



EGI VO

SERVICE LEVEL AGREEMENT

| | |
|--------------------------------------|---------------------------------------------------------------------------------------------|
| Customer | D4Science/d4Science.org |
| Service provider | EGI Foundation |
| First day of service delivery | 01/09/2017 |
| Last day of service delivery | 31/12/2023 |
| Status | FINAL |
| Agreement finalization date | 07/12/2016 |
| SLA link | https://documents.egi.eu/document/2875 |
| OLA Link | https://documents.egi.eu/document/2875 |



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DOCUMENT LOG

| Issue | Date | Comment | Author |
|--------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| FINAL | 07/12/2016 | SLA signed with the customer | Giuseppe La Rocca Małgorzata Krakowian |
| v2 | 29/03/2018 | Extended the agreement with the customer till 12/2018 | Giuseppe La Rocca |
| v3 | 19/12/2018 | Extended the agreement with the customer till 12/2019 | Giuseppe La Rocca |
| v4 | 22/11/2019 | Extended the agreement with the customer till 12/2020 | Giuseppe La Rocca |
| v5 | 15/04/2020 | Extended the agreement with additional resources provided by IFCA-LCG2 | Giuseppe La Rocca |
| v6 | 17/09/2020 | Added the agreement for notebooks service including also the operation of Galaxy Services. Extended the agreement with IFCA-LCG2. Extended the SLA till the end of SoBigData++ Project | Enol Fernández, Andrea Manzi |

TERMINOLOGY

The EGI glossary of terms is available at: <https://wiki.egi.eu/wiki/Glossary>

For the purpose of this Agreement, the following terms and definitions apply. The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119.

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The present Service Level Agreement ("the Agreement") is made between **EGI Foundation (the Service provider)** and **D4Science Infrastructure (the Customer)** to define the provision and support of the provided services as described hereafter. Representatives and contact information are defined in Section 6.

The communities addressed by the D4Science Infrastructure are the ones served by a number of initiatives and projects powered by it such as iMarine, SoBigData, BlueBRIDGE, Parthenos, EGIP, Descramble and others. They are interested in performing data analysis on biological, social, geothermal, satellite, and environmental data. To this aim, D4Science uses two types of services that have been properly packaged and made available as Virtual Appliances.

The first service is composed of a distributed set of web services embedding computational processes for discovering patterns in large data sets involving methods at the intersection of artificial intelligence, machine learning, and statistics (DataMiner Worker).

The second service exploits a set of "lightweight" workers (Generic Worker) that are used for computations, in which one computation is divided into several parts that are low-resources demanding. Generic Workers employ one core for service operations and another one for processes executions. Applications include for example the combination of geographical and biological information to produce projections of environmental scenarios, assessing fisheries activities in the global oceans, predicting the impact of climate changes on biodiversity, preventing the spread of invasive species, identifying geographical and ecological aspects of disease transmission, helping in conservation planning, and guiding field surveys.

The Customer is a consortium represented by the **CNR Istituto di Scienza e Tecnologie dell' Informazione A. Faedo**.

This Agreement is valid from **01/09/2016** to **31/12/2023**.

The Agreement was initially discussed and approved by the Customer and the Provider on **07/12/2016**. A revised version of the Agreement has been discussed and approved on 15/10/2020 to include the Notebooks components and extend the SLA duration.

1 The Services

All services provided by EGI are listed under: <https://www.egi.eu/services/>

Possible allocation types:

- Pledged - Resources are exclusively reserved to the Community and the job will be executed immediately after submission.
- Opportunistic - Resources are not exclusively allocated, but subject to local availability.
- Time allocation - Resources are available in fair share-like mode for a fixed time period.

Possible payment mode offer:



- Sponsored - Model where the customer uses services that are funded, or co-funded by the European Commission or government grants.
- Pay-per-use - Model where customers directly pay for the service used.

