



COLUMBIA UNIVERSITY

DEPARTMENT OF SYSTEMS BIOLOGY
INFORMATION TECHNOLOGY (DSBIT)
1130 St. Nicholas Ave, New York, NY 10032

Memorandum of Understanding and Service Level Agreement (MoU-SLA)

Signed between **Department of Systems Biology IT Group**, herein called **DSBIT**, the IT Service Provider, and the **CLIENT** group detailed below, the IT Service Purchaser.

DSBIT is one of the Certified Information Technology Groups (CITG) as per CUIMC-CITG charter: <https://www.it.cuimc.columbia.edu/about-us/certified-it-groups-citgs> that offers variety of IT services including Desktop Support, High Performance Computing (HPC), Big Data Storage, Application Servers, Data Center co-location/hosting services and more.

In compliance with the University IT Policies published at: <https://universitypolicies.columbia.edu/content/information-technology-cuit-policies> this MoU-SLA defines the scope of IT services provided by DSBIT and sets the level of expectations of the CLIENT, and responsibilities of both parties.

Our signatures below is the affirmation of our agreement to the attached General Terms & Conditions, and those specific to the applicable services (Desktop, Storage, HPC, Hosting) purchased by the CLIENT.

For DSBIT,

For CLIENT,

Vinod Gupta

Name: Vinod Gupta

Title: Director of IT Services

Email: vg2488@cumc.columbia.edu

Name: _____

Title: _____

Email: _____

Lab Manager: _____

Fin. Manager/DA: _____

Chart String: _____

Date: _____

(Assigned by DSBIT)

Group Name <PIUNI_gp>: _____

Billing Account#: _____

General Terms & Conditions

1. DSBIT and CLIENT will maintain courtesy, mutual respect and decorum as per University standards.
2. DSBIT-managed systems (HPC cluster, Data Storage, Web, Database, Virtualization etc.) are subject to the availability of services like utilities, UPS, Air Conditioning, Networking etc. maintained by equipment vendors, Facilities, Central IT, and Public Safety. DSBIT will make every effort to give advance notice to affected CLIENTs for scheduled/unscheduled interruptions.
3. CLIENT understands that every equipment is subject to unexpected failures and service delays beyond our control. DSBIT will not be held liable for any direct or consequential losses or damages resulting from such failures or delays.
4. DSBIT publishes an up to date information about its infrastructure, service catalog/pricing, staff and contact details at its web site <https://systemsbiology.columbia.edu/dsbit> CLIENT is deemed to have taken note of this information.
5. University takes information security very seriously. Everyone must comply with University policy: <https://universitypolicies.columbia.edu/content/information-security-charter>. CLIENTs own their data and know which files contain PHI/PII. CLIENT will save such data securely and only share with authorized people. Such data can only be saved on Information Security Office (ISO) approved devices, like servers managed by a CITG, or Microsoft OneDrive. If a device carrying PHI/PII is ever lost, anywhere, it must be reported to DSBIT and ISO, immediately.
6. CLIENT understands that all computers, networked devices and the contents served from leased servers must comply with University policies published at the following web sites and that non-compliant CLIENTs are subject to restrictions and penalties as per University policies.
7. CLIENT understands that all service requests must be submitted to dsbit queue on University-wide ServiceNow Help Desk <https://cumcprod.service-now.com> An email plug allows a quick submission of a help ticket by writing an email to dsbit_help@cumc.columbia.edu with a unique & meaningful subject line that binds all communication thread to the same help ticket. Updates to the tickets may be made via email replies. While doing so, much of the old text will be removed, to keep the ticket length adding up, making it practically unusable.
8. DSBIT will serve the requests in order they were submitted in the ServiceNow. A typical resolution time is 4-72 hours. A \$50/hour surcharge will apply to higher priority requests.
9. CLIENT understands that DSBIT-managed systems run in a 24x7 mode, however, the IT staff follows the normal business hours i.e. Monday-Friday, 9AM-5PM, excluding University holidays.
10. CLIENT will be responsible for any commercial software fees, hardware purchase/lease involved.
11. DSBIT will email invoices to PI and/or designated Lab Manager at the end of each billing cycle. CLIENT will pay all bills within 2 weeks of receiving the invoice. DSBIT reserves rights to terminate accounts and delete their data, if the invoices are not fully paid for two consecutive billing cycles.
12. Agreement will hold for a full Fiscal Year (July-June), unless a different period is agreed in advance.
13. This agreement for all services, except Desktop Support, can be terminated by either party with a written notice of 3 months, on reasonable grounds.
14. Terms & conditions can be modified anytime with mutual agreement between both parties.
15. CLIENT understands that non-compliance of these rules may result in termination of his/her privileges to the Data Center, Hosting and other Services.
16. Disputes, if any, will be addressed to C2B2 Advisory Committee of whose decision will be final.

