ITS News Magazine

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About This Issue: All SIRP, All the Time

By Michelle Cometa, michelle.cometa@rit.edu

It's not enough that we do our best;
sometimes we have to do what's required.
Sir Winston Churchill

The people who have been working on the campus ID Replacement Project (SIRP) have been doing their best **and** doing what is required. The project is about transitioning current databases from using Social Security Numbers as unique identifiers on records unless required by law.

For the most part, we can understand in theory why this needs to be done. Too many campuses and businesses across the country have been the subject of news reports of system compromises. But, the day-to-day uses of applications, with their integrated services, information feeds and multiple users make the actual task of changing over to a better way to manage data an immense process—just ask some of the people involved in preparing their respective systems for the transition that will take place starting May 27.

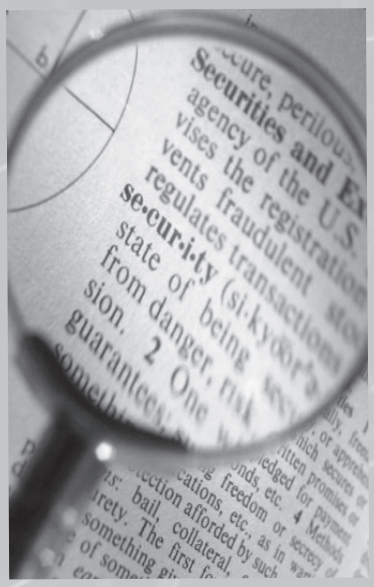
This issue of ITS News Magazine is about the "need-to-know" information related to this project. Specifically, informational forums that will take place, new ID card replacement processes and how several areas are impacted by the transition.

The ID Replacement Project is one dimension of the system changes and improvements that will take place in the next several years. Many factors are driving broad changes in systems, the business processes as we know them and the people who serve as data stewards. The RIT Strategic Plan talks about integrated systems for better efficiencies and for streamlining academic and business functions. It speaks to the need to step up good services to become **great** services that propel RIT to a Category of One status.

The ID Replacement Project will be a success; the people behind the scenes have taken steps to be sure that the transition is smooth, the problems limited. And doing their best and what is required have been at the forefront of the project.

Identity Surgery: Removing Social Security Numbers from Daily Use at RIT

By Dave Pecora, Associate Director, ITS, Dave.Pecora@rit.edu



As a member of the Identity Replacement project, I am some times asked "Why did RIT ever use Social Security Number as a means of general identification? How did we get here in the first place?" To understand this better, it's important to keep in mind that the Information Age didn't happen overnight – it evolved over time. How Social Security Numbers came to be widely used is easier to understand in the context of a little history.

Social Security Numbers – A Brief History

When the Social Security Act of 1935 was passed by Congress, it was generally understood that the legislation would have an enormous impact on the life of all workers and retirees in the United States (US). The Social Security Number itself seemed insignificant. The first Social Security cards and numbers were issued in 1936. In 1962, the Internal Revenue Service adopted the Social Security Number (SSN) as its official taxpayer ID number, promoting the SSN to greater importance. Soon after, the Social Security Number became a universal form of identification for US citizens.

SSNs became the ideal ID number of the Information Age in the US. As computerization exploded in the 1970s and 80s, SSNs became extremely useful as a means of identifying people. The reasons for this were clear; unlike a name or birth date, no two people can have the same SSN. Unlike a telephone number, your SSN doesn't change when you move. It's constant, relatively easy to remember, non-sequential, and difficult to guess. It's ideal for computerized verification.

SSNs became particularly useful for industries that deal with large segments of the public, such as health care organizations and institutes of higher education. This is because these organizations have a need to link their information with other data stored by outside agencies. Different health care organizations need to share information on patients to process payments properly. Similarly, universities need to link applications for financial aid to corresponding tax data for verification. To do this, each person needs an identifying number that is unique and consistent for the largest number of people. It was easy and convenient for these organizations to use Social Security Numbers as personal IDs. The benefits were many, and the drawbacks were few. At least, that is, until a few years ago.

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Identity Surgery: Removing Social Security Numbers from Daily Use at RIT

Continued from page 3

The Social Security Number Becomes a Problem

Everything good about the SSN becomes bad... if someone else finds out your SSN. The fact that it is constant, relatively easy to remember, non-sequential, and difficult to guess makes it ideal for identity theft. With your SSN and other information more easily obtained (first and last name, address, phone number, birth date), someone could, for example, apply for a loan in your name. With the volume of transactions in the modern age that are available online, SSN information has become the #1 target for identity thieves.

The number of attempts to steal Social Security Numbers has grown at an alarming rate in recent years. The University of California, San Diego State University, the University of Texas, and the University of Utah are just a few of the universities across the country that have reported the theft or compromise of the Social Security Numbers of their students, faculty, or staff. This has resulted in a rash of new legislation spreading through states with a speed rarely seen in the past. As of January, 2006, the National Conference of State Legislatures reports that 35 states have either passed or have legislation pending related to the theft or compromise of Social Security Numbers or other personal information, with most of these laws passed within the last 12 months. Much of this legislation regulates what organizations must do to inform individuals when security breaches occur.

At one time, using Social Security Number as a form of identification was convenient, with little downside. This is clearly no longer the case. Identity theft, current legislation, and overall concerns about privacy in the Information Age make it important to limit the use of SSNs to cases where it is absolutely necessary. Although RIT, for example, may need to collect the SSNs of its students to verify financial aid information, this does not mean SSNs should be used for general identification purposes. For that, we need a new number.

RIT Responds: Changing the University ID

Information applications at RIT are complex, intertwined, and for the most part dependent upon Social Security Numbers. Untangling this is no easy task. The project to convert to a new number is massive – over 900 programs supported by Information and Technology Services (ITS) alone are being changed – as are many other programs supported by various colleges and divisions. "We are committed to doing what's necessary to protect the sensitive information we keep in the core systems of the university," said Dave Hostetter, Associate CIO of ITS and the champion of the initiative. "It's a matter of trust. Expectations are high, and we intend to live up to them." The project has been identified as the top ITS initiative until it is completed.

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Oracle Applications Transitioning to Use New University ID

By Kim Sowers, Assistant Director, kimberly.sowers@rit.edu

Working with Human Resources (HR), Payroll, the Student Employment Office as well as the core ID Replacement project team, the ITS Financial Systems Development team has been making changes to the Oracle HR, Payroll and Financial applications to support the integration of the new University ID into the Institutes' employment practices. This article summarizes those changes.

How will I be affected by these changes if I'm an employee?

Most RIT employees who use the Oracle Applications access the myinfo.rit.edu site to view their pay slips, update their address and perform other HR and Payroll related transactions. These employees will notice that the University ID will be displayed in the Basic Details section of the *My Personal Information and Contacts* page. This will provide an additional way for employees to look up their University ID. (Employees will also be able to view their University ID via the myRIT portal.)

With the exception of individuals who work in HR and Payroll, other employees who use the Oracle Applications to access functionality other than the employee self service features (e.g., create journal entries) will not see any changes in how the Oracle Applications work.

Employees who today record their time, or the time of another, in Kronos by entering their SSN into the time clock, will need to key in their University ID into the time clock in the future in order to record hours. The new ID card will contain an employee's University ID so that swiping your RIT ID card will work the same in the future as it does today.

How will the process used to hire employees (faculty and staff) change?

