SECTION A – GENERAL

A.1. Purpose
The purpose of this Service document is to identify technology services delivered by Information Systems (IS) to Syracuse University students, faculty and staff in support of enterprise information systems.

A.2. Objective
The objective of the document is to establish clear expectations of IS services, thereby improving communications between IS and its clients and providing a foundation to identify service levels and to measure attainment of those levels.

A.3. Document Custodian
June S. Winckelmann, Director of Information Systems, will maintain the IS Services document.
SECTION B – HARDWARE AND SOFTWARE SUPPORT

1. **Hardware**
CMS will provide and maintain mainframe hardware and a variety of servers to include test, quality assurance and production environments in support of SU enterprise information systems. A diagram of all production servers may be found in Appendix A, Administrative Production Server Environment. Test and quality assurance servers constitute a comparable number of servers.

2. **Hardware Environment**
All supported equipment will be housed in a physically secured and temperature controlled environment. All equipment connected to the uninterrupted power supply (UPS) will receive 40 minutes of electricity during power outages and all machines will be left running as long as it is feasible. However if it appears that a power outage will be longer than 20 minutes, we will start a shutdown process that starts with the non-essential equipment and ends with all devices being shutdown before the batteries lose power on the UPS.

3. **Infrastructure Software**
IS will provide and support the infrastructure software (e.g. operating system, backup software, databases) to support SU’s enterprise information systems. A list of all CMS supported infrastructure software can be found at: [http://cms.syr.edu/news/ewta](http://cms.syr.edu/news/ewta). This support includes the ongoing identification and installation of upgrades and patches to the software.

4. **Upgrades**
IS will upgrade or replace hardware or infrastructure software in order to maintain vendor support, system performance or compatibility with the overall CMS infrastructure. Upgrades or replacements will be coordinated with the associated client departments and will follow CMS change management procedures.
SECTION C – OPERATIONS SUPPORT

1. System Availability
For information regarding system alerts, emergency announcements about unplanned outages for CMS-supported computers, systems, networks, and Web sites, follow the links in the Alerts banner at the bottom of all main CMS web pages (http://cms.syr.edu) and subscribe to the notify_cms list service. Subscription information can be found at: http://cms.syr.edu/downtimes/. To report a problem, refer to Section D4 of this document.

Production Systems
System availability and scheduled system outages are posted at: http://cms.syr.edu/downtimes/

IS will respond immediately upon notification of production system outages during normal business hours, and within four hours upon notification outside of normal business hours.

Procedures for requesting extended hours of availability or support are outlined at: http://cms.syr.edu/downtimes/; click ‘requesting system availability’.

Development Systems
All client/server development systems are available during normal business hours, and are generally available outside of normal business hours, with the exception of planned system outages, which are posted at: http://cms.syr.edu/downtimes/.

IS will respond immediately upon notification of development system outages during normal business hours, and does not provide support outside of normal business hours.

Procedures for requesting extended hours of availability or support are outlined at: http://cms.syr.edu/downtimes/; click ‘requesting system availability’.

2. Application Security
Access to enterprise data on IS supported servers will be controlled with various mechanisms to include router security, firewall technology, wrapped services, and not excluding additional technologies as they become available or are implemented. IS will administer server security to assure that clients have access solely to files and objects pertaining to their system. IS technical staff will have access to these files and objects in order to perform appropriate maintenance and support tasks.

Application Access Management
Requests for application access are made by departmental Information Coordinators using FAST and Single SignOn (SSO) applications. Those requests are either approved or denied by the appropriate Data Custodian.

IS monitors the requests in the FAST queue, helping to make sure that Data Custodians handle their requests in a timely fashion.

IS also monitors the list of SSO users. On a regular basis we remove access for users that have left the University based on results of a report run against Human Resource data. We also ask the
Information Coordinators to let us know when a user has left the University. We remove access for users that have changed departments. We require that the Information Coordinator in the new department requests the access the person needs in their new role.

