Implementation of Operational Framework in the Nlp (Based On Mof and Itil Standards)

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Implementation of Operational Framework in the NLP (based on MOF and ITIL Standards)

November 13, 2005

Submitted to:
Professor Dan Likarish

Submitted by:
James Kapp

A Practicum Report submitted in partial fulfillment of the requirements for the degree of Master of Science in Computer Information Technology

School for Professional Studies
Regis University

Denver, Colorado
November 2005
Acknowledgements

The author would like to thank Dan Likarish for his leadership, friendship, strong guidance and unfaltering support for all students throughout the course of the practicum. Without his dedication to the programs and each student’s individual success this practicum would not have performed as well as it did. His unfailing encouragement through a period of personal crisis was the motivation for the author to complete the project and the culminating thesis. Thanks Dan. Working with you ranks among the better experiences of my life, professionally and personally. Dr. Jim Lupo was very helpful during the early stages of the practicum and I would like to acknowledge his help and assistance. Another individual that provided instruction in several processes was Joey Aguilera. His patience and detail was essential to several pieces of documentation that were produced. The assistance of Byron Mueller who took on the role of Technical Lead provided a strong resource for several of the students and his assistance in leading the practicum is appreciated. Lastly I think that it is appropriate to recognize Regis University for the fine organization that it is. Based on solid principles of faith and a true dedication of the educators of this institution to provide their students with an education of the highest quality, it served as a nutrient rich media that nurtured my educational enrichment with every class and throughout the final practicum.
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Abstract

An operational framework, as proposed by the Microsoft Operational Framework (MOF) and the Information Technology Infrastructure Library (ITIL) provides a process model for controlling and managing Information Technology (IT) operations. With a strict focus on IT operations, it provides the processes and terminology to coordinate and integrate the functional elements of an IT department. The Systems Engineering and Applications Development (SEAD) practicum is composed of four main groups; Data Access, Network, Integrated Services and Development. This professional project will propose the beginning framework for overall operation and integration of the SEAD Practicum with an emphasis on service support and documentation. The key deliverable of this project is the determination of a documentation standard and the creation of documentation of common processes that are performed routinely by the SEAD group. This will serve as a basis for transitioning between subsequent practicum and as a foundation upon which other MOF and ITIL processes and standards can be implemented.
Chapter 1: Introduction

Statement of the Problem
The Systems Engineering and Applications Development (SEAD) practicum was developed to provide a structured program within which students could gain practical hands on experience in their area of academic focus.

At the beginning of the 2005A Network Lab Practicum (NLP), starting in January of 2005, the Regis Academic Research Network (ARN) had suffered from reduced student attendance due to the economic downturn of the prior few years. The NLP had a somewhat loose architecture without clear assignments and responsibilities, not having enough students to establish a functional hierarchy. Despite work by prior students, the desired development of standards-based program architecture could not be accomplished. There was little documentation of the routine processes that the NLP group is tasked with performing. Much of the work was contracted out to the contractor Joey Aguilera. Instructions and requirements were routinely conveyed to him in telephone conversations with no documented history maintained.

Goal to be Achieved
The objective presented to the NLP 2005A program, having finally reached an enrollment level that could be organized into a business-like hierarchy, was to develop and implement an architecture based on Microsoft Operational Standards (MOF) and IT Infrastructure Library (ITIL) standards. The purpose of this project is to implement this operational framework and functionality in the NLP by creating a foundation that can be maintained, transitioned and further developed, from one practicum session to another. There were four main objectives to this strategy; organization of the practicum into hierarchical groups based on functionality, assignment of tasks to those groups based on their functionality, a
structured methodology for assigning those tasks and the documentation of the routine tasks according to a structured format so that future transitioning would be facilitated.

Relevance of the Project

By implementing organizational structure in the SEAD practicum and maintaining that structure as the practicum transitions to new sessions the routine tasks can be more easily transitioned. Routine tasks associated with each group remain with that group. New assignments are made with each practicum to keep ARN growing and updated as new technologies become available. With detailed documentation of the routine tasks this transition from one practicum session to the next is facilitated. As well, the completion of such critical tasks as Citrix account creation for DBA and Galway classes is more easily accomplished in a timely and efficient manner without having to employ the services of the outside contractor.

