

## **Service Level Agreement Research Computing Environment and Managed Server Hosting**

Institute for Quantitative Social Science (IQSS) and  
Harvard-MIT Data Center (HMDC)  
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### **1. Overview**

This Service Level Agreement [SLA] defines the baseline services offered by IQSS/HMDC for the Research Computing Environment (RCE) and Managed Server Hosting (MSH), including eligibility for, and quality and limitations of, the services.

The RCE offers both a centralized place in which to store data and run analysis, and a persistent desktop environment that is accessible through a secure, remote access protocol from any computer with an Internet connection. Managed Server Hosting provides a secure server environment which includes physical facility, power, cooling, system and network maintenance, monitoring and alerting and remote administration etc. according to IT best practices. The RCE and Managed Server Hosting services are collectively referred to as the [product].

A [product] agreement between IQSS/HMDC and any user may consist of this agreement and an additional custom SLA; any terms in this agreement may be superseded by the custom SLA.

#### **1.1 Eligibility**

IQSS/HMDC continually extends our infrastructure to provide resources to support social science research throughout the Harvard community. At this time our main supported groups also include FAS social science programs, courses and departments and Harvard's other schools in social sciences.

#### **1.2 Cost of Service**

RCE accounts are free to all Harvard affiliates for up to 50 GB of backed up or non-backed up data storage. For additional storage space, special software licenses, dedicated servers or job priority, a special fee is assessed as follows:

- Storage costs - \$3 per GB per year of backed up data beyond the initial 50 GB of backed up storage, or \$1 per GB per year of non-backed up storage beyond the initial 50 GB of non-backed up storage.
- License costs - IQSS/HMDC might ask the user to sponsor additional software licenses requested if that software is not commonly used or has a high cost.

- Hardware costs - IQSS/HMDC can provide dedicated resources to a user or set of users for a fee based on hardware purchase and maintenance. RCE staff reserve the right to select appropriate hardware matching the RCE server room configuration and the research needs.

### **1.3 Length of Agreement**

This agreement is valid for the period of one year from the date of issuance.

## **2. Services Provided**

The RCE is available 24 hours a day, 7 days a week, 365 days a year (except as noted below). The infrastructure design is optimized to support social science research.

### **2.1 Environment Support**

The RCE comprises a computing environment on which users can submit large or long jobs either to a set of interactive computing servers, or to a set of batch servers.

Interactive computing service offers:

- Over 200 processor cores
- Up to 250 gigabytes (GB) of RAM per job
- Initial time limit per job of 120 hours

Note that the time limit per job can be extended while the job is still running. If you think your job will take longer than 120 hours, send a request for a time extension as described at [http://support.hmdc.harvard.edu/kb-1161/extending\\_rce\\_powered\\_application](http://support.hmdc.harvard.edu/kb-1161/extending_rce_powered_application) or contact [support@help.hmdc.harvard.edu](mailto:support@help.hmdc.harvard.edu). Most extensions are handled automatically and immediately.

Batch service offers:

- Approximately 300 processor cores (slots as defined in the Resource Manager documentation at <http://research.cs.wisc.edu/htcondor/>)
- 4 GB of RAM per job

Job scheduling policies for batch jobs are as follows:

- If nodes are free, users who have used fewer resources in the recent time frame are prioritized over those who have actively used the resources. This is described as *fair use*.
- If no nodes are free, preemption can occur, but only when priorities and run time permit. For example, if one job has a lower priority than another and has been

running for a moderate amount of time (more than one hour but less than four hours), then the lower priority job might be terminated to free resources for use by the higher-priority job.

- Administrators reserve the right to terminate any job without warning in order to maintain system stability. Users receive notification if their jobs are terminated.

Resource availability for both interactive and batch computing is dependent upon current utilization, as described at <http://projects.iq.harvard.edu/rce/viewing-cluster-status>.

## **2.2 Software Support**

The RCE desktop provides a large number of applications and utilities for different purposes, such as email clients, text editors, and, most importantly, statistical packages. The applications and their supported versions could vary slightly with each RCE release. The most current list of applications is available in the Release Notes published with every release.

The software support offered through RCE includes:

**Fully Supported:** IQSS/HMDC IT Operations will fully support (support includes installation, maintenance and proper execution) the following types of software:

- Software that is standard with our Enterprise Linux distribution.
- Software purchased by IQSS/HMDC from third party vendors that include a support contract.
- Software developed in-house by IQSS/HMDC Staff

**Partially Supported:** IQSS/HMDC IT Operations will provide best-effort to support the following types of software:

- Software purchased by IQSS/HMDC with no support contract
- Software from 3rd party developers or software repositories

**Not supported:** IQSS/HMDC IT Operations will not support the following types of software:

- Software installed by users
- Software not defined as supported in the preceding sections.

**Note:** Users should take advantage of IQSS/HMDC Research Technology Services for assistance with appropriate use of software applications and tools needed to perform their research. Users should contact IQSS/HMDC Research Technology Services at the email [support@help.hmdc.harvard.edu](mailto:support@help.hmdc.harvard.edu). Also, the IT Administration Team handles requests for additional applications on a case-by-case basis. To submit a request, send an email detailing the business need to [support@help.hmdc.harvard.edu](mailto:support@help.hmdc.harvard.edu).

## 3. Quality of Service

Support for RCE Services as described above are provided Monday through Friday, 9:00 AM to 5:00 PM, except university holidays.

### 3.1 Maintenance

IQSS/HMDC will schedule off-hours maintenance windows at regular intervals and publish these maintenance windows through the notification channels described at [http://support.hmdc.harvard.edu/kb-323/outage\\_notification](http://support.hmdc.harvard.edu/kb-323/outage_notification).