4. **Server Monitoring**
Monitoring of hardware and software on IS servers is done using various techniques across servers.

5. **System Administration and Database Administration**
IS will provide system administration services, e.g. UNIX and NT, and database administration services, e.g. Datacom DB, Sybase and Oracle, for its servers. This includes installation, configuration and maintenance of infrastructure software, hardware and databases.

IS provides database administration services for all enterprise applications (see Appendix B) and for these specific departmental applications:

<table>
<thead>
<tr>
<th>Vendor: Application</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2 Systems: Parking</td>
<td>Parking Office</td>
</tr>
<tr>
<td>Continuum Voice &amp; Data Systems: OnBase</td>
<td>Office of the Treasurer</td>
</tr>
<tr>
<td>Fixed Assets</td>
<td>Comptroller</td>
</tr>
<tr>
<td>Computer Associates: Service Desk</td>
<td>Client Services, CMS</td>
</tr>
<tr>
<td>Top Class</td>
<td>University College</td>
</tr>
</tbody>
</table>

6. **Application Infrastructure Administration**
SU’s enterprise systems are built upon many pieces of infrastructure software, or middleware, that are specific to the various system packages, e.g. PeopleSoft and FAMIS. The CMS document, Enterprise-Wide Technical Architecture, lists all IS supported middleware and can be found at: [http://cms.syr.edu/news/ewta](http://cms.syr.edu/news/ewta). This support includes the ongoing identification and installation of upgrades and patches to the software.

7. **Backups and Restores**
A full backup of server file systems is made once each week and cloned. The clone is moved offsite. Incremental file system backups are made once per day.

Production operational databases are backed up once per day. A full production operational database backup is made once each week and cloned. The clone is moved offsite.

Test and development databases are backed up on varying schedules based on developer input.

Production data warehouse backups are done once per day.

Database or file restoration can be requested by contacting the IS Manager of System and Database Administration.
SECTION D – ENTERPRISE APPLICATION SUPPORT

1. **Supported Applications**
   IS provides technical development and support for enterprise information systems and interfaces listed in Appendix B, Supported Enterprise-Wide Information System and Interfaces.

2. **Requests for New Applications**
   IS provides support and access for the project tracking software, StarTeam, where clients document their requests for new applications. Clients work closely with the project sponsor and their IS manager (HRSA clients will also work closely with their Enterprise Process Support analyst), to determine feasibility. When a new project has been approved by a steering committee, IS will provide technical support for implementation.

3. **Requests to Modify Existing Applications**
   IS provides support to modify existing applications when requested by our clients. Clients request modifications through the project tracking software, StarTeam. HRSA clients follow additional procedures to assess impact as outlined by the HRSA Council. IS managers and their clients work closely together to review and prioritize requests for modifications.

4. **Production Problems**
   To report a production system problem, contact the CMS Information Center. Refer to their web site for procedures: [http://cms.syr.edu/support/](http://cms.syr.edu/support/). During non-business hours, the Information Center phone message will direct you to another phone number that is staffed by Network and System Services.

   When a production problem requiring IS support is reported during normal business hours to the CMS Information Center, the incident is entered into the help desk software and placed in the IS Services queue. In the case of a system emergency, the Information Center staff will also contact the IS troubleshooter via beeper. The IS troubleshooting team provides triage support and reports updates to production system problems. The IS troubleshooter on call will assess the problem, notify relevant IS and CMS staff, create/update a problem incident that describes the problem, the systems affected, and an estimated recovery time. In the event of a system outage, this information is used by the CMS Information Center to send out system downtime notifications to the campus.

   When a production problem requiring IS support is reported outside of normal business hours to Network and System Services and is identified as an emergency incident, the appropriate IS on call staff member will be contacted via beeper. Procedures for requesting extended hours of support, e.g. during opening weekends, are outlined at: [http://cms.syr.edu/downtimes/](http://cms.syr.edu/downtimes/); click ‘requesting system availability’.