Barriers

One barrier that has been persistent for the SEAD practicum is the fluctuating student population and the geographic location of those students. The number of students directly impacts the amount, and types, of work that can be accomplished in a practicum. Most routine work for the maintenance of ARN can be completed remotely, however there are some tasks, such as anti-virus installations and Symantec Anti-viral Server maintenance that in most instances require someone to be physically present.

Scope of the Project

The author of this project was assigned the hierarchical position of Administrative Lead. As such, the author was involved with the organization of students into the hierarchal groups, meeting organization and planning, correspondence with students and between groups to facilitate clear communication and to remedy any problems as well as numerous tasks and the
documentation of those tasks. The scope of this paper is to describe the (hopefully) enduring accomplishments of the student and the other students during the course of the 2005A SEAD practicum.
Chapter 2: Review of Literature / Research

Overview of the Literature

All of the models that are outlined below have at their core a methodology of establishing structure, control and discipline to IT services. Five leading methodologies were researched in order to gain an understanding of their core principles.

Literature and Research

The literature studied was largely available on reputable Internet sources such as Microsoft or from notable magazine sites, for example CIO Magazine, that publish their work on their Web site as well as in hard copy.

Control Objectives for Information and related Technology (COBIT)

Control Objectives for Information and related Technology (COBIT) has a business orientation theme with 34 high-level Control Objectives, one for each of the defined IT processes, organized into the four domains of planning and organization, acquisition and implementation, delivery and support and monitoring. These are utilized to establish Maturity Models by which an organization can measure it’s relation to best practices in the industry and to establish the framework of IT Governance. IT Governance is defined by the IT Governance Institute in their COBIT 3rd Edition Executive Summary as “A structure of relationships and processes to direct and control the enterprise in order to achieve the enterprise’s goals by adding value while balancing risk versus return over IT and its processes.”

In this model, the business objectives are defined by the direct input from management. It Governance, in the form of the four main domains which are composed of the 34 high-level Control Objectives, is employed to manage the IT processes to meet the management business objectives. The following graphic displays this framework.
COBIT Processes

COBIT IT Processes Defined Within the Four Domains


Figure 1  COBIT processes within the four domains.
IT Governance Management Guideline

Critical Success Factors, which define the most important management goals, are measured by Key Performance Indicators. Key Goal Indicators report whether its business requirements have been achieved. The following excerpt from the COBIT 3rd Edition Executive Summary best defines these factors and indicators.

IT GOVERNANCE MANAGEMENT GUIDELINE

Governance over information technology and its processes with the business goal of adding value, while balancing risk versus return ensures delivery of information to the business that addresses the required Information Criteria and is measured by Key Goal Indicators.

is enabled by creating and maintaining a system of process and control excellence appropriate for the business that directs and monitors the business value delivery of IT.

considers Critical Success Factors that leverage all IT Resources and is measured by Key Performance Indicators.

Critical Success Factors

• IT governance activities are integrated into the enterprise governance process and leadership behaviours
• IT governance focuses on the enterprise goals, strategic initiatives, the use of technology to enhance the business and on the availability of sufficient resources and capabilities to keep up with the business demands
• IT governance activities are defined with a clear purpose, documented and implemented, based on enterprise needs and with unambiguous accountabilities
• Management practices are implemented to increase efficient and optimal use of resources and increase the effectiveness of IT processes
• Organisational practices are established to enable: sound oversight; a control environment/culture; risk assessment as standard practice; degree of adherence to established standards; monitoring and follow up of control deficiencies and risks
• Control practices are defined to avoid breakdowns in internal control and oversight
• There is integration and smooth interoperability of the more complex IT processes such as problem, change and configuration management
• An audit committee is established to appoint and oversee an independent auditor, focusing on IT when driving audit plans, and review the results of audits and third-party reviews.