Departments will continue to complete an Employee Action Form (EAF) to hire new employees. New employees will be assigned their University ID once their EAF has been received by HR and entered into the Oracle Applications.

If a new employee already has had a University ID assigned to them (e.g., they have taken classes at RIT in the past), they will continue to use that UID as an employee. Because employees will not be assigned a University ID until after their EAF has been received and processed by HR, it's important that all new hire paperwork be sent to HR in a timely manner. All new employees will need to provide their SSN to HR when they complete their I9 form in the HR office.

New faculty and staff will not be able to receive their RIT ID card (which they may need to access their work area) or their RIT computer account until they have been assigned a University ID and have completed their I9 form in the HR office.

How will the process used to hire student workers change?

Students will still need to receive a work eligibility card from the Student Employment Office. Departments that hire student workers will notice that the student worker hire and change forms will request a student's University ID instead of their SSN. Reports that departments receive from the Student Employment Office will show University ID rather than SSN or employee number. Because international students will no longer be readily identified by the temporary 999-**-**** or 990-**-**** SSN's that they used to be assigned, a new alert will be created to notify departments about which student workers should be picking up their pay checks at the International Student Services office until they receive a permanent SSN.

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ID Replacement Project Update

Frequently Asked Questions from General Forums

By Michelle Cometa and Dave Pecora

During the last month, several informational forums have taken place about the status of the ID Replacement Project. Members of the audience questioned the presenters and members of the Task Force team about system and process changes they could expect after the conversion taking place in May. Here are some of the answers to those questions; the full list of Frequently Asked Questions can be found on the ITS web site:

http://www.rit.edu/its/initiatives/sirp/SIRPfaq.html.

I have paper reports that display Social Security Number. What do I do with these?

The process that generates these paper reports will need to be modified to display University ID (UID). Any existing paper reports that are no longer needed should be destroyed. Existing paper reports that must be retained should be secured in locked files and/or rooms, with authorized access only.

Why isn't employee number being used instead of generating a new number?

The use of employee number was considered but was not a viable alternative. The RIT University ID, which is on the ID cards, is issued to many constituents that do not have an employee number. Additionally, it is not possible or desirable to issue employee IDs to anyone who would get an ID card.

There are so many numbers to remember. Why isn't the new numbering scheme set up in a way to accommodate the employee number?

The purpose of this project is to protect an individual's identity by replacing SSN wherever it is used with a unique University ID (UID). A conversion process will be done to generate a unique UID that will not match any SSN. The numbering scheme for the UID was set up to retain the nine digit, numeric, format of SSN currently used by many university systems. Keeping this format reduces the numbers of changes that will be needed to these systems. Also, the nine digit, with a dash (NNN00-NNNN) was designed to make the number easier to remember.

Will all of my pre-paid funds transfer automatically from my current card to my new card?

Not necessarily. All of your food/flex funds will transfer automatically. Funds for library copying will NOT transfer automatically. You will need to go to the library to transfer copier funds from your current card to your new card.

Will students still need to provide a Social Security Number when applying for employment?

Students applying for employment will still need to fill out an I9 form with the Student Employment Office. The I9 does contain SSN. The hiring department will only need the University ID. They will not need to collect SSN.

I've heard the University ID will not be printed on the new ID cards. How will I know my UID?

The University ID will not be printed on the new ID cards as an added level of security. So you will need to quickly memorize your UID. After the conversion, your University ID will be displayed on your myRIT portal site in the upper left corner. You will have the option to Display or Hide this number. For employees, the number will also be displayed in your Oracle Employee Self Service.

As part of my job, I use SSN as a unique identifier. How will this work after the conversion?

Unless you use SSN for legal, regulatory or governmental purposes, you must use the University ID as the unique identifier. Systems and reports that currently utilize SSN are being changed to accept and display UID. There are forums scheduled for those in a service provider role that will address finding a UID when it is not available.

A full ID replacement forum schedule is available at: http://www.rit.edu/its/initiatives/sirp/SIRPforums.html.

For more information contact project manager Bryan Meyer at bemisd@rit.edu

Schedule for Picking Up New ID Card Announced

by Joe Loffredo, Registrar, joe.loffredo@rit.edu

Faculty/Staff ID Card Pick Up

Starting **May 1**, faculty and staff can pick up their new ID Cards at the Registrar's Office. The cards will be pre-printed in April using current photos. If your ID photo was taken prior to 2000, you will need to have a new photo taken. The database of current photos holds only those taken from 2000 to the present.

Student ID Card Pick Up

Students who will be on campus for Summer Quarter classes and work over the summer can pick up their pre-printed ID cards starting **May 8** from the Registrar's Office.

Students who return early to campus for Orientation responsibilities and preparation of residence halls, can pick up their ID cards at the Registrar's Office starting **August 1**.

In the fall, new and returning students will pick up their cards through the Housing Office upon arrival during Move-In.

University IDs and cards for RIT students returning in the fall and *not* living in campus housing will be available for pickup at the Registrar's Office prior to the start of the Fall Quarter.

RIT Special Guests / Patrons

Athenaeum members, off campus Wallace Library patrons and family members using the Student Life Center can have cards reprinted on demand at the Registrar's Office starting in May. (As of this writing, arrangements are being made to print and deliver some ID cards to Margaret's House members. More information about this process will be presented as this is finalized.)

The Registrar's Office will make new cards available for all members of RIT. Their office will be open for extended hours in May to be sure people can pick up their new ID cards conveniently.

The SIRP Team recommends holding onto both old and new cards. The system transitions expected in May will not all take place at once. A timetable of systems conversions is available on page 11.

After two campus-wide preference votes and minor revisions, this student-created design will be THE image for RIT ID cards. The new look cards incorporate several well known RIT icons—the Sentinal, the Clock Tower on the Quarter Mile and the RIT Tiger.

Finding Your University ID Number on the myRIT Portal

There are several reasons to visit the myRIT portal, not the least of which is your chance to find your University ID (UID). After the conversion in late May, you can log onto the portal and find the 9-digit number in the upper, left hand corner next to your name. For additional privacy, there is a link that would allow you to hide the number as well.

University ID location on myRIT portal

Sticks and Stones May Break My Bones – But All These Numbers are Killing Me

By Donna Cullen, ITS Computer Policy Analyst, donna.cullen@rit.edu

Most of us are quite comfortable with our many names and titles – Mom, Dad, Sis, Bro, Hon, Pres, VP, Prof, Gramps, Colonel. Some of the names we are called actually seem to add to our self-esteem. Others are a symbol of our accomplishments or our relationships.

Then there are the numbers. Few of us associate warm feelings with being assigned a number. One of the very good reasons a number is chosen as an identifier – it's hard to guess – makes it the reason you might cringe at the thought of memorizing another number.

Depending on your role in the RIT community, you can already have a host of usernames and passwords to remember as well as possibly one or more badge numbers for Kronos, your Social Security Number (SSN), course numbers, a series of budget numbers, PINs for SIS or Faculty/Staff advising, a locker combination, a door combination, a series of phone numbers – and that is just at RIT.

The introduction of a **University ID (UID) number,** despite all the security benefits it introduces, is a possible point of confusion and inconvenience. This is particularly true if you use the UID so infrequently it is difficult to memorize based on use. Unlike a name, the number is not based on anything you can identify when memorizing it.

When to use the UID?

