parties have not been disadvantaged by the decision.

§ 14 – Decision

If the appeal is admissible, the challenged decision shall be reconsidered on the grounds presented in the appeal. Insofar as the reconsideration shows that there is cause to do so, the Board of Trustees shall revoke the challenged decision and, if need be, make a new decision to replace the original decision. The decision shall be announced by sending or delivering it to those to whom the decision is addressed.

Chapter 5. Provisions regarding the implementation of granted applications

§ 15 – Technical problems

The Ugent and KU Leuven staff members entrusted with the Technical Operation of the relevant Tier-1 Compute, Tier-1 Cloud and Tier-1 Data components may at any time abort the implementation of a granted Application if it gives rise to technical problems. The Applicant shall be informed of this decision by e-mail, including a short accompanying explanation.

§ 16 – Assistance

The Applicant will rely on the Tier-1 component technical support staff for project start-up and basic support during the course of the project. The Applicant must address their queries to:

- Tier-1 Compute: compute@vscentrum.be
- Tier-1 Cloud: cloud@vscentrum.be
- Tier-1 Data: data@vscentrum.be

If a granted Application requires the use of software that is not yet available on a Tier-1 compute partition, the Applicant may call on the assistance of UGent staff members entrusted with the technical operation of the respective Tier-1 compute partition(s), without prejudice to the application of § 4, (5 and 6). The Applicant must address this request to compute@vscentrum.be by completing the form available at <https://www.ugent.be/hpc/en/support/software-installation-request>. UGent shall make reasonable efforts to respond to the request for assistance, which can by no means bring about any obligation to produce a certain result. The UGent staff members entrusted with the technical operation of the respective Tier-1 compute partition(s) shall never intervene on the code of the actual software.

PART III. STARTING GRANT APPLICATIONS

§ 17 – Scope

- (1) This part governs the submission, processing and follow-up of Starting Grant applications as of 01 January 2023.
- (2) Starting Grant applications submitted and approved before 01 January 2023 shall be processed and implemented in accordance with the procedure effective at the time of submission of the Application.

§ 18 – General principles

1. Starting Grant applications can be submitted on a rolling basis. A Starting Grant will be awarded:
 - a. Tier-1 Compute: for a maximum size of 500 kcore-hours and 1 kGPU-hour; the maximum period to use the awarded compute resources is four months;
 - b. Tier-1 Cloud: the maximum period to use the allocated resources is eight months;
 - c. Tier-1 Data: for a maximum data storage of 5TB and the maximum period to use the allocated resources is eight months.

§ 19 – Procedure and follow-up

- (1) An Applicant electronically submits a Starting Grant application using standard application forms, attached as enclosure 2 and also available at <https://www.vscentrum.be>. The standard application form is completed and submitted via e-mail to:
 - a Tier-1 Compute: compute@vscentrum.be
 - b Tier-1 Cloud: cloud@vscentrum.be
 - c Tier-1 Data: data@vscentrum.be
- (2) The application is assessed for validity by the operational managers in charge of the Technical Operation of the relevant Tier-1 Compute, Tier-1 Cloud and Tier-1 Data components, who report to VSC management team.
- (3) Once approved, the relevant operational manager of the Tier-1 Compute, Tier-1 Cloud and Tier-1 Data components grants access and resources to the Investigator. If the application is not approved, an answer with justification of the decision is sent to the Applicant.
- (4) The award of a Starting Grant is published in the annual report of the Flemish Supercomputer Centre (VSC).

PART IV. COLLABORATIVE GRANT APPLICATIONS

§ 20 – Scope

- (1) This part governs the submission, processing and follow-up of Collaborative Grant applications on the Tier-1 Compute, Tier-1 Cloud en Tier-1 Data component as of 01 January 2023.
- (2) Collaborative Grant applications submitted and approved before 01 January 2023 are processed and implemented in accordance with the procedure effective at the time of submission of the Application.

§ 21 – General principles

- (1) A Collaborative Grant is awarded for a maximum period of:
 - a Tier-1 Compute: 10 Mcore-hours and/or 75 kGPU-hours of computing time.
 - b Tier-1 Cloud: 2000 vCPUs, 10 TB of RAM and 100 TB of storage quota distributed across all virtual machines;
 - c Tier-1 Data: 1 PB of storage

The maximum period for use of the allocated computing time is twelve months. Upper resource limits can be exceeded, subject to a detailed justification.

- (2) A Collaborative Grant can only be applied for by a consortium of at least three research groups from different Public Research Institutions (cf. § 1 (6)) with a clearly defined common research topic.
- (3) Collaborative Grant applications can be submitted on a rolling basis.

§ 22 – Procedure and follow-up

- (1) An Applicant electronically submits a Collaborative Grant application on the Tier1 component via e-mail to info@vscentrum.be, using a standard application form, attached as enclosure 3, and also available at <https://www.vscentrum.be/>.
- (2) This Application shall in particular clarify why it is crucial for the consortium to apply for a Collaborative Grant and the proposed common research work cannot be carried out via one or more regular Applications.
- (3) The application is assessed for validity by the VSC management team.