Information Criteria

- effectiveness
- efficiency
- confidentiality
- integrity
- availability
- compliance
- reliability

IT Resources

- people
- applications
- technology
- facilities
- data

Key Goal Indicators

• Enhanced performance and cost management
• Improved return on major IT investments
• Improved time to market
• Increased quality, innovation and risk management
• Appropriately integrated and standardised business processes
• Reaching new and satisfying existing customers
• Availability of appropriate bandwidth, computing power and IT delivery mechanisms
• Meeting requirements and expectations of the customer of the process on budget and on time
• Adherence to laws, regulations, industry standards and contractual commitments
• Transparency on risk taking and adherence to the agreed organisational risk profile
• Benchmarking comparisons of IT governance maturity
• Creation of new service delivery channels

Key Performance Indicators

• Improved cost-efficiency of IT processes (costs vs. deliverables)
• Increased number of IT action plans for process improvement initiatives
• Increased utilisation of IT infrastructure
• Increased satisfaction of stakeholders (survey and number of complaints)
• Improved staff productivity (number of deliverables) and morale (survey)
• Increased availability of knowledge and information for managing the enterprise
• Increased linkage between IT and enterprise governance
• Improved performance as measured by IT balanced scorecards

IT Governance Maturity Model

The IT Governance Maturity Model has six levels of development, each building on the foundation of prior levels to achieve greater sophistication.

0. **Non-existent:** At this level there is no IT governance in the organization and it is unlikely that there is no awareness of any issues with their processes.

1. **Initial / Ad Hoc:** This stage is characterized by a general awareness of IT governance issues however each process is handled on an Ad Hoc or individual basis. Any monitoring or process assessment is probably reactive when a problem arises rather than pro-active.

2. **Repeatable but Intuitive:** An organization at this point has gained awareness of IT governance and is at some stage of the implementation of measurement and assessment standards to their framework. Management has identified the governance standards however the use of these standards is not inculcated into the IT culture yet. Efforts are roughly repeatable but success is largely based on the level of skills of individuals.

3. **Defined Process:** With IT governance in place the organization can now follow a defined architecture from the planning phase through implementation, delivery and support and monitoring. The tools are standardized and metrics are used throughout the cycle to measure performance and to detect problems, however the organization is still not at a level where root cause analysis is routinely employed to further refine the processes. Key performance is measured, tracked and reported.

4. **Managed and Measurable:** IT governance is well inculcated into the IT framework and processes are managed and processes are measurable throughout the complete process cycle. Standards are well defined and well understood throughout the organization at all
levels. Performance tolerances are measured and enforced, with root cause analysis being performed. The organization is beginning to work towards a system of continuous improvement throughout the enterprise.

5. **Optimized:** Enterprise governance and IT governance are integrated into a well functioning, self measuring and improving organization that is characterized by the use of industry recognized best practices. IT is leveraged to optimize the competitive edge of the organization and to maximize efficiency and minimize costs within the organization. Training is inherent to the operation and extends across departmental barriers. Processes and risks are well defined and root cause analysis of all problems is pursued to further optimize the overall execution of the operation. The organization has future oriented view of growth and refinement in its processes.

In many ways, these levels of maturity are very similar to those found in the Capability Maturity Model Integration (CMMI).

**Capability Maturity Model Integration (CMMI)**

The Capability Maturity Model (CMM) was originally developed by the Software Engineering Institute at Carnegie Mellon University to describe a five stage framework of process and capability management. This model was based on stages of maturity beginning at the Initial immature level, through the successively more mature levels of Repeatable, Defined, Managed and Optimized. With sponsorship by the U.S. Department of Defense, Carnegie Mellon University has expanded this framework into the expanded and evolved Capability Maturity Model Integration (CMMI).

This model (CMMI) is currently being employed successfully by such organizations as Boeing, General Dynamics, Intel, NASA, Lockheed martin, U.S. Air force, U.S. Navy, U.S.
Army and many others that have a large organizational structure that need a strong control framework. Lockheed Martin claims increased software productivity gains of 30% with unit software costs decreased by 20% and defect detection and repair costs down by an additional 15%. General motors Corporation reports that milestones met over the last two years are up over 30% with delays reduced from an average of 50 days down to 5 days. These results are testament to the effectiveness of the CMMI Framework.