This is most easily answered as "nearly everywhere on campus you now use a Social Security Number." The UID ***only*** replaces your SSN on forms and applications on campus. This means if you are looking up your student record, registering for a class, logging into the faculty/staff advising system, renewing your library books, filling out a computer account request form, using Kronos as a staff person, filling out a food service form, etc. – you will use your UID.

There are a few places on campus where a SSN is still required. In general, these are associated with information that must be tracked for government purposes. Your UID is ***not*** replacing your employee number, your PIN, your account numbers, course numbers, security codes for room or building entry, your locker combination, your student employee badge number or your phone number.

ID Replacement Project Community Forums Scheduled

Join members of the ID Replacement Project Team at informational forums prior to the conversion to learn more about the timetable of the project, where to obtain new ID cards and how the changes will impact academic and administrative procedures throughout RIT.

Conversion Tool Forums

Wednesday, May 10, 10 – 11:30 a.m.
Interpreted Session

Attendees:

This session is required for staff who will be the primary systems representatives transitioning their respective databases using the SIRP system conversion tool. Attendees will be able to see a demonstration of the conversion tool, learn about how the conversion will take place and support during the conversion in May.

Service Provider and General Forums

Tuesday, April 25, 10 – 11:30 a.m.

Tuesday, May 2, 10 – 11:30 a.m.
Interpreted Session

Thursday, May 11, 10 -11:30 a.m.

Attendees:

This session is for all faculty and staff who used social security numbers as "look up" information in the past. This session will be an overview of the new process for looking up individual information, if individuals lose their University ID, the alternative "look up" processes and additional business process information.

Sessions take place in the CIS Auditorium, 76-1125. For more information, go to the ITS website at SIRP Project Information: http://www.rit.edu/its/initiatives/sirp

Forums Open to All RIT Students, Faculty and Staff

The system conversion takes place May 27 – June 4, 2006

Student Systems, Oracle Applications and Web Services Updates

by Joe Loffredo, Registrar, joe.loffredo@rit.edu

Much of the system work continues behind the scenes, but remains on target for completion by ID Replacement Project Conversion Week - May 27 to June 4. The team working on Student Systems (admissions, registration, financial aid, etc.) has focused on efforts to decrease duplicate records within databases. The Oracle Applications team has been busy with user testing and further integrating the Identity Management System software.

Many of the Student Systems and other administrative databases have web connections. The Web Services team continues work to ensure integration along these important applications will be completed on time.

As the ID Replacement Project moves closer to the conversion date, questions have been raised about the downtime for Institute-wide applications. A tentative timetable has been released, but is being refined further. Some systems must be converted first as others may rely on their data feeds. For example, directories used by applications for authentication (such as LDAP) will be transitioned first, followed by other campus-wide applications such as the Food Services and Lenel building access systems.

ITS estimates that a downtime 'window' of 1-2 days is needed to complete the conversion. This downtime will occur during the week *after* commencement between May 27 and June 3. Of concern are billing dates through the Student Financial Services office and grades posting at the end of the quarter. According to Dave Hostetter, ITS Associate CIO, the window [of 1-2 days downtime] "is being further defined" and system owners will be given more specifics as the conversion date nears.

RIT Major Database System Conversion Timetable Estimates

This timetable will be continually updated. The first systems to be converted will be those in Food Service and for central Lenel systems (door access). The systems teams working on the **SIRP conversion have targeted Wednesday, May 31 or June 1 as the "go live" dates** for major systems. By the end of the week, all systems should have converted databases to recognize University ID numbers.

Other critical systems in line for changes are:

STARS	SIS
Applications (HR/Financials)	myCourses
Faculty Advising	eBilling
myRIT Portal	Online Admissions
Schedule of Courses	Degree Audit System
LDAP	AMS
IPEdit	start.rit.edu
College and Division Applications	

Responsibilities for those with Stand Alone Database Systems

Those areas with stand alone database systems that have used Social Security Numbers as unique identifiers will need to be converted as well.

A conversion tool will be provided to database administrators charged with converting these stand alone systems. (See the schedule of Conversion Tool forums on page 10.)

Identity Management as the Cornerstone in Security and Access

By Shannon Robinson, Information & Technology Services, shannon.robinson@rit.edu

The need to enhance security and privacy are the defining factors behind the creation of an ID Management System at RIT. Identity management incorporates the processes and requirements for correctly identifying an individual while protecting confidential information from unauthorized users.

As implied, this solution also expands into other categories such as access control, authentication, and authorization across RIT. One can see how creating and managing identities is a hot topic in today's world. Institutions need to carefully guard the gates to information.

However, this is not a new concept at RIT. RIT already has Directory Services which provide repositories for user attributes, authentication, and authorization. The Institute also has an enterprise account management system which manages over 24,000 user accounts, passwords, and other attributes.

Having this infrastructure in place has positioned RIT at an advantage so that it can build on its foundation and further mature into an enriched identity management solution - CLAWS. CLAWS integrates with the existing identity systems and transform them into a modularized, cohesive solution.

In addition, when integrated with other RIT core services such as DHCP, DNS, LDAP, Active Directory, infrastructure, and the telephone switch for example, CLAWS will be able to more seamlessly identify a person as one individual despite their multiple associations and roles. It will also securely grant access to resources and applications as well as better manage that information over time and across the enterprise.

Altogether, the enriched CLAWS identity management solution is the cornerstone solution for providing secure entry and access into the RIT electronic community.

Continued on next page

Matt Campbell and Bill Kuker of ITS are designing and developing CLAWS to be flexible while extending functionality and ensuring RIT is even better positioned for future enhancements.

As part of this, a new identification generator module is being developed to provide RIT affiliates with a unique ID which allows RIT to track constituents without reissuing identification numbers. This provides a single source for identification and increases the certainty that Institute services are being used by individuals who have the appropriate access.

Matt and Bill are also implementing improved and more comprehensive methodologies for electronically validating the identity of an individual to ensure that only authorized individuals have access to certain resources.

This interconnected solution will further provide RIT future opportunities for adding new modules to integrate with most systems on campus moving RIT closer to a single username, password, and multi-resource environment. Altogether, the enriched CLAWS identity management solution is the cornerstone solution for providing secure entry and access into the RIT electronic community.

© 2006 Logo artwork by Dave Thelen, ITS Communications Services

[Note: "CLAWS is not an acronym for anything," said Campbell when asked about the application's name. "We called it CLAWS because of the RIT Tiger and the fact that the software has its "claws" sunk into every system."]

Account Management: The Next Generation

Unified Directories at the Rochester Institute of Technology

By Matt Campbell, Software Systems Design Engineer, matt.campbell@rit.edu

The following article was written by Matt Campbell as part of his presentation at Educause. He discussed the development and process of building account directories and account management applications for RIT. We add it here to give readers background information about where some of the RIT databases and systems had come from and where they are heading within the next generation of student systems applications.

Sometimes having a historical perspective of where we've come and what has gone on behind the scenes can help in understanding the path RIT is on in developing even more integrated systems. Managing information centrally and becoming more efficient in the use of database resources is imperative.

System integration has been a popular buzz word of late; it is a complex process, but one that can streamline academic and business processes at a large and diverse organization like RIT. What this article will show is that central feeds of information, from authorized sources, and used across multiple systems, can be done effectively so that the whole of the campus can benefit.