The Services are defined by the following properties:

Cloud Compute (category: Compute)

Description: <https://www.egi.eu/services/cloud-compute/>

- Resource Centre: **CESGA (Country: Spain)**
 - Cloud Compute
 - Number of virtual CPU cores: 128
 - No. 6 VMs with 8 vCPU cores
 - No. 2 VMs with 16 vCPU cores
 - No. 24 VMs with 2 vCPU cores
 - Memory per core (GB): 352 GB
 - No. 6 VMs with 16GB of RAM
 - No. 2 VMs with 32GB of RAM
 - No. 24 VMs with 8GB of RAM
 - Local disk (GB): 20GB
 - Public IP addresses: up to 16, available with opportunistic access
 - Payment mode offer: Sponsored
 - Other technical requirements: 2 sockets AMD Opteron(tm) Processor 6174 and servers with 2 sockets Intel(R) Xeon(R) CPU E5-2650 v3 @ 2.30GHz.
 - Duration: 01/09/2016 – 31/12/2020
 - Allocation type: Opportunistic
 - Provider AUP link: <https://documents.egi.eu/document/2623>
 - Supported VOs: d4science.org
 - VO ID card: <https://operations-portal.in2p3.fr/vo/view/voname/d4science.org>
 - VO-wide list: <https://vmcaster.appdb.egi.eu/store/vo/d4science.org/image.list>
 - GOCDB endpoint urls: fedcloud-osservices.egi.cesga.es (org.openstack.nova)
- Resource Centre: **IFCA-LCG2 (Country: Spain)**
 - Cloud Compute
 - Number of virtual CPU cores: 16
 - Memory per core (GB): 32 GB
 - Local disk (GB): 250GB in total
 - Public IP addresses:
 - Payment mode offer: Sponsored
 - Other technical requirements:
 - Duration: 01/04/2020 – 31/03/2021

- Allocation type: Opportunistic
 - Provider AUP link: <https://documents.egi.eu/document/2623>
 - Supported VOs: d4science.org
 - VO ID card: <https://operations-portal.in2p3.fr/vo/view/voname/d4science.org>
 - VO-wide list: <https://vmcaster.appdb.egi.eu/store/vo/d4science.org/image.list>
 - GOCDB endpoint urls: api.cloud.ifca.es (org.openstack.nova)
- Resource Centre: **INFN-CATANIA-STACK (Country: Italy)**
 - Cloud Compute:
 - Number of virtual CPU cores: 60
 - Memory per core (GB): 400 GB in total
 - Local disk (GB): 20
 - Public IP addresses: yes
 - Payment mode offer: Sponsored
 - Other technical requirements:
 - AMD Opteron(TM) Processor 6276 with 16 cores in 8 physical modules @ 2.30 Ghz.
 - AMD Opteron(TM) Processors 6212, socket G34 @ 1.4 Ghz.
 - Duration: 01/01/2018 – 31/12/2020
 - Allocation type: Opportunistic
 - Provider AUP link: <https://documents.egi.eu/document/2623>
 - Supported VOs: d4science.org
 - VO ID card: <https://operations-portal.in2p3.fr/vo/view/voname/d4science.org>
 - VO-wide list: <https://vmcaster.appdb.egi.eu/store/vo/d4science.org/image.list>
 - GOCDB endpoint urls: stack-server.ct.infn.it (org.openstack.nova)

Online Storage (category: Storage)

Description: <https://www.egi.eu/services/online-storage/>

- Resource Center: **CESGA (Country: Spain)**
 - Online Storage
 - Guaranteed storage capacity [TB]:
 - Opportunistic storage capacity [TB]: 2
 - No. 6 VMs with 100GB of storage
 - No. 2 VMs with 100GB of storage
 - No. 24 VMs with 50GB of storage
 - Standard interfaces supported¹: POSIX

¹ CDMI, POSIX, SWIFT, etc.