(4) After approval, the operational manager of the relevant Tier-1 component grants access and resources to the Researcher. If the application is not approved, an answer with justification of the decision is sent to the Applicant.

(5) The award of a Collaborative Grant is published in the annual report of the Flemish Supercomputer Centre (VSC).

PART V. COMMON PROVISIONS

§ 23 – Procedure and follow-up

This part contains provisions that are common to the processing and follow-up of (regular) Applications and to Starting Grant and Collaborative Grant applications.

§ 24 – Exoneration Clauses

(1) The FWO, KU Leuven and UGent can in no way be held liable for personal injury or property damage arising directly or indirectly from the implementation of a granted Application or a Starting Grant or Collaborative Grant application. The Applicant shall hold harmless the FWO, KU Leuven and UGent from and against any claim for compensation by persons suffering loss or damage in this regard.

(2) The FWO, KU Leuven and UGent can in no way be held liable if the use of the Tier-1 Compute, Tier-1 Cloud or Tier-1 Data components were to cause any type of loss or damage to a Researcher.

(3) The FWO, KU Leuven and UGent can in no way be held liable for the non-implementation or the partial non-implementation of a granted Application or Starting Grant or Collaborative Grant application for any technical reason or any technical failure specific to the Tier-1 Compute, Tier-1 Cloud or Tier-1 Data components. The Applicant shall hold harmless the FWO, KU Leuven and UGent from and against any claim for compensation by persons suffering loss or damage in this regard.

(4) If KU Leuven or UGent grants a request for assistance within the meaning of § 16, the Applicant can in no way hold the FWO, KU Leuven or UGent liable if the software cannot be installed or if the implementation of the Application has thus been delayed. Neither will it be possible to claim any type of compensation (validity term, amount of allocated computing time, etc.).

(5) The Researcher is the sole responsible for the timely planning and sending of computing tasks to the Queue. Waiting time as a result of the computing tasks of other users can never be invoked as a justification for total or partial non-implementation of a granted Application or Starting Grant or Collaborative Grant application. Neither will it be possible to claim any type of compensation (validity term, amount of allocated computing time, etc.).

§ 25 – Confidentiality

(1) Except for the abstract that is attached to the Application (unless that too has been identified by the Applicant as being subject to a confidentiality clause), the FWO undertakes to process the Applications with the strictest confidentiality and not to disclose, transfer or divulge them to third parties, either in full or in part, in whatever form, directly or indirectly, except within the framework of the evaluation of the Applications. In that case, the FWO undertakes to have that third party endorse the same confidentiality obligation as that contained in this article.

(2) An Applicant can, however, expressly indicate in the Application that he/she is willing to waive the confidentiality clause § 25 (1), thereby authorising the FWO and representatives of the VSC management team to use the Application in its entirety as an example for other researchers.

(3) The FWO, KU Leuven and UGent shall, in accordance with the due diligence principle, take all reasonable measures to ensure that the data stored or generated on the Tier-1 Compute, Tier-1 Cloud or Tier-1 Data components within the framework of the Application are not disclosed, transferred or divulged to third parties, either in full or in part, in whatever form, directly or indirectly.

(4) The same confidentiality provisions shall apply to Starting Grant and Collaborative Grant applications.

§ 26 – Data Retention

The FWO, KU Leuven and UGent reserve the right to delete the storage systems and file systems granted to the Applicant on the Tier-1 Compute, Tier-1 Cloud or Tier-1 Data components without backup, once the period granted to the Applicant through a granted Application has expired.

The FWO, KU Leuven and UGent can in no case be held liable for data loss on the Tier-1 Compute, Tier-1 Cloud or Tier-1 Data components for any technical reason or any technical failure specific to these Tier-1 components.

§ 27 – Mention

In the event of publication of the results of research for which the Tier-1 supercomputing platform has been used, the Flemish Supercomputer Centre (VSC) and the FWO shall be mentioned as follows:

De infrastructuur en dienstverlening gebruikt in dit werk werd voorzien door het VSC (Vlaams Supercomputer Centrum), gefinancierd door het FWO en de Vlaamse overheid.

The resources and services used in this work were provided by the VSC (Flemish Supercomputer Centre), funded by the Research Foundation - Flanders (FWO) and the Flemish Government.

PART VI. PUBLICATION, EVALUATION AND AMENDMENT

§ 28 – Publication

These regulations shall be published simultaneously on the websites of the Flemish Supercomputer Centre and the FWO.

§ 29 – Evaluation

Each year, no later than after the decision on the applications submitted in connection with the third cut-off date, the Evaluation Committee shall evaluate the application of the regulations and report its findings to the Board of Trustees of the FWO, formulating a number of amendment proposals where necessary.

§ 30 – Amendment

The Board of Trustees of the FWO can amend the regulations, the amended regulations shall take effect at least 4 weeks before the next cut-off date.

Attachments:

- Enclosure 1 – Standard application form compute
- Enclosure 2 – Standard application form cloud
- Enclosure 3 – Standard application form data
- Enclosure 4 – Starting Grant application form compute
- Enclosure 5 – Starting Grant application form cloud
- Enclosure 6 – Starting Grant application form data
- Enclosure 7 – Collaborative Grant application form