Early Campus Computing

One of the first multi-user computing systems on the RIT campus was a single Xerox Sigma-9. Accounts were created only as needed by systems administrators.

In 1981, this Sigma-9 was replaced with the first VAX machines running VMS. Account management on the VAX systems was a manual process done only upon request of the user until 1983 when all users were issued accounts.

The first account management system made its appearance only after the existing VMS environment was merged into a VMS cluster. This relatively simple system needed to create only accounts on VMS and drew from a student records export to assist in filling in data. For about a decade, this was the primary computing environment on campus.

Enter Complexity

For quite some time the VMScluster provided the university with what was needed in terms of multi-user computing. However, faculty began to request software and tools that were only supported under UNIX. One such service was the World Wide Web. In order to continue to leverage the relationship the Institute had in place with the Digital Equipment Corporation, the early UNIX servers on campus were all running Digital Unix. This new environment was so fundamentally different from the VMScluster, current account management procedures were inadequate. The existing VMS account management tools were extended to also create new UNIX accounts for students. However, because VMS and UNIX did not work well together, this extension was, quite appropriately, called the Account Creation Kluge, or ACK.

In order to provide a secure repository for passwords, a DCE server was placed into service. DCE, or the Distributed Computing Environment, is a service based upon Kerberos that provides, among other things, a strong layer of encryption for password related transactions. Unfortunately, at the time, VMS did not support DCE so it was only used for UNIX logins.

A Complex Environment

- **DCE Server**
- **LDAP Server**
- **VMScluster**
- **Tru64 UNIX Cluster**
- **Samba Server**

As email became increasingly mainstream, a need arose for a centralized directory service. To meet this need, a Lightweight Directory Access Protocol (LDAP) server was deployed. LDAP is a protocol that provides, essentially, the electronic equivalent of a printed phone book. Now users needed not only a VMS, UNIX, and DCE account, but they also needed an LDAP record. The tools that were never designed to be added on to were once again expanded.

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A New Direction

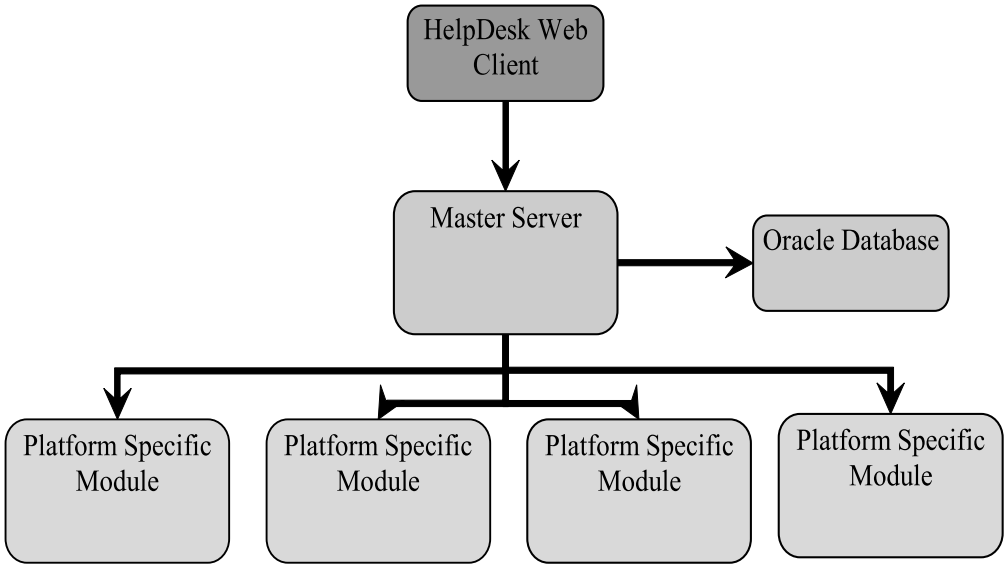
As usage of campus computing resources transitioned from being the exception to being the rule, it became clear that the highly fragmented environment would not be able to sustain itself. A decision was made to better unify the various services provided to the RIT community. A project was formed to develop a new account management system with these high level requirements:

- Synchronize as many accounts as possible.
- Provide a centralized method to update all accounts for a user.
- Make the system easily expandable.
- Build as much cross-platform code as feasible.
- Updates should occur in real-time.
- Budgets are tight, resources are low; minimize expenditures.

A full time programmer was assigned to this task with authority to hire one full-time co-op student and two part-time student employees. This kept costs relatively low and gave real world experience to RIT students.

A Modular Solution

The design team was very conscious of the primary failure of the prior account management solution—lack of expandability. In order to prevent this from being a problem in the future, the new system would allow for modules to be easily plugged in when new services or features were needed.



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RIT Information Security
Safe Transfer of RIT Confidential Information

By Ben Woelk, Information Security Office, ben.woelk@rit.edu

The Information Security Office is aware of weaknesses in existing processes surrounding the transfer and communication of RIT Confidential Information. In order to prevent inadvertent disclosure of confidential information and subsequent notification of affected parties, departments should implement the best practices below.

What you need to do:

Managers should ensure that their Information Access and Protection Plans (IAP) contain adequate safeguards for transferring RIT Confidential Information. Managers should also train their staff members to follow the information handling procedures contained in their IAP plans.

Best practices

➢ **Remove non-essential personal identity information.**
If you must use a unique identifier tied to the SSN, use only the last four digits of the SSN.

➢ **Share RIT Confidential Information within your department or workgroup through the use of shared network folders/file shares.**
However, you must ensure that access to these folders is limited to your department or workgroup and required support personnel. Contact your support organization for instructions.

➢ **Change the default email address list and search order when appropriate.** For example, the Outlook Address Book displays the entire Global Address List by default. This can make it difficult to choose the correct address when student names are intermingled with faculty and staff. Changing the default display to "Employee Resources" will filter students from the default list. Review the user tips at http://security.rit.edu/articles/avoid_inadvertent_disclosure.pdf for instructions on changing the default display, search order and other information handling tips for Windows and Macintosh users.

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digital self defense
Protect yourself and everyone else

Why now:

Examining our handling information procedures now will:

➢ Assist in protecting RIT Confidential Information

➢ Reduce the likelihood of information breaches and subsequent notification required by the New York State Security Breach and Notification Act (December 2005).

➢ Enhance compliance with the Information Access and Protection Standard.

What RIT is doing:

Ongoing initiatives that pertain to RIT Confidential Information:

➢ Each department is required to document and implement an Information Access and Protection Plan. See http://security.rit.edu/iap.html for details.

➢ RIT is eliminating the use of Social Security Number as a means of general identification for all students, faculty, and staff. This conversion will take place during the week after commencement – May 27 – June 4, 2006. An Institute-wide project team is currently working to identify and modify existing forms, processes and databases to provide greater protection of RIT Confidential Information. All RIT students/faculty/staff will receive new RIT ID cards. More information about the project and team representation can be found at http://www.rit.edu/its/initiatives/sirp.