- Storage technology²:
- Other technical requirements:
- Duration: 01/09/2016 – 31/12/2020
- Payment mode offer: Sponsored
- Allocation type: Pledged
- Provider AUP link: <https://documents.egi.eu/document/2623>
- Supported VOs: d4science.org
- VO ID card: <https://operations-portal.in2p3.fr/vo/view/voname/d4science.org>
- GOCDB endpoint URLs: N/A

Notebooks (category: Applications)

Description: <https://www.egi.eu/services/notebooks/>

- Component: **AGINFRA+ / INFN-CATANIA-STACK**
 - Notebooks
 - Number of users: 4 concurrent users at 4GB RAM
 - Cores per user: 1/4/4
 - Memory per user (GB): 1/4/8
 - Storage per user (GB): 10GB
 - Allocation type: pledged
 - Payment mode offer: Sponsored
 - Other technical requirements:
 - integration with D4Science authentication and workspace
 - Installation and operation of Galaxy Services dedicated to the AgilInfra+ project, hosted on the same resources
 - Duration: 01/09/2020 – 31/12/2020
 - GOCDB endpoint urls: aginfra-notebooks.fedcloud-tf.fedcloud.eu (eu.egi.notebooks.jupyterhub)
- Component: **D4Science**
 - Notebooks
 - Number of users: 80 concurrent users at 8 GB RAM
 - Cores per user: 4/8
 - Memory per user (GB): 8/16/32
 - Storage per user (GB): 10GB
 - Allocation type: pledged
 - Payment mode offer: Sponsored
 - Other technical requirements:

² DPM, dCache, STORM, etc.

- Integration with D4Science authentication and workspace
- Installation and operation of Galaxy Services dedicated to the Sobigdata++ project, hosted on the same resources
- Duration: 01/09/2020 – 31/12/2023
- o GOCDB endpoint urls: d4science-notebooks.fedcloud-tf.fedcloud.eu (eu.egi.notebooks.jupyterhub)

The Services are supported by additional services:

- Accounting³
- Service Monitoring⁴ (operational only)

Note: Please note that the following services are not provided by EGI Foundation:

- Monitoring of the D4Science.org VO
- Monitoring of services provided by the Customer on agreed resources

³ <http://accounting.egi.eu/>

⁴ <http://argo.egi.eu/>

2 Service hours and exceptions

The Services operate during the following hours: twenty-four (24) hours a day, seven (7) days a week, three hundred sixty-five (365) days a year.

The following exceptions apply:

- Planned maintenance windows or service interruptions (“scheduled downtimes”⁵) will be notified via email in a timely manner i.e. 24 hours before the start of the outage⁶.
- Downtime periods exceeding 24 hours need justification.

3 Support

Support is provided via EGI Service Desk⁷. Access requires a valid X.509 or the login via a EGI SSO account⁸. Support is available between:

- Monday to Friday.
- From 9:00 to 17:00 in the time zone of the relevant Resource Centres.

Service times always apply with the exception of public holidays in the country of the supporting Resource Centres.

3.1 Incident handling

Incidents will be handled according to the Quality of Support level that is estimated according to the impact of the outage or service quality degradation.

The Quality of Support in this Agreement has level: **Medium**⁹

| Incident priority | Response time |
|-------------------|----------------|
| Less urgent | 5 working days |
| Urgent | 5 working days |
| Very Urgent, | 1 working day |
| Top Priority | 1 working day |

so the incidents, based on their priority will be responded to with the following response times:

| Incident priority ¹⁰ | Response time | Comment |
|---------------------------------|----------------|-------------------------------------------------|
| Less urgent | 5 working days | wishes and enhancements that are "nice to have" |

⁵ https://wiki.egi.eu/wiki/GOCDB/Input_System_User_Documentation#Downtimes

⁶ <http://goc.egi.eu/>

⁷ <http://helpdesk.egi.eu/>

⁸ <https://www.egi.eu/sso/>

⁹ https://wiki.egi.eu/wiki/FAQ_GGUS-QoS-Levels

¹⁰ https://wiki.egi.eu/wiki/FAQ_GGUS-Ticket-Priority

| | | |
|--------------|----------------|----------------------------------------------------------------|
| Urgent | 5 working days | service degraded; work-around available |
| Very Urgent | 1 working day | service degraded; no work-around available |
| Top Priority | 1 working day | service interrupted; needs to be addressed as soon as possible |