5. **Technical Training**
   IS will provide technical training for its staff in the appropriate tools to support the enterprise information systems.

6. **Application Development/Maintenance Resources**
   Each information system will be managed by a member of the IS management team, will be assigned to a technical project leader, and optionally, additional technical analysts. A list of IS managers and their functionalities may be found at: [http://cms.syr.edu/about/orgchart.pdf](http://cms.syr.edu/about/orgchart.pdf). Click on ‘Information
Systems’ in the table of contents. IS is responsible for making all IS staffing assignments. IS managers will meet with their clients on a regular basis to review current and future projects.

When a project plan for replacing an information system has been approved by the client and IS (e.g. migrating from a mainframe to a new client/server system), the level of support for the outgoing system will be limited to resolving production problems and adding new functionality only for mandated federal, state, and local (including University rules and regulations) changes.

7. **Application Development Responsibilities**

   IS application development resources will provide the following additional services:
   
   - Conduct systems analysis based on client developed business/functional requirements, and deliver recommendations of technology solutions to problems
   - Develop technical project plans
   - Develop technical project resource estimates and timeline
   - Build application design
   - Write technical program specifications
   - Develop the application
   - Provide ongoing technical support for production applications
   - Troubleshoot technical issues
   - Provide status reports on technical tasks
   - Communicate with vendors on technical issues; report technical problems to vendor

8. **Testing**

   IS will conduct appropriate volume and unit tests, and will deliver test results to its clients for acceptance. IS will also automate and execute appropriate client-developed regression test scripts, and will deliver test results to its clients for acceptance. IS is not responsible for functional testing.

9. **Application Deployment**

   IS will provide and support application deployment tools for its clients.

10. **Data Warehouse Development**

    IS will provide data warehouse system design, development and maintenance services for enterprise data warehouses. See Appendix C for more details.
Supported Enterprise-Wide Information Systems

DISTRIBUTED SYSTEMS

<table>
<thead>
<tr>
<th>PREFIX</th>
<th>VENDOR/SU: INFORMATION SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADM</td>
<td>PeopleSoft: Admissions</td>
</tr>
<tr>
<td>APP</td>
<td>PeopleSoft: Accounts Payables &amp; Purchasing</td>
</tr>
<tr>
<td>BSR</td>
<td>BSR: Advance</td>
</tr>
<tr>
<td>BUD</td>
<td>SU: Budget</td>
</tr>
<tr>
<td>CC</td>
<td>PeopleSoft: Campus Community</td>
</tr>
<tr>
<td>CSA</td>
<td>SU: Controlled System Access (ID Card)</td>
</tr>
<tr>
<td>DIR</td>
<td>SU: Directory</td>
</tr>
<tr>
<td>FA</td>
<td>PeopleSoft: Financial Aid</td>
</tr>
<tr>
<td>FAMIS</td>
<td>Prism Computer Corp: Facilities Management Information System</td>
</tr>
<tr>
<td>FAST</td>
<td>SU: Access Management System</td>
</tr>
<tr>
<td>HMS</td>
<td>Adirondack Solutions: Housing, Meal Plans &amp; Special Services</td>
</tr>
<tr>
<td>HR</td>
<td>PeopleSoft: Human Resources</td>
</tr>
<tr>
<td>PR</td>
<td>PeopleSoft: Payroll</td>
</tr>
<tr>
<td>SF</td>
<td>PeopleSoft: Student Financials</td>
</tr>
<tr>
<td>SR</td>
<td>PeopleSoft: Student Records</td>
</tr>
<tr>
<td>TEL</td>
<td>SU: Telecommunications</td>
</tr>
</tbody>
</table>