For more information:

New York State Security Breach and Notification Act-Chapter 442
http://nysosc9.osc.state.ny.us/product/mbrdoc.nsf/0/e098d3d90ff83fad852570920046f709?OpenDocument

Chapter 491 http://nysosc9.osc.state.ny.us/product/mbrdoc.nsf/0/5cee53cf1469ba0b852570ca0062b6a1?OpenDocument

Information Access and Protection Standard and Plan
http://security.rit.edu/iap.html

For information on this and other information security concerns at RIT visit http://security.rit.edu or contact the RIT Information Security Office at infosec@rit.edu:

Macintosh Systems with Intel Processors

By Jeremy Reichman, Senior Desktop Support Analyst, jeremy.reichman@rit.edu

A technical overview and initial recommendations for campus

Apple originally announced the move to Intel processors at its World Wide Developer Conference in June 2005, with expected delivery within a year. The transition to Intel processors was anticipated to take two years.

Apple has transitioned technology several times in the past, such as from the Motorola MC68000 architecture to the Apple-IBM-Motorola PowerPC, and then again from Mac OS classic to Mac OS X. Both of these earlier transitions could generally be considered successful. Therefore, this new transition could be expected to follow the precedents of the past.

Apple introduced and began shipping the first of its Intel-based computers in January 2006 at MacWorld Expo. This may be considered six months ahead of schedule, but it is consistent with some other moves of this type from Apple. For example, the MacWorld Expo announcement indicated that Apple would transition its entire Macintosh computer lineup to Intel processors during 2006, rather than through 2006-2007 as had been previously expected. Now that the first Macs with Intel processors are available for purchase, how these systems fit into the enterprise can begin to be evaluated.

One of the biggest factors is software compatibility with the new Intel-based systems. Software for Mac OS X can be delivered as **universal applications** that support both PowerPC and Intel architectures simultaneously. This is similar in concept to the "fat binaries" that were part of the transition from the MC68000 to PowerPC architecture. The ability to run non-universal applications is also important. Finally, we need to understand the supportability of this new hardware.

Continued on next page

Jeremy Reichman is part of the ITS Desktop Support team and supports RIT Macintosh users. Many of his articles, technical overviews and other Macintosh documentation can be found on the ITS website at http://www.rit.edu/its/desktop_support/mac

Mac OS X on Intel processors

The lynchpin of Macs with Intel processors is, of course, a compatible version of Mac OS X.

The Mac OS X 10.4.4 update was introduced along with the new Macs with Intel processors in January 2006. It is the version that ships on the first Intel-based Macs, and this version (or newer) will be required to run them. There is also a Mac OS X 10.4.4 update that does apply to PowerPC Macs running Mac OS X Tiger. The Intel and PowerPC versions carry different build numbers. It is relatively common for one version of Mac OS X to carry a different revision when shipped with new hardware.

The PowerPC version of Mac OS X *cannot* boot an Intel-based Mac—and vice versa. Mac OS X startup disks are currently specific to the two processor architectures. There is no known way to create a single startup disk that will boot both PowerPC and Intel Macs as of this writing.

For security, the Intel-based Macs do have the "no execute" bit in the Core Duo processors enabled by default. This reduces the possibility of common buffer overflow attacks.

Mac OS X 10.4.3 will continue to be available at retail for PowerPC-based Macs. Apple representatives at MacWorld Expo said there were no current plans to introduce a Mac OS X 10.4.4 media set beyond the one that comes with the Core Duo systems. ITS does expect architecture-specific media kits for *Tiger* through our Apple Maintenance Program at some point in the near future. They may also be available through various Apple support contracts. In the meantime, it may be difficult to:

- replace an Mac OS X 10.4.4 Intel media set that is lost, stolen, or damaged
- obtain a media kit for the purpose of supporting Intel-based Macs.

For continuity of Mac OS X system software licensing, we have confirmed that the Apple Maintenance Program (AMP) agreement will cover both the PowerPC and Intel versions of the operating system.

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For continuity of Mac OS X system software licensing, we have confirmed that the Apple Maintenance Program (AMP) agreement will cover both the PowerPC and Intel versions of the operating system.

Macintosh Systems with Intel Processors

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Universal binaries

Universal binaries allow software developers to create one application that runs on both PowerPC and Intel processors without further modification. Applications are compatible with both the PowerPC and Intel processors can be sold or distributed with Apple's "Universal" logo.

Universal binaries require development, recompilation, testing, packaging, and delivery by vendors. The development process is likely to take more time for larger application suites from vendors like Microsoft and Adobe, among others. While there is already steadily increasing number of universal applications, many but not all of those universal applications which have been released to date are smaller projects.

Creating universal applications requires Apple's Xcode Developer Tools. At Apple WWDC 2005, version 2.1 of these tools was introduced. It is currently at version 2.2. Xcode provides the necessary tools for cross development, enabling the creation of universal binaries. One issue that may delay developers in producing universal binaries is porting their applications to the Xcode development environment from others, such as Metrowerks CodeWarrior.

Applications are larger in data size when they are universal.

There are several methods to determine whether specific installed software is universal or not. Some options include:

- The Apple System Profiler utility's various software reports
- The command line utility *lipo*.

PowerPC-only applications on Intel-based Macs

A translation environment known as **Rosetta** is provided to transparently run most PowerPC binaries on Intel systems. Some classes of software will not run in the Rosetta environment, most notably:

- Classic applications
- many kinds of drivers
- any software that would run within an already-native parent application.

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The lynchpin of Macs with Intel processors is, of course, a compatible version of Mac OS X.

Initial benchmarks indicate that non-universal software will run at 30-60% of the speed of a native application, if at all, through Rosetta translation. From those initial tests, it appears that we can expect speed approximately equivalent to a 1-1.67 GHz PowerPC G4 CPU from the new Macs with Intel Core Duo processors (1.67-2.0 GHz clockspeed) when running traditional Mac software through Rosetta.

The relative speed, of course, can vary with the task, and native universal software will eliminate the penalty. Applications which could take advantage of multiple PowerPC processors may also do so under translation, albeit more slowly, on the Intel-based Macs. The performance of the Rosetta translation environment may improve as more RAM is installed in a computer.

There is currently no equivalent of Rosetta that runs in the opposite direction. Therefore, Intel-only binaries for Mac OS X would make little sense today—and would only execute on the much more limited installed base of Intel-based Macs. However, the population of Intel-based Macs will grow—and eventually, the PowerPC population will not. We can expect the performance of the Intel-based Macs to continue to grow as newer processors are unveiled throughout 2006 and beyond. When software developers look at the costs of supporting both architectures, there may be a day in the future—hopefully years away—when some applications run only on the Intel-based systems. That could either be because of the gradual changeover to Intel-based systems in the installed base over time, or because the performance demands are higher than can be met by the last generations of PowerPC Macs.

Application updates for Intel-based Macs

There are several sources to find news about software that has been updated to be universal across the PowerPC and Intel architectures. Macintouch.com currently maintains one such list, and also keeps a report of software that has been tried successfully or unsuccessfully with Rosetta translation.

The software update site MacUpdate.com lists software that has been updated as universal binaries. A similar site, VersionTracker.com, does not appear to provide this specific information yet.

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Macintosh Systems with Intel Processors

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Apple has announced universal updates for many of its applications. The iLife and iWork suites are already universal. Apple's Pro applications (such as Final Cut Pro) will be updated shortly, most by March 2006, and will require either:

- $29-49 "cross-grade" fee to get a universal edition of the *same application version*, even if you have an existing maintenance agreement
- waiting for the *next full version of the application* (if you wish to purchase it individually or take advantage of an existing Apple Maintenance Program agreement).