Table 1. Response times to incidents according to the incident priority of “Medium” services

3.2 Service requests

In addition to resolving incidents, standard service requests (https://wiki.egi.eu/wiki/EGI_Service_requests) will be fulfilled through the defined support channels in the same way as incidents. Service requests are classified as “Less urgent”.

4 Service level targets

Monthly Availability

- Defined as the ability of a service to fulfil its intended function at a specific time or over a calendar month.
- Minimum (as an average percentage per month):
 - Cloud Compute: 90%
 - CESGA: 90%
 - IFCA-LCG2: 90%
 - INFN-CATANIA-STACK: 90%
 - Online Storage: 90%
 - CESGA: 90%
 - Notebooks : 90%
 - AGINFRA+ / INFN-CATANIA-STACK: 90%
 - D4Science : 90%

Monthly Reliability

- Defined as the ability of a service to fulfil its intended function at a specific time or over a calendar month, excluding scheduled maintenance periods.
- Minimum (as an average percentage per month):
 - Cloud Compute: 95%
 - CESGA: 95%
 - IFCA-LCG2: 95%
 - INFN-CATANIA-STACK: 95%
 - Online Storage: 95%

- CESGA: 95%
- Notebooks: 96,5%
 - AGINFRA+ / INFN-CATANIA-STACK: 95%
 - D4Science : 98%

Quality of Support level

- Medium (Section 3)

5 Limitations and constraints

The Services provisioning is subject to the following limitations and constraints.

- Support is provided in English.
- Availability and Reliability calculations are based on the Service Monitoring operational results.
- Failures in VO monitoring are not considered as SLA violations.
- Downtimes needed to ensure the security of the Service issues are not considered Agreement violations.
- Failures of resource providers not being part of EGI production infrastructure are not considered as Agreement violations.
- Force Majeure. A party shall not be liable for any failure or delay in the performance of this Agreement for the period that such failure or delay is due to causes beyond its reasonable control. Means any
 - fire, flood, earthquake or natural phenomena,
 - war, embargo, riot, civil disorder, rebellion, revolution which is beyond the Provider's control, or any other causes beyond the Provider's control.

6 Communication, reporting and escalation

6.1 General communication

The following contacts will be generally used for communications related to the service in the scope of this Agreement.

| | |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Customer contact | Pasquale Pagano Pasquale.pagano@d4science.org D4Science Technical Director |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------|



| | |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| EGI Foundation contact | Małgorzata Krakowian sla@mailman.egi.eu SLA Coordinator at EGI Foundation |
| Service Support contact | See Section 3 |

6.2 Regular reporting

As part of the fulfilment of this Agreement and provisioning of the service, the following reports will be provided:

| Report title | Contents | Frequency | Produced by | Delivery |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-------------|----------------------------|
| Services Performance Report | The document provides the overall assessment of service performance (per month) and SLA target performance achieved during the last 6 months | Every six months | Provider | Email to the Customer |
| Scientific Publications report | The document provides a list of scientific publications benefiting from the Service. | Yearly and with the Agreement ending. | Customer | During satisfaction review |
| Platform Service report | The document provides usage records (resources used, users) of the Customer service during the last 6 months | Yearly and with the Agreement ending. | Customer | During satisfaction review |

All reports shall follow predefined templates¹¹.

6.3 Violations

The Provider commits to inform the Customer, if this Agreement is violated or violation is anticipated. The following rules are agreed for communication in the event of violation:

- In case of violations of the Services targets for **four months** or **two consecutive months**, the Provider will provide justifications to the Customer.
- In case of unavailability of the Resource Provider to provide the service, the Provider will search for a new Resource Provider and support migration.
- The Customer will notify the supporting Resource Centres in case of suspected violation via the EGI Service Desk (Section 3). The case will be analysed to identify the cause and verify the violation.

