



# INFORMATION TECHNOLOGY SERVICES

UNIVERSITY AT ALBANY

State University of New York

## Information Technology Services and Facilities Information for Researchers

Established in 1844 and designated a University Center of the State University of New York in 1962, the University at Albany's broad mission of excellence in undergraduate and graduate education, research and public service engages a diverse student body of more than 17,600 students in nine colleges and schools across three locations.

Information Technology Services (ITS) is the centralized provider of enterprise-wide technology, working collectively across divisions on all three university campuses. The mission of ITS is to anticipate and provide sophisticated information technology services that deliver inclusive and engaged user experiences to our community. A Chief Information Officer (CIO) oversees an organization of just under 100 staff, and is comprised of the following groups: Academic, Administrative and Research Services, Application Infrastructure Services, Client Support Services, and Information Security. Additional staff work horizontally across the organization in a central business office, project portfolio management, service portfolio management and strategic communications. ITS is part of the division of Finance and Administration, with the CIO reporting to the division's Vice President. Some schools, departments and research centers employ their own IT staff to manage specialized and/or in-house technologies. In all cases, such organizations continue to rely on ITS for enterprise-wide services.

ITS has adopted the EDUCAUSE Center for Analysis and Research (ECAR) model of Information Technology Service Management (ITSM). All services fall into one of the following categories: Administrative and Business, Communication and Collaboration, Desktop and Mobile Computing, Information Security, Infrastructure, IT Professional Services, Research, and Teaching and Learning.

**Academic, Administrative & Research Services (AARS)** is responsible for the overall reliability of the software applications running the academic, research and business needs of the University. Academic excellence and internationally recognized research are essential elements of the University mission. As such, providing the technology to support these endeavors is critical. AARS works closely with all campus divisions to manage these services, ensuring current needs are met and anticipating the evolving applications needs of all stakeholders. An Administrative & Business Advisory Committee, composed of representative employees from across divisions, provides ITS with ongoing feedback regarding its administrative and business services.

A robust array of instructional technology, tools and resources directly support teaching and learning at the University at Albany. A mature online program, including full programs of study and numerous standalone classes, are offered on Blackboard, the University's learning management system. Blackboard sections are automatically created for every course each semester, making it easy for faculty to incorporate the learning management system into their courses. Faculty may request one-on-one consulting, partake in a wide range of workshops highlighting available tools, or use the ITS Lecture Capture Room to record lectures, provide supplementary materials or flipped classroom content for online coursework. A Teaching and Learning Advisory Committee, composed primarily of faculty from across disciplines, provides ITS with ongoing feedback regarding its teaching and learning services.

Core services in support of research, including high-performance computing, are available for grant-seeking and funded researchers. Research Technology Services (RTS) works closely with other ITS units, as well as school and departmental-based IT staff, to support the entire research IT life cycle. Early in the pre-grant process, the group provides IT consulting, assists in IT impact assessment, oversees integration into existing infrastructure, and serves as an external IT interface coordination resource. Upon award, RTS assists in facilities setup and configuration by managing the coordination of IT resources, including software acquisition, licensing, porting, and integration, along with setup, integration, and testing services. During the production phase, systems management and ongoing software consulting and porting is provided. At the end of the grant cycle, decommissioning services are available to assist in sun-setting systems, software and other IT infrastructure and recycling of central research IT resources into discovery or other grants.

Currently the following resources are directly involved in support of investigative activities:

*General Purpose Computational Linux Cluster:* Dell Linux cluster that consists of 26 computational nodes and over 1360 CPU cores. This computational resource is available to all members of the University at Albany research community.

RTS manages several individual research group servers that are used for specialized computation. These include:

**CEASHPC:** This cluster is dedicated for use by researchers from the College of Engineering and Applied Sciences. It is comprised of 12 nodes and a total of 672 CPU cores and 59,904 GPU shader cores.

**Snow:** This cluster is dedicated for use by researchers from the Department of Atmospheric and Environmental Studies. It is comprised of 33 nodes and a total of 1056 CPU cores.

**Kratos:** This cluster is dedicated for use by researchers from the Advanced Scientific Research Center. It is comprised of 16 nodes and a total of 448 CPU cores.

**Minerva:** This cluster is dedicated for use by research in the lab group of Dr. Alan Chen, a biophysicist with the RNA Institute. It is comprised of 37 nodes and a total of 592 CPU cores.

RTS currently supports 23 virtual servers (VMs) and 21 Docker containers for research projects across campus.

The primary platform is RHEL 7. The equipment is housed in the University's Information Technology Building, a Tier III-certified data center. The data center is redundantly networked to all buildings on campus and dual commodity internet connectivity as well as an upgraded 10g I2 link.

Research storage capacity of approximately 700TB is derived from 500TB of NetApp storage with snapshots. RTS maintains 220TB of high-speed scratch storage and 1.5 TB of local storage. RTS performs system administration of the cluster and all routine maintenance. Files are protected with 21 days of user-accessible snapshots.

**Application Infrastructure Services (AIS)** manages the University's Tier III-certified, N+1 concurrently maintainable, LEED Gold data center facility, which has network availability of 99.9%. The Data Center houses the equipment and systems that support enterprise-wide information, storage, and telecommunications to advance the academic and administrative needs of the institution. It also

provides co-location opportunities for research centers, academic departments, and researchers. Physical and virtual environments are available for all campus partners.

AIS installs, operates and maintains a robust fiber optic network which spans its three campuses, connecting over 130 fiber optic-attached Ethernet segments supporting more than 19,000 ports or connections. The campus network consists of a collapsed backbone router with dual 10 Gbps links to buildings. All user access ports are 1 Gbps Ethernet. The network includes interconnections with several local, regional, and national networks including NYSERNet, SUNYNet, Commodity Internet and Internet 2 via a NYSERNet connection. The campus Internet (I1) is composed of two diverse paths: the primary at 3 Gbps (burstable to 10 Gbps) and the secondary link at 2 Gbps (burstable to 6 Gbps). The Internet2 (I2) link is 10 Gbps. A regional fiber optic infrastructure connects the three UAlbany campuses to each other and to Internet2.

**Wireless Access:** There are currently 1,500+ wireless access points deployed throughout the podium, libraries, research centers and in the Campus Center uptown. The Downtown and Health Sciences campuses also have wireless connectivity. All new installations are 802.11ax which augment current 802.11n/ac deployment. All academic departments are wireless.

**Residence Halls Network:** The University contracts with an outside provider for ResNet services. All residence halls have wired and wireless connectivity to the Internet at 1000 Mbps.

**Remote Access:** UAlbany provides remote access to off-campus users via a VPN (Virtual Private Network) appliance and SSL VPN client. The user must have an ISP connection. UAlbany does not support dial-up service for access.

**Centralized Hardware Systems:** The University at Albany deploys and manages over 600 servers located in the University Data Center. These servers run a variety of operating systems, mainly Microsoft Windows Server and Linux, and house all University-wide development and production applications used by students, faculty and staff. The majority of these servers run in a virtualized VMWare server environment and all servers make use of a centralized NetApp disk storage system.

**Client Support Services (CSS)** includes the ITS Service Desk, which serves as the first point of contact for campus technology, including all desktop and mobile devices, technology classrooms and conference spaces.

**Technology-enhanced Learning Spaces:** Over 100 centrally scheduled multimedia classrooms are equipped with technology to synchronously broadcast classes to some or all students, and record lectures and meetings for asynchronous viewing. Podiums are equipped with touch screen control of video and sound systems, computers for faculty Internet access, and a laptop connection. Several of the larger classrooms include document cameras and annotation solutions.

The Information Commons (IC) provides a rich array of resources in all three University Libraries. The Main Library is the drop-in location for the ITS Service Desk, which is staffed with student technology consultants. All IC locations provide PCs and Macs equipped with university-licensed software. Discounted software is available to all members of the campus community.

**Email and Collaboration Services:** Provides a full suite of enterprise applications to facilitate creating, sharing, and exchanging information for a variety of academic and administrative needs. These includes email, calendaring, productivity suites, file sharing, instant messaging tools, and web-based collaborative platforms for collaboration.

Telephones: The University uses a Voice over Internet Protocol (VoIP) system that runs on the University network. Services include local and long-distance calling, along with numerous customizable features and mobility options. A self-care portal provides access to all University employees, who can login to further personalize their telephony experience. All desk and wall phones include 911 location information which are integrated with the University Police Department.

**Information Security:** The University maintains an active information security program under the direction of a dedicated Chief Information Security Officer (CISO) and is comprised of two groups. Security Operations manages the technical, administrative, and physical controls to prevent and detect loss, damage or exposure of information assets while preserving their confidentiality, availability, and integrity. Identity and Access Management works to define and manage the access lifecycle for all members of the campus community. Additionally, the CISO facilitates initiatives to educate the campus community about security, risk management and the protection of information assets. An Information Security Advisory Committee provides ongoing feedback regarding information security services and the University's overall security posture.

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