Microsoft has promised that the next major release of Microsoft Office for Mac OS X will be a universal binary. This is vitally important because of the document compatibility provided by the suite and the Microsoft Exchange support provided by Entourage. (In the meantime, Microsoft Office 2004 does run through Rosetta—and Microsoft states it will "run well in that configuration.") However, until this claim can be verified within our environment, Microsoft Office remains an issue.

Adobe (and by extension, **Macromedia**) has also indicated that its next revision of Creative Suite will be universal, and some other applications will be updated more quickly.

Quark Xpress 7, currently in beta testing, is expected to be a universal binary.

ITS is awaiting updates to the **Cisco** VPN client, which the vendor has stated is now available.

McAfee Virex is expected to be updated, but we do not yet have a timeframe from McAfee yet. Some of its manual functions are supposed to work on Intel-based Macs today.

Hardware introductions

The first Macintosh computers with Intel processors are 32-bit dual core systems. They include:

- iMac all-in-one computer with 17-inch LCD flat panel display and 1.83 GHz Intel Core Duo dual-core processor
- iMac all-in-one computer with 20-inch LCD flat panel display and 2.0 GHz Intel Core Duo dual-core processor
- MacBook Pro laptop with 15.4-inch flat panel display and 1.83 GHz Intel Core Duo dual-core processor.
- MacBook Pro laptop with 15.4-inch flat panel display and 2.0 GHz Intel Core Duo dual-core processor
- MacBook Pro laptop with 15.4-inch flat panel display and 2.16 GHz Intel Core Duo dual-core processor

Supporting Intel-based Macs

Hardware support

There are several ways to determine whether a Mac has a PowerPC or Intel processor. The quickest is to use the "About This Mac" command in the Apple menu. Different boot disks are required for each architecture due to the partitioning schemes used: Apple Partition Map (APM) vs. GUID Partition Table (GPT). The volume format for bootable partitions remains HFS+. Startup disks for Intel-based Macs must be formatted on an Intel-based Macs at this time.

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The iMac and MacBook Pro use Intel EFI and not Open Firmware; they depart from using BIOS, as many other Intel-based system would. They require a different low-level partition format than the PowerPC Macs, which is at least part of the reason why different startup disks are required between the two Mac architectures.

Apple has publicly and repeatedly stated that they will not outright prevent customers from running Windows on their Intel-based Macs. (Apple at this time does not intend to allow Mac OS X to run on Intel-compatible systems from other vendors.)

The Intel-based Macs do have the same basic startup keyboard combinations as the PowerPC Macs—C, Option, N, T, etc.—but also add at least one new key.

Both computers can boot from the same interfaces as the PowerPC Macs—namely, FireWire, NetBoot, and CD/DVD. Apple representatives at MacWorld Expo indicated that they would not boot from USB storage devices.

They can use Target Disk Mode over FireWire, which works with no reported problems between the Mac PowerPC and Intel architectures. However, Mac OS X 10.4 or later is required on PowerPC Macs that act as a Target Disk Mode host.

Mac OS X Server support

Mac OS X Server itself is not yet available for these new Macs, and currently requires a Mac with a PowerPC processor.

The Mac OS X Server 10.4.4 update includes the ability to specify a default NetBoot image separately for both PowerPC and Intel architectures. Other Mac OS X Server functions appear to work without changes when supporting Macs with Intel processors.

Management tools

As of this writing, the Apple Remote Desktop administrative console is not available as a universal application, but the Intel-based Macs do come with a compatible ARD agent.

Tools which manage only the file system and not partitioning *may* work for managing both PowerPC and Intel software together, but this is conjecture at this time. (Recall that different builds of Mac OS X 10.4.4 are installed on each architecture.)

Other Notes

Also at MacWorld Expo 2006, Apple introduced the iLife '06 application suite. This software comes bundled with all new Macintosh computers sold on or after January 2006, including those with Intel processors. On the Intel-based Macs, it does run natively as a universal binary. This release includes the popular iPhoto application, now at version 6—and this is the first revision which does not officially support the PowerPC G3 (750 series) processors.

The iPhoto application is generally targeted at consumers and to some extent, those with lower-end computers. As such, ITS considers the lack of PowerPC G3 support in this application an indicator that Apple may be phasing out support for the G3 processor overall.

It is unknown how long Apple will continue to support Mac OS X on PowerPC-based computers. However, PowerPC computers are still being sold as new in 2006.

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Macintosh Systems with Intel Processors

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Recommendations

Purchasing the new Intel-based systems for enterprise deployment is not recommended at this time. That recommendation is not the final word and may change quickly as ITS gets a chance to evaluate the shipping systems in the campus computing environment. The advice is based primarily on software compatibility, and that situation should improve dramatically in a short time. The full supportability of these systems is still in question, as we wait for software updates and availability of media kits and other support resources.

Those with an investment in Macintosh equipment should consider buying a limited number of Intel-based Mac test units for evaluation sooner rather than later.

Check with ITS and peer organizations often, perhaps every three months. As ITS receives test units, we will be better able to determine how well the Intel-based Macs will fit in. The MacTech mailing list is a good resource for sharing experiences on these new computers so that the entire campus community benefits.

Departments with a need for the most compatible systems in the next 3-9 months should purchase appropriate PowerPC Macs as soon as possible. PowerPC Macs that overlap the Intel-based Mac models are being sold "while supplies last." Apple has already begun phasing out inventory of the PowerPC-based iMac G5 and PowerBook models that were replaced by the new Intel-based Macs. For example, the 17-inch iMac G5 models are already running out of stock in the sales channel. PowerPC Macs will be the most compatible systems in the short term—they will continue to run non-universal software and Classic applications—so plan to obtain and deploy them where it makes the most sense.

Communicate with your software vendors to make sure they know you need universal applications. Whether you work with common, commercial, scientific, or specialty/niche software, vendors should understand your plans to move to Intel-based Macs so they can produce the software that meets your needs within an acceptable timeframe. This feedback will be especially important if you need drivers or other support software for specialized hardware devices. While talking to software vendors, make sure you impress upon them that this software should also be secure, support systems with multiple users, and work correctly even without local administrator rights. When contacting vendors, please be courteous because they likely understand the need and are already expending effort to make their applications universal.

Identity Surgery

Continued from page 4

Other offices are very supportive of the change, despite the fact that many of their processes and procedures will change. One of the most affected departments is the Registrar's Office, which has responsibility for the maintenance of course schedules, grades, and ID card information. "This requires a great deal of effort and planning," says Joe Loffredo, Registrar. "We will need to print a new ID card for every student, faculty and staff member at RIT. But it absolutely needs to be done to protect people's personal information."

The new University ID number will be a nine digit number, as is the SSN. The nine-digit numeric format was selected to minimize the impact to the many downstream systems run by colleges and divisions dependent upon the ID number. Some of these systems are not able to handle alphanumeric characters or numbers larger than nine digits. ID numbers will be randomly generated – they will not be sequential – for security purposes.

Although the University ID number will be the same length as an SSN, it will not match any valid SSN – present or future – issued by the Social Security Administration. This is because the 4th and 5th digits of the University ID will be "00", a condition which no valid SSN would have. The resulting number will have seven significant digits and be formatted with a dash (nnn00-nnnn). This format will make it easier to memorize.