¹¹ <https://documents.egi.eu/document/2748>

6.4 Escalation and complaints

For escalation and complaints (A customer complaint is a customer's expression of dissatisfaction with an EGI service, either orally or in writing), the Provider contact (section 6.1) point shall be used, and the following rules apply.

- In case of repeated violation of the Services targets for **four months** or **two consecutive months**, a review of the Agreement will take place involving the parties of the Agreement.
- Complaints or concerns about the Services provided should be directed to the Provider contact who will promptly address these concerns. Should the Customer still feel dissatisfied, about either the result of the response or the behaviour of the supporting Resource Centres, complaints@egi.eu should be informed.

7 Information security and data protection

The following rules for information security and data protection related to the Service apply.

- Assertion of absolute security in IT systems is impossible. The Provider is making every effort to maximize security level of users' data and minimize possible harm in the event of an incident.
- The Provider will define and abide by an information security and data protection policy related to the service being provided.
- The parties of the Agreement will meet all requirements of any relevant policy or procedure of the Provider¹² and will comply with the applicable national legislation.

8 Responsibilities

8.1 Of the Provider

Additional responsibilities of the Provider are as follows.

- The Provider adheres to all applicable operational and security policies and procedures¹³ and to other policy documents referenced therein.
- The Provider allows monitoring of the Service in order to measure the fulfilment of the agreed service level targets.

¹² https://www.egi.eu/about/policy/policies_procedures.html

¹³ https://www.egi.eu/about/policy/policies_procedures.html

- The Provider retains the right to introduce changes in how the Service is provided, in which case the Provider will promptly inform the Customer and update the Agreement accordingly.

8.2 Of the Customer

The responsibilities of the Customer are:

- **The customer facilitates the use of EGI acknowledgement by communicating to users the need of adding the following sentence in acknowledgement: “This work benefited from services and resources provided by the EGI federation, EOSC-hub and SoBigData++ with the dedicated support of D4science.org, CESGA, IFCA-LCG2 and INFN-CATANIA-STACK”.**
- The Customer will provide during Agreement review (yearly) list of scientific publications benefiting from the Service.
- The Customer must not share access credentials with anyone else.
- The data stored in the system by the Customer must not cause any legal violation due to the content type (such as copyright infringement, dual use, illegal material).
- The use must be consistent with the Acceptable Use Policy¹⁴ of the Service.
- The Customer will notify the Provider in case the actual amount of the Service used results in being under- or over-estimated. The Customer will request an update of the Agreement to ensure optimal usage of the Service.
- The Customer will create one or more Virtual Organizations (VOs) to define the group of users entitled to access the Service. Information about the VO will be regularly updated in EGI Operations Portal¹⁵.
- The Customer must request EGI Service Desk support¹⁶ to enable assigning tickets with appropriate VO name.
- When applicable, the Customer is responsible for ensuring that the Virtual Machine images endorsed and listed in the AppDB¹⁷ VO image list are properly maintained and updated.

9 Review, extensions and termination

The Services performance will be reviewed against the defined Service level targets according to Section 4. The Agreement will be annually reviewed until expiration.

¹⁴ <https://documents.egi.eu/document/74>

¹⁵ <http://operations-portal.egi.eu/>

¹⁶ https://wiki.egi.eu/wiki/FAQ_GGUS-New-Support-Unit

¹⁷ <https://appdb.egi.eu/>

If the Customer wishes to extend the duration after the Agreement termination date, an extension will be negotiated with the Provider.

The Provider retains the right to introduce changes in the Service, in which case the Customer retains the right of terminating the Agreement.

The Agreement can be terminated at any time upon agreement of the parties. Amendments, comments and suggestions must be addressed to the Provider and the Customer according to Section 6.