MAINFRAME SYSTEMS

<table>
<thead>
<tr>
<th>PREFIX</th>
<th>VENDOR/SU: INFORMATION SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATH</td>
<td>SU: Athletics</td>
</tr>
<tr>
<td>EAS</td>
<td>SU: Electronic Approval System</td>
</tr>
<tr>
<td>FHS</td>
<td>SU: Financial Hold System</td>
</tr>
<tr>
<td>GLS</td>
<td>SU: General Ledger System</td>
</tr>
<tr>
<td>GSA</td>
<td>SU: Graduate Student Awards</td>
</tr>
<tr>
<td>INV</td>
<td>SU: Inventory</td>
</tr>
<tr>
<td>NYS</td>
<td>SU: New York State Awards</td>
</tr>
<tr>
<td>ONL</td>
<td>SU: Online Systems</td>
</tr>
<tr>
<td>PER</td>
<td>SU: Person</td>
</tr>
<tr>
<td>RDS</td>
<td>SU: Residential Dining Services</td>
</tr>
<tr>
<td>SAM</td>
<td>SU: Student Aid Management</td>
</tr>
<tr>
<td>SCH</td>
<td>SU: South Campus Housing</td>
</tr>
<tr>
<td>SRM</td>
<td>SU: Student Receivables Management</td>
</tr>
</tbody>
</table>

Supported Interfaces To Enterprise-Wide Information Systems

<table>
<thead>
<tr>
<th>PREFIX</th>
<th>VENDOR/SU: INFORMATION SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>BKS</td>
<td>Sequoia: Bookstore</td>
</tr>
<tr>
<td>CRV</td>
<td>Informed Decisions Corp: CASHNet</td>
</tr>
<tr>
<td>END</td>
<td>SU: Endowment</td>
</tr>
<tr>
<td>PRK</td>
<td>T2 Systems: Parking &amp; Transit System</td>
</tr>
</tbody>
</table>
APPENDIX C
DATA WAREHOUSE SERVICES

A.1. Purpose
The purpose of this service document is to identify the services delivered by IS to the different
departments that use enterprise data warehouses.

A.2. Objective
The objective of the document is to establish clear expectations of IS data warehouse services,
thereby improving communications between IS and its clients and providing a foundation to identify
service levels and to measure attainment of those levels.

A.3 Definition of Terms

- **BrioQuery** – is the software supported by data warehouse for data warehouse access and is
  provided to University staff at no charge. The queries and reports stored in the repository are
  all written using BrioQuery.

- **Brio Repository** - allows the storage and easy retrieval of commonly used queries and
  reports that can be run by clients from the desktop or scheduled through the Brio Scheduler.
  Access is controlled by assigning users to a repository group(s). To become a repository user,
  one must attend a repository training class.

- **Brio Repository Catalog** - list of reports that are currently available in the Brio Repository.
  This list is refreshed weekly. Note that the specific reports that you may access with
  BrioQuery is determined by the repository groups to which you have been assigned through
  your data custodian. For a list of the reports in the Brio Repository, please refer to

- **Data Custodian** – The office or person responsibility for defining and determining data
  definitions, business rules, as well as security access.

- **Data Stage** - Tool used to extract and transform data from our operational systems into our
  data warehouses

- **Data warehouse (DW)** – a subject oriented, integrated, point in time, collection of data in
  support of management’s decision-making process. It stores current and historical data from
  disparate operational systems that business decision makers need in a single, consolidated
  system. Data in the DW has the following characteristics
  - Common items such as SU-ID (Syracuse University ID number) are available in all areas
    containing person information, making it easier to link together information from different
    subject areas
  - Consistent code values and descriptions - the academic program for Arts & Sciences is
    "AS", the short description is always "A&S", and the long description is always "Arts &
    Sciences".
  - Clarification of data - the Registrar's Office has defined all of the components that go into
    the designation full-time, half-time, less than half-time student. This field enrollment
    status is available for selection and reporting.
• Expanded Code Definitions - data is available in code form or short or long description form. Selection can be made on a code value - "give me all students with academic program of "AS". The Report can then reflect the full description - "Arts & Sciences"

o **FAST** - Requests for access to the data warehouse are handled through the First Step Single Signon System. Your department information coordinator can use FAST to request a Brio connection. When a Brio connection is requested, the information coordinator will need to fill in a template describing the type(s) of access required. For example, you may need access to the Student Records Repository or General Ledger or Alumni/Development. If you are currently using the warehouse and need additional access, your information coordinator can use the FAST Brio connection and template to request additional data warehouse views or subject areas. ALL requests for access to the data warehouse, new or additional, require the approval of the data custodian responsible for the subject area. You will use your SSO loginID and password to access information in the data warehouse. If you are a new user, your access will be set up by the day you attend a training session.