**CMMI Models**

CMMI models are available for four main bodies of knowledge:

- Systems Engineering (SE)
- Software Engineering (SW)
- Integrated product and Process Development (IPPD)
- Supplier sourcing (SS)

These bodies of knowledge can then be represented in two available models in the CMMI architecture, the Continuous Representation and the Staged Representation. With the same basic content organized in different ways both representations present a model for process improvement. In the document Capability Maturity Model Integration (CMMI) Overview the Carnegie Mellon Software Engineering Institute compares the two representations in the following table.

<table>
<thead>
<tr>
<th>Continuous Representation</th>
<th>Staged Representation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum flexibility for order of process improvement</td>
<td>Predefined and proven path with case study and ROI data</td>
</tr>
<tr>
<td>Focuses on improvement within process areas</td>
<td>Focuses on organizational improvement</td>
</tr>
<tr>
<td>Improvement of process areas can occur at different rates</td>
<td>Overall results summarized in a maturity level</td>
</tr>
<tr>
<td>Source selection investigation can target risky areas at any level</td>
<td>Maturity levels are common discriminators</td>
</tr>
</tbody>
</table>

Copyright 2005 Carnegie Mellon University  CMMI Overview

*Table 1 CMMI representation Comparison*
Continuous Representation

The Continuous Representation uses four predefined process areas, each broken down by specific process segments to provide a framework for organizational improvement. The following figure provided in Carnegie Mellon Universities’ document Capability Maturity Model Integration (CMMI) Overview displays the continuous representation breakdown.

Figure 2  Continuous View of CMMI

Capability Levels of Continuous Representation

There are six capability levels in the Continuous representation, each layer building upon the foundation of the lower layer, representing a continuous path for process improvement. These
layers are, starting from the least capable and each layer building on the last up to the most capable.

- **Incomplete**: The organization at this stage lacks sound management practices and effective planning. Generally it is reaction driven and is plagued by process short-cuts and little to no focus on managing the process life cycle. Performance is primarily based on the capabilities of the individuals involved and not on the innate structure of the system.

- **Performed**: Basic policies for process development are established, based on earlier successful practices rather than on a best practices framework.

- **Managed**: At this stage basic project and management controls have been implemented. Controls are in place to prevent unauthorized changes.

- **Defined**: At this stage there is a documented standard for the development process. Roles and responsibilities are defined as well and training is implemented to make sure that these are clearly understood. Each project is tailored to the specific business needs of the project objective. Project cost, progress and quality are all tracked.

- **Quantitatively Managed**: Having developed through the previous levels, metrics are now in place for project processes, products and results. These metrics are used to manage processes and results within measurable limits in order to develop products with a predictably higher quality level.

- **Optimizing**: At this optimum stage the entire organization would be focused not only on optimal product quality but continuous process improvement as well. Best practices are employed and a system is in place to use metrics to measure problems and defects and to
determine and remediate the root causes. Innovations and new technologies are incorporated as the industry evolves.

The Staged Representation

The Staged Representation focuses more organizational than process improvement but does focus on improvement of selected process areas. Each improvement sequence builds upon the last as with the Continuous View. Based upon maturity levels and then broken down into process models, the Staged view is presented best by the figure provided in Carnegie Mellon Universities document Capability Maturity Model Integration (CMMI) Overview.

Figure 3  Staged View of CMMI
Maturity Levels of Staged Representation

There are five maturity levels to the Staged Representation. These are summarized in the representation below from the same source.

![The Maturity Levels](image)

**Figure 4  Staged Representation Maturity Levels**

**Six Sigma**

Six Sigma methodologies utilize traditional scientific methods of analysis to decompose problems down to their most basic identifiable elements through a series of five phases. The data obtained is tested using these steps to determine cause and effect relationships and to remedy the causes.
Define Phase

The Define Phase is designed to take the higher level process and begin breaking it down into the sub-processes that constitute it. Empirical observation and deductive reasoning are employed to understand the relationships between the sub-processes and their single point functionality.