As large an impact as the project has on the workload of ITS, the total impact to the various colleges and other divisions on campus could be even greater. A campus wide project – originally named the Student ID Replacement Project or "SIRP" – is managing the effort. (Replacement ID numbers for faculty and staff are also included in the project's scope, despite the project's name). A task force made up of representatives from all of the colleges and divisions of RIT has been meeting and planning since last September. The members of this task force are responsible for the software and process changes that must be implemented for the project to be successful. A list of task force team representatives and other information is available on the project website - www.rit.edu/its/initiatives/sirp.

A New University ID Card

The Social Security Number, currently used as an ID number for RIT students, faculty and staff, is stored in the barcode and on the magnetic stripe on every RIT ID card. Because everyone will be getting a new ID number, this means everyone must get a new ID card—which makes this an opportune time to review the card design. Joe Loffredo, Registrar, has led the search for a new card design. He has collected input from a wide variety of sources, including students, alumni, faculty, and staff.

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"This requires a great deal of effort and planning," says Joe Loffredo, Registrar. "We will need to print a new ID card for every student, faculty and staff member at RIT. But it absolutely needs to be done to protect people's personal information."

Identity Surgery

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The new card will be different in several ways. One change is in orientation – the new card will be portrait, not landscape. This will make it easier to hang it from a lanyard, a practice which has grown at the university as a means of identification. The University ID will still be stored in a barcode and in a magnetic stripe on the card as it is today. The barcode, however, will be displayed on the back instead of the front, to make the card more visually appealing. ID cards for non-exempt employees are an exception to this rule, as a front-displaying barcode is convenient for swiping into the time tracking system (Kronos). Both magnetic stripes will still be printed on the back of the card – and the larger one will contain the new University ID number. The thinner stripe will continue to be used by the Wallace Library for copier accounts.

Getting Your New ID Card

Everyone that holds an RIT ID card today will need to get a new card. Once the change to the new University ID is made, none of the current cards will function properly – i.e., they will not work in dining halls, the bookstore, for building access, or for any other function. This is because all of these transactions will utilize the new University ID number which is not on the existing cards.

Distribution of the new ID cards will be managed by the Registrar's Office with assistance from Housing Operations for Fall move-in. New cards will be distributed as follows:

- University IDs and cards for **faculty and staff** will be generated and pre-printed by the Registrar's Office. **They will be available for pickup at the Registrar's Office starting on May 1, 2006.**

- University IDs and cards will also be generated and pre-printed for any **RIT student that registers for classes and those living in RIT housing in the Summer Quarter. These cards will be available for pickup at the Registrar's Office starting on May 8, 2006.**

- University IDs and cards for **RIT students returning in the fall and living in campus housing** will be distributed by Housing Operations as part of the move-in process. More details will be communicated during the summer.

- University IDs and cards for **RIT students returning in the fall and not living in campus housing** will be available for pickup at the Registrar's Office prior to the start of the Fall Quarter.

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Identity Surgery continued

Using Your New ID Card

When most faculty and staff receive their new ID cards in May, they will not work right away. This is because the distribution of cards must take place ***before*** their activation, so that the volume of cards can be handled efficiently.

The new RIT ID cards will become active during the week between ***May 27 and June 3, 2006*** – the week immediately following the May 2006 commencement ceremony. Due to the nature of the conversion, the old RIT cards will be needed up until that week – use of the new cards will be required starting that week. A more detailed conversion timeline will be communicated via email and via the project website at www.rit.edu/its/initiatives/sirp.

For More Information… Please Attend an Open Forum

Information forums about the transition, new cards, and to answer other questions are being held now. Students, alumni, faculty, staff and anyone with an RIT ID card are welcome to attend. The forums will contain information on how to obtain a new card, what to do if you lose your card, and answer general questions about the transition to the new University ID number. Dates, times, and locations of these information forums are posted on the project website at www.rit.edu/its/initiatives/sirp.

Oracle Applications

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I'm a student. How will these changes affect me?

Students who want to work on campus will still need to provide their SSN to the Student Employment Office when they request a work eligibility card. Students will not need to provide their SSN to the departments hiring them. Rather, they will provide their University ID.

Student workers who use the Oracle Applications to access the myinfo.rit.edu site to view their pay slips will notice that the University ID will be displayed on the *My Personal Info* page. This will provide an additional way for student workers to look up their University ID. (Student workers will also be able to view their University ID via the myRIT portal).

There will be no change in how student workers record their time in the Kronos time clocks.

How will I be affected if I get an authoritative feed from the Oracle Applications?

RIT organizations that today get authoritative feeds from the Oracle Applications that contain SSN will have SSN replaced with University ID. If you receive a partial SSN today, you will receive a partial University ID in the future.

In addition to making changes to the Oracle Applications, the Financial Systems Development team is also implementing software to integrate the Oracle Applications with the Identity Management System (IDMS). IDMS is the system that will be creating and maintaining University ID's and related information. This software will ensure that new employees who already have a University ID assigned to them are not assigned a new University ID while creating University ID's for new employees who have had no previous affiliation with RIT.

If you have any questions regarding any change mentioned in this article, please contact Julie Hawk for HR questions, Joanne Stuewe for questions on student employment, Christa Abugasea for payroll questions, Sean Cartwright for Kronos questions and Kim Sowers for general technical questions.

Account Management: The Next Generation

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Key Benefits

Several benefits accompanied the above solution, termed the Account Management System, or AMS. A light weight web client allowed for the application to be accessed on virtually any computer. SSL could easily be used to secure the transactions between the desktop and the web server. Client updates and upgrades on a web application also do not require the re-deployment of the software to all end user computers.

The master server is designed, for the most part, to be completely ignorant of the process for managing an account. Requests from the client are simply passed on to all of the modules the client specifies. In most cases, the client will elect to send requests to all attached modules, however this is not required. For example, when changing just a password, there is no need to send the update to modules that do not manage passwords. The server will start an individual thread for each module and run them in parallel, except in the case where one module depends on another. The addition of another module requires a simple configuration file change and a restart of a server. In the event that the new module needs information not currently provided, additional fields may need to be added to the web client.

This solution removes the need to have multiple tools for account management on diverse platforms. The amount of time it takes HelpDesk personnel to create or modify the attributes of a user account is greatly reduced. For example, if a user changes their last name the HelpDesk need only update it in one place. Account errors are also reduced since there are fewer steps in the process to forget or perform incorrectly. Since it is now easier for first level HelpDesk support to provide service, escalation to second and third level support is greatly reduced, yielding additional time for higher level technical expertise to focus on other critical matters and key projects.

New Directory

The solution outlined in the previous section worked very well for two years with very little being changed or updated. However, as the existing email systems continued to age, the demand for a replacement grew. After considerable review and discussion with the campus community, Microsoft Exchange was selected as the solution. With Exchange came the need for an Active Directory environment to support the 20,000 accounts currently active in the existing environment. Another account base needed to be added. However, with the design of the system, this was as easy as adding a new module and performing minor updates to the web client. This was done quite successfully and in a matter of a few days, AMS was handling Active Directory accounts. At the same time the decision was made to migrate from the aged DCE authentication server to a more supported Kerberos server. A module was also added, in a few days to support this initiative. An added benefit of the design became apparent. It was now possible to migrate from one authentication system to another without forcing all users to change their passwords at the same time. Running the two systems in parallel for one year synchronized more than 95% of the account passwords between the two systems.

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Too Many Passwords

DCE Server
LDAP Server
VMScluster
Tru64 UNIX Cluster
Samba Server
Kerberos Server
Microsoft Active Directory

New Requirements

With the deployment of, and subsequent rush to use, the new Active Directory environment, several enhancements to the AMS system were desired:

- Provide self-service applications to users to facilitate the reduction of HelpDesk calls.
- Provide more detailed information about a user in the directory, such as telephone numbers and addresses, and unify this information across LDAP and Active Directory.
- Allow users to manage their own "identity" information.
- Create and maintain groups for enrollment in classes, programs, departments, colleges and more.
- Synchronize information about users and accounts with authoritative sources such as Human Resources and Student Records.

The AMS system was not initially designed to keep up to date directory information, but rather simply manage accounts. Therefore, these requirements could not be met with what was on hand.

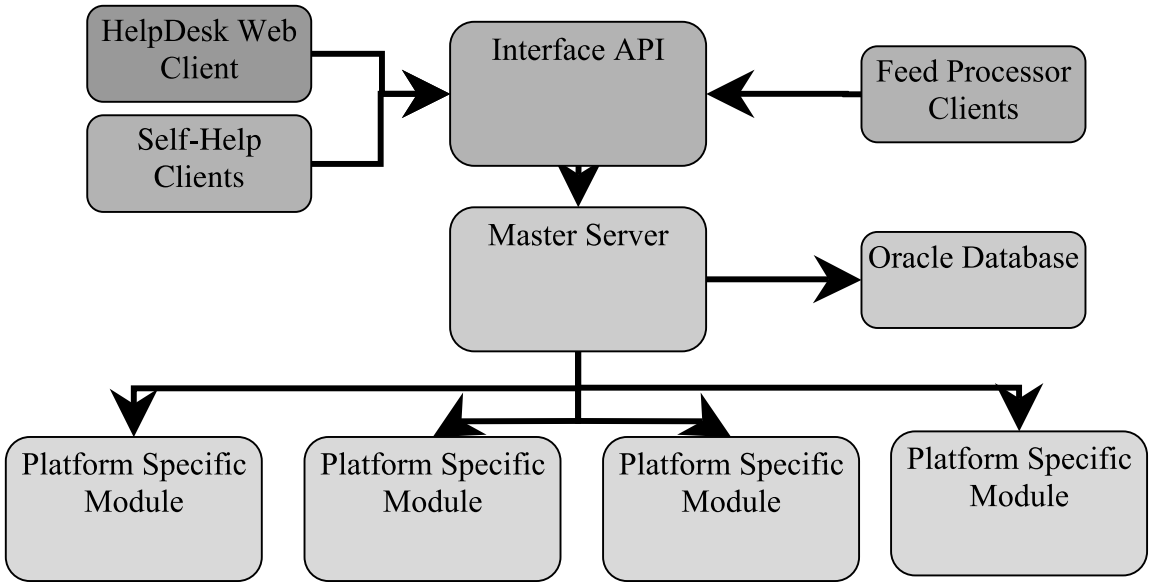
COTS?

Initially, off-the-shelf solutions were sought to provide the directory integration. After a period of research and evaluation, the decision was made to use the IBM Directory Integrator. During evaluation of this product, the realization was made that the AMS system had 90% of the functionality needed to meet these new requirements.

Due to the proprietary nature of the IBM product, and the amount of development time required to integrate it into the environment, the decision was made to expand the existing software.

The Minor Changes

The high level design of the system was changed to accommodate these new requirements.



To start, an interface API was created to handle all communication with the core of the system. In order to keep this API as platform independent as possible, as well as ensure that it be easy to integrate with web-based applications, PHP was used as the development tool. The HelpDesk web client was used as the base for this API and subsequently reworked to use it.

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Account Management: The Next Generation

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Several new self-help clients were created, including

- A password changing tool so that all passwords could be updated in one place
- An account activation tool so new students could activate their accounts before even coming to the institute.
- A password reset tool for users who have forgotten their passwords.
- A tool for managing email routing and delivery as well as custom email addresses and aliases.
- A tool to manage the way your name appears in electronic resources. For example, a user can elect to use their entire first name, a nickname, or even just their first initial.
- A tool to manage a user's contact information, including phone numbers and addresses.
- A tool for students to migrate themselves to the Exchange email system from the existing VMS and UNIX mailers.

Finally, several automated feed processors were created to process data from authoritative data sources, including:

- Enrollment information translated into groups in both LDAP and Active Directory
- Identity information automatically updated in directories, including
  - Name
  - Job Title
  - Faculty Rank
- Department information translated into groups in both LDAP and Active Directory

New Benefits

The platform-independent API allowed for a much more rapid development cycle of subsequent tools because new software would not need to duplicate the code for handling protocol and other such considerations.

Adding an automated account creation process for new students, virtually eliminated the need for long lines during registration to distribute computer accounts.

The addition of the self-help applications significantly increased the amount of control a user had over their account, while at the same time reducing HelpDesk load.

Authentication could now be based on much more granular criteria. For example, access to a computer lab could be restricted not just based upon a user's status as a student, but also upon their enrollment in a specific class or program.

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When performing certain changes, such as a last name change due to marriage, users would no longer need to worry about visiting the Help-Desk and updating their last name in all of their accounts. Rather, with daily feeds from the Human Resource and student records systems, pertinent fields would be automatically updated on a daily basis.

New Caveats

While the solution devised may seem more than ideal, it is not without its minor drawbacks. For example:

- Existing self-help user tools must be removed, disabled, or restricted.
  - Ex: Unix passwd command, Active Directory Users and Computers
  - Ex: LDAP updates restricted to software only
- Adding a single point to update a user's accounts also adds a single point of failure. An error in updating may lead to all accounts being left in an undesirable state.
- Providing a user with self-help tools also allows them to impose problems upon themselves.
  - Ex: Giving users the ability to update their email forward also gives them the ability to forward it into the bit bucket by accident.

Conclusion

In a large technical university, diverse computing platforms and systems are unavoidable. Settling on one software and/or hardware vendor for all computing needs is simply not a viable option. While this problem does impose certain hurdles on providing a seamless environment to the end user, it has been shown here that it does not preclude seamlessness.

While the effort in developing this system was substantial, the rewards have been significant.

- Users are now better equipped to help themselves, removing the need to wait in a HelpDesk queue for a simple request.
- There is no longer a need to manually change passwords on numerous and diverse systems
- Since the system was designed, written, and maintained by RIT, it perfectly matches the needs of the Institute. It can be written to support existing procedures rather than needing to modify procedures to conform to an off-the-shelf tool.
- The easy to use web application allows the HelpDesk to spend time focusing on helping customers with problems, and significantly less time on account management.

There is no doubt in anyone's mind that this solution was the best to meet the institute's needs. If given the opportunity to do it all over again, slight changes may be made but the decision to grow this here at home would still have been made.

If given the opportunity to do it all over again, slight changes may be made but the decision to grow this here at home would still have been made.

ITS HelpDesk

Located in the Gannett building, rm. 7B-1113

To contact the ITS HelpDesk

- Call 475-HELP or 475-2810 (TTY)
- Send e-mail to helpdesk@rit.edu
- For telecommunications services questions call 475-5800

Regular hours

Sunday	12 p.m.–6 p.m.
Monday–Thursday	7:30 a.m.–8 p.m.
Friday	7:30 a.m.–5 p.m.

DSS Computing Labs

Hours, locations, hardware, software, and reservations information available at: http://www.rit.edu/its/services/computer_labs

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