o **Information Directory (aka meta data)** - Data about data. It names and describes data (name of column, source of information from the operational system, length, data type, etc) that is stored in the data warehouse and accessed by users.

o **User types**
  - Power User - good to excellent Brio and data skills. This level of user develops reports for the repository as well as supporting reporting needs in his/her area. S/he uses the Brio Scheduler to run queries in off-hours or sends query output via email to other clients. Usually attached to a custodial area or large department (Registrar’s, Enrollment Management, Alumni Development).
  - Brio User - adequate to good Brio skills. Usually needs data support. Can join tables, design simple reports and export data to other software products (Excel, Word, desktop databases). These individuals may also be Repository users and may also have the skills required to use the Brio Scheduler.
  - Repository User - Can run pre-defined queries from repository and export output to Excel or Word. May be able to design simple reports with additional training.

### A.4 What belongs in the Data Warehouse

Data Warehouses are created to get timely information for end users’ reporting. The types of reports that should be run against the data warehouse include:

- Reports that compare data over various time periods (monthly, quarterly, yearly)
- Reports to support employees in their work
- Trend analysis and strategic forecasting reports

Many of the data warehouse reports can be written in BrioQuery by the report writers in the various departments. If there are complex reports that can’t be written in BrioQuery, Functional Business Analysts (FBAs) can file a request through the project tracking software, StarTeam, to have IS determine the best way to create the report.
Our current operational systems were established to support detailed business processes and transactions. The types of reports that should be run against operational data include:

- Mission critical reporting – reports that drive your decision making. i.e. an example is in Admissions when they need information daily on student recruits to make admit decisions.
- Control or audit reports – reports that list what happened when a process ran
- Suspense reports – reports that list the records that are held in suspense (not processed due to an error)

The reports that are written against operational data can be created using various tools. Functional Business Analysts (FBAs) can file a request through the project tracking software, StarTeam, to have IS determine the best way to create the report.

Section B- Information Systems Data Warehouse General Services

1. Daily Monitoring of data warehouse jobs
   All IS jobs associated with the DW are monitored by the DW staff. If there are problems with any of the jobs, the DW staff will attempt to rectify the problem. If the problem can’t be fixed, the data warehouse will be restored to the previous day’s data.

2. Troubleshooting of Data Warehouses
   To report a production data warehouse problem, contact the CMS Information Center. Refer to their web site for procedures: http://cms.syr.edu/support/.

3. Service Levels for the DW
   The DW team keeps track of two service level indicators:
   1). On Time - availability of all data warehouses by 7:30 am each morning.
   2). Data Complete - data is correct and current for each day.

   Effective the last week of March 2002, monthly services level charts by functional area have been made available for Admissions, BSR, Campus Community, Financial Aid, HR/Payroll, Student Records, Student Financials, and Recruit.

   For more information on services levels, see http://cms.syr.edu/data-admin/data-warehouse/dw_service.html

4. Infrastructure Software
   IS will provide and support the infrastructure system and software needed to support SU’s data warehouse environment. A current list of infrastructure software include: Data Stage and BrioQuery Intelligence. We do not support SAS, Excel, or MS Access.