Measure Phase

In the Measure Phase quantitative data analysis is used to add further understanding of each functional element.

Analyze Phase

In the Analyze Phase multiple testing cycles and various experimental techniques are utilized to identify the root causes and effects. There are several analytical principles that are used in this cycle.

- **Ockham’s razor** – given multiple theories to explain a situation, go with the simplest theory that adequately accounts for the data.

- **Hanlon’s Razor** – According to Rob Tripp, Scot Shank and Mike Carnell in their article ‘Toolbox? We Don’t Need No Stinking Toolbox!’, this rule says "Never attribute to malice what can adequately be explained by incompetence." Often there are problems in the process that facilitate human mistakes.

- **Intellectual Flexibility** – It is essential to use multiple cognitive skills and methods of reasoning to cross the barriers to understanding an issue. Quantitative, qualitative, deductive, analytical and intuitive reasoning all come into play as an open mind is needed to eliminate bias. Intellectual honesty to truly accept and deal with the results is an absolute must.
Control Phase

In the Control Phase action must be taken in initiate and maintain the changes necessary to implement change and to maintain the optimization cycle.

**IT Infrastructure Library (ITIL)**

The IT Infrastructure Library, or ITIL, was developed in the late 1980’s by the Central Computer and Telecommunications Agency, a now extinct branch of the British government, in response to the newly expanding dependence on IT services. ITIL is now a registered trademark and Community Trade Mark of the Office of Government Commerce (OGC). ITIL provides a process model for integrating IT services to best meet business objectives with quality of service, reduced problems and faster problem resolution, increased efficiency and strong security. ITIL is a framework of best practices gathered from public (government) and private (business) IT organizations around the world. ITIL is offered as seven distinct categories described in a set of eight texts sold by the OGC. In all, there are over forty books in the ITIL library but these eight form the core IT functionality.

Service Support

Service support consists of the processes involved in day-to-day support and maintenance of IT services. It is comprised of six disciplines.

1. **Configuration Management**

Configuration Management is the implementation of a Configuration Management Database (CMDB) that contains a wide range of information about the organization. It functions to provide identification, control, status and verification of information about hardware, software, personnel and documentation.

2. **Problem Management**
Problem Management is concerned with the resolution and prevention of incidents that impact IT processes.

3. **Incident Management**

Incident Management is specifically related to the discipline of problem management.

4. **Change Management**

Change Management directs the process of planning and implementing changes, including the initial reason for the change, testing the change and monitoring the change with a backout plan should there be a problem.

5. **Service / Help Desk**

Service / Help Desk is the first line contact for users having a problem. The main function is to provide incident control and communication within the organization, usually with a formal escalation process for more technical issues.

6. **Release Management**

Release Management has to do with the control of software development and distribution. Typically it involves a logical store and a physical store as elements of the Definitive Software Library (DSL). The physical store is where master copies of software media are kept whereas the logical store is comprised of the index of all software, versions and the electronic storage of software developed within the organization.

**Service Delivery**

Service delivery deals directly with the management of IT services and the levels of performance of those services. It consists of five disciplines.

1. **Service Level Management**
Service level Management is involved with overall management of all IT services and their delivery according to agreed levels of service. Service Level Agreements (SLA) are a key part of this discipline. According to ITIL & ITSM World it is composed of the following business processes.

- Reviewing existing services
- Negotiating with the Customers
- Reviewing the underpinning contacts of 3rd party service providers
- Producing and monitoring the Service Level Agreement (SLA)
- Implementation of Service Improvement policy and processes
- Establishing priorities
- Planning for service growth
- Involvement in the Accounting process to cost services and recover these costs
- Providing IT Security

2. Capacity Management

Capacity management is in place to ensure that IT services are provided efficiently and at a sufficient level of performance. ITIL & ITSM World lists the following key inputs in this process.

- Performance monitoring
- Workload monitoring