IQSS/HMDC makes every effort to avoid unscheduled downtimes, but in the event that they do occur, users will be warned when possible or notified afterwards.

### 3.2 Back Ups

Except where otherwise stated, all supported storage facilities are backed up by default on a regular schedule and stored to tape nightly. Generally, back-ups are retained for 3 months.

In case of lost or deleted files, IQSS/HMDC makes every effort to restore the files but cannot guarantee the restoration of files unless they were present at the time of scheduled backup. The highest chance of success for recovering a file occurs if it exists on disk for 24 hours and IQSS/HMDC is notified *as soon as possible* when corruption or deletion occurs.

Please refer to the following URL for the most up-to-date backup information: <http://projects.iq.harvard.edu/user-services/backup-policies>.

### 3.3 Response Time

IQSS/HMDC's response times depend on the severity of the issue and the time of reporting. During business hours, response times are designated through a three-tier system depending on the product or service arranged:

- Tier 1 support - IQSS/HMDC will have a staff member assigned to a task within one hour after receiving a critical service outage notification. Alerts may be provided by our automated monitoring system or via support requests in the RT tracking system. Products assigned Tier 1 support are MSH for critical issues only.
- Tier 2 support - IQSS/HMDC will have a staff member assigned to a task within one business day after receiving a support request in the RT tracking system. Products assigned Tier 2 support are MSH for non-critical issues, and RCE.

Outside business hours, IQSS/HMDC will provide a best-effort response to issues. Issues that are not deemed to be mission-critical will be queued for service during normal business hours in accordance with the tier support assigned to the specific product or

service. In the event that the university declares a weather emergency condition, IQSS/HMDC will make a best effort to adhere to the stated response times.

### **3.4 Notifications**

IQSS/HMDC will provide notification of scheduled and unscheduled downtime as described at [http://support.hmdc.harvard.edu/kb-323/outage\\_notification](http://support.hmdc.harvard.edu/kb-323/outage_notification).

### **3.5 Issues and Requests**

The most effective way to communicate with IQSS/HMDC is to use our Request Tracking (RT) system, by sending an email to [support@help.hmdc.harvard.edu](mailto:support@help.hmdc.harvard.edu). Your email will be received by all the members of our User Support team, and you will be served by the first available staff member. Your question/request, our initial response and any on-going communications will be recorded in the RT database so that other support team members can follow up and help you if your original contact becomes unavailable at any point.

You also can reach IQSS/HMDC support by phone at (617) 495-4734, or in person in K027, CGIS Knafel Building, 1737 Cambridge Street, Harvard University Cambridge, MA 02138.

For more information, please visit our website at <http://projects.iq.harvard.edu/rce/>.

## **4. Services Not Provided**

The following services are not part of this agreement:

- Installation of user-specific software.
- Alternative Operating Systems.

## **5. User Responsibilities**

Clients are responsible for ensuring that their department complies with all policies as defined in this section, and with those policies established by FAS and the University.

### **5.1 Usage Policies**

Usage policies govern who may use the system, what information may be stored, and what uses of the system are permitted. All users must comply with appropriate IQSS/HMDC usage policies as defined at <http://projects.iq.harvard.edu/user-services/hmdc-usage-policies>, including (1) storage of confidential information and classified information; (2) privacy; (3) proper use of Harvard resources; and (4) dissemination of copyrighted information.

Information related to individual RCE network activities and resource usage will be collected solely for the purpose of security and compliance and retained for less than twelve months. Access to these logs is restricted to only authorized IT Administrative Staff. No confidential information related to the individual will be collected except as needed to maintain account contact information.

## **5.2 Security Policies**

Security policies enforce Harvard University, state and federal guidelines to be followed to ensure the availability of IQSS/HMDC resources while protecting the privacy and integrity of confidential and classified information.

All users including members, non-members and vendors of the Harvard community must comply with Harvard computing policies including the Harvard Enterprise Information Security Policy (HEISP) defined at <http://www.security.harvard.edu/enterprise-security-policy> and the Harvard Research Data Security Policy (HRDSP) defined at <http://vpr.harvard.edu/content/data-security-policy> regarding access, storage and transmission of High Risk Confidential Information (HRCI) and Harvard Confidential Information (HCI).

HRCI must not be stored or processed on IQSS/HMDC systems without prior written approval from IQSS/HMDC. Harvard Confidential Information (HCI) must be stored only in authorized locations on HMDC file servers. HCI may be processed in the RCE. HCI may not be stored on local disks on HCI-managed servers or processed by other IQSS/HMDC services without prior written approval.

Storage and transmission of HRCI or HCI must always be protected by encryption. HRCI or HCI must be transferred only using secure file transfer mechanisms. Use of common systems including normal email for transfer of confidential information must strictly be avoided.

Any possible breach of HRCI or HCI must be promptly reported to IQSS/HMDC where upon it would be escalated to the OGC, CISO, the University CIO and the IRB.

For any questions and assistance regarding the use of MSH and RCE facilities, IQSS/HMDC resources and their proper usage per the usage and security policies, please contact us at [support@help.hmdc.harvard.edu](mailto:support@help.hmdc.harvard.edu).

## **5.3 Licenses**

Clients are responsible for abiding by licenses for any and all commercial software applications used on a system supported by IQSS/HMDC.

## **5.4 External Resources**

The user is responsible for the cost of hardware (including consumables), software, and upgrade costs, including network or Out of Band Management services. Maintenance of non-supported operating systems and applications, including all vendor-supplied security and bug fix patches are the responsibility of the user.