5. Help with the Creation of Repository Queries
   Clients may not have a resource assigned to create brio queries and reports that would be appropriate for distribution via the report repository. To inquire about the possibility of the Data Warehouse Group creating a report for your office to be included in the repository, Functional Business Analysts (FBAs) will file a request through the project tracking software, StarTeam
6. Quality Assurance for Repository Queries
When a client requests that a query be stored in the repository, IS will provide QA services for that query -- IS will review the query, determine what views and tables are being used, and see that all individuals who will have access to the query have the correct warehouse access. IS has set up internal procedures to ensure that access to the repository and to stored queries is handled in a timely manner.

The client queries submitted for inclusion in the brio repository must comply with standards that IS has created. These standards can be found at [http://cms.syr.edu/data-admin/data-warehouse/dw_repository.html#standards](http://cms.syr.edu/data-admin/data-warehouse/dw_repository.html#standards). The client needs to specify the unique identifying query name (30 char max) that will appear in the repository catalog, to identify who can use that query -- what group or groups, and to identify the repository where the query will be stored.

If IS finds a problem with a repository query, IS will inform the author of the problem. The author is responsible for correcting the problem and resubmitting the query to IS.

When a warehouse system or table is modified, repository queries will be upgraded, tested, and made available to the client by IS.

7. Upgrades
IS will upgrade or replace hardware or infrastructure software in order to maintain vendor support, system performance or compatibility with the overall CMS infrastructure. Upgrades or replacements will be coordinated with the associated client departments and will follow CMS change management procedures.

Section C - Data Warehouse Support

1. Data Warehouses Supported

2. Requests for a New Data Warehouse
IS provides support and access for the project tracking software, StarTeam, where Functional Business Analysts (FBAs) document their requests for new data warehouses. IS will provide data warehouse system design, development and maintenance services for enterprise data warehouses. Clients work closely with the project sponsor and their IS manager (HRSA clients will also work closely with their Enterprise Process Support analyst), to determine feasibility. When a new project has been approved by a steering committee, IS will provide technical support for implementation. Normally, data warehouses for our systems are brought up one to two weeks after the operational system has gone to production.

3. Requests for Existing Data Warehouse Maintenance
IS provides support to modify existing data warehouses when requested by our clients. Functional Business Analysts (FBAs) request modifications through the project tracking software, StarTeam. HRSA clients follow additional procedures to assess impact as outlined by the HRSA Council. IS managers and their clients work closely together to review and prioritize requests for modifications.

4. Application Development Responsibilities
IS data warehouse development resources will deliver the following additional services:
• Systems analysis and recommendation of technology solutions to problems
• Technical project plans
• DW design
• Technical program specifications
• DW development
• Technical troubleshooting
• Communication with vendors on technical issues; technical problem reporting to vendor

5. User Training
IS and Client-Services have re-designed the DW training plans to more evenly balance the needs of our clients with the multiple options available within Brio Intelligence. Our expanded use of the Brio Repository allows clients to quickly, with minimal training, begin using the queries and reports available across subject areas in the warehouse. Some clients may need to learn more about writing Brio reports and there will be a group that will require both report training and query training at the power user level. We believe that this training plan, which incorporates approvals, pre-requisites and restrictions for each level of training, will service our clients needs and will allow CMS to provide the right training at the right time. Information on the types of training that is offered can be found at http://cms.syr.edu/data-admin/data-warehouse/dw_training.html.

6. User Groups
IS will call and facilitate user group meetings as needed for the dissemination of information on software version changes, strategy changes, etc.

7. Testing
IS will conduct appropriate volume and unit tests, and will deliver test results to our clients for acceptance.

8. Backup Support
IS will provide short-term backup for areas classified as Power Users or Brio Users during periods of transition (personnel, software upgrades, new system development).

9. Complex Report Development Support
IS will work with client areas to develop reports that required a higher level of expertise with reporting tools (Brio, SQR). We would work with the client to see if additional fields, derived data definitions or new tables in the warehouse could reduce the level of complexity.

10. Limited Support to small offices
IS would provide limited support to small offices or areas that don’t have a Brio development resource but who have specific reporting needs.