Terms & Conditions for Desktop Support Services

1. DSBIT supports only the University approved computers/printers. We can help configure and get quote the equipment. CLIENT department will be responsible to order the equipment.
2. DSBIT supports only those Desktops/laptops that are setup with University approved image that includes lots of campus-licensed software. Additional software can only be installed if approved by CISO. CLIENT will provide all the details required by CISO.
3. DSBIT supports only those mobile devices that have University mandated Mobile Device Management (MDM) profile.
4. Most CLIENTs do not require admin rights on Desktop/Laptop. Requests for should be submitted at <https://apps.c2b2.columbia.edu/local-admin-privilege> Such CLIENTs will own the responsibility of monitoring & installing CISO recommended security updates, and potential incompatibilities possibly breaking the installed Applications, and all other risks. Resetting of corrupted system may require reimaging and all data on local disk may be lost. CLIENT will pay the IT Labor (minimum one hour), and the Vendor fees, if any.
5. CLIENT-created/obtained applications hosted on DSBIT/Self-managed systems, must comply with CUIMC IT Security policies referred above.
6. CLIENT must use account on MC Domain and use encrypted channel for connecting to any device from outside Columbia Network and must not share passwords with others.
7. DSBIT provides "Full Desktop Support", which is limited to a reasonable set of devices (A Desktop, a Laptop, a Tablet, a Mobile phone, a printer, a Scanner). Additional devices will be charged extra for which individual quote can be provided.
8. CLIENT will ensure that all the covered devices must have valid manufacturer warranty. If a device needs to be sent to the vendor facility, CLIENT will make the shipping arrangements.
9. DSBIT will make sure that all the managed devices are kept up to date. CLIENT understands that such updates may reboot the device.
10. DSBIT will make a judgment if the problem of covered device can be fixed remotely or a tech visit is required. CLIENT will drop mobile devices (Laptops, Tablets, and Cellphones) at DSBIT service desk (contact information posted on DSBIT web site).
11. CLIENT will assist with simple actions like rebooting, plugging power, Ethernet/Video cables etc.
12. CLIENT will perform user serviceable tasks like changing consumables (ink/toner cartridges, paper)
13. CLIENT must reboot devices laptops/desktops at least once a month to make sure that all security patches are applied. Urgent security updates may be applied before monthly cycle.
14. DSBIT-managed Mac desktops/laptops are installed with JAMF management package. One of the restrictions JAMF includes exclusion of Apple Time Machine Backups. CLIENT must use SMB mounted Microsoft OneDrive or C2B2 Isilon NAS for your backups.
15. DSBIT does not support Lab/Office moves across buildings. Such moves must be handled by professional movers. DSBIT will only help with rare moves of one or a few computers/printers within the same building at prevailing IT labor rates.
16. DSBIT will provide the initial setup and support services under the normal conditions. CLIENT will cover insurance for accidental damages, re-setup labor costs resulting from abnormal conditions.
17. DSBIT offers only limited A/V support based on current IT labor rates. CLIENT department is responsible for buying the recommended A/V equipment and have annual maintenance contract with the vendors like RTS. To ensure that support tech is available, CLIENT will submit a request at least 24 hours in advance.

Terms & Conditions for Storage Service

- DSBIT offers the following tiers of enterprise grade storage. CLIENT must choose appropriate tier based on sharing level, features, performance, reliability and cost:

Tier	Main characteristics	Intended use
Home	Non-shared folder for HPC users	Fast i/o, backed up, 0.1TB/hpc_account free space
Data	Group-shared permanent folders	Fast i/o, backed up, for active docs, code, data
Scratch	Group-shared temporary folders	Fast i/o, not backed up , for HPC work only
Archive	Group-shared read-only folders	Slow i/o, not backed up , for large, inactive data

Home and Data tiers are snapshotted 4 times/day and every weekend. Snapshots use extra space, therefore, only 4 latest versions are retained, older snapshots are automatically purged.

CLIENT understands that Scratch and Archive tiers are neither snapshotted nor backed up.

- DSBIT will handoff Unix paths and SMB shares consistent with our system. CLIENT will have full control, as well as responsibility, of data management below the handoff point.
- Unix POSIX and SMB protocols have many incompatibilities. There is no standard for multi-protocol handling. Implementation is proprietary & imperfect; often breaks when data is copied across other systems, like Cloud. Segregating the storage areas into two protocols is **highly** recommended.
- CLIENT owns and know which components of data are sensitive (PHI, PII). CLIENT owns the responsibility of protecting their data as per University policy for sensitive data.
- Data volumes are rising exponentially. DSBIT manages Big Data service spanning thousands of TB. A minimum of 1 TB quota will be allocated on each of the above described 4 tiers. Quotas will only be increased/decreased in units of whole TB.
- DSBIT publishes annual rates & fees in service catalog on its website. The annual rates will be prorated to billing cycle based on the peak allocation of resource for that billing cycle.
- DSBIT assisted large data backups/restoration/moves requests, other than auto-backups, will be charged at prevailing IT Labor rates.
- Each file & folder adds significant space/CPU/IO overheads. It is lot more efficient to create few large files rather than lots of small files. File count beyond 100K/TB will be charged extra at \$100/year per 100K/TB slab to cover the overheads on the system.
- CLIENT will only use plain US English characters and compact paths, without spaces or special characters. The path length, including file names, must be less than 240 chars, else, some backup software, WebApps, Databases, or Cloud storage may fail to backup/recover your files.

Terms & Conditions for HPC Services

1. DSBIT will manage High Performance Computing (HPC) environment based on CPU/GPU, running CentOS Linux OS, and a SGE job scheduler, which may change per market conditions.
2. DSBIT will announce major changes in OS, Libs, Scheduler or other system software on dsb_hpc@lists.cumc.columbia.edu mailing list, and monthly Change Management group. A minimum of one month notice will be given before the change is rolled out.
3. DSBIT only conforms to system software released by upstream vendor. If additional software is needed, CLIENT will install it in their own group-shared folders.
4. DSBIT can only help fix system-level problems. CLIENTS are responsible for debugging their own code. Some assistance may be available and will be charged at prevailing IT Labor rates.
5. DSBIT will document HPC cluster architecture, usage notes and examples on a wiki server.
6. DSBIT will monitor resource utilization and will advise the CLIENT if we notice any abnormality in waiting time, job execution etc. CLIENT must heed to the advice of Systems Engineers if they notice CLIENT jobs are adversely affecting other CLIENTS.
7. CLIENT will not try to bypass normal access control or fair resource allocation.
8. DSBIT will produce monthly reports of accounting. CLIENT should be aware that accounting info is only updated when a running job completes, which may cross to the next billing cycle.

Terms & Conditions for Hosting Services

1. DSBIT maintains Hosting Services in the C2B2 Data Center at the C-Level of ICRC building. These services include Data Center Co-location for CLIENT hardware, leasing of DSBIT-owned hardware, DSBIT-managed servers (Web server, Database server, File server etc.)
2. DSBIT will maintain system-level security by installing OS & server level patching, digital certificates, load-balance, and firewall rules.
3. CLIENT must ensure that user-level applications and contents served/shared via these services comply with University's Information Security policies.
4. Entry to the Data Center is restricted and monitored by Public Safety and surveillance cameras. Only duly authorized CLIENT group members will be granted access to the Data Center.
5. CLIENT will submit scanned images of both sides of CUID cards of the people who need access to the Data Center. DSBIT will register CU ID cards of authorized CLIENT in Public Safety electronic door lock system.
6. CLIENT intending to go inside Data Center must notify DSBIT by email in advance, and they must log their entry/exit times at the entry logs.
7. CLIENT hosting their own servers in C2B2 co-location Data Center must comply with all the safety regulations and leave the space safe & tidy. All trash must be removed out of Data Center immediately.
8. CLIENT must not touch equipment other than their own while visiting C2B2 Data Center.
9. CLIENT will deploy equipment as per electrical specs of the racks leased by them. They must not modify or daisy-chain electrical outlets.
10. CLIENT must respect a fair use of CPU/Mem/Disk/IO on shared hosting servers and shared internal and external bandwidth.
11. CLIENT understands that non-compliance of these rules may result in termination of his/her privileges to the Data Center and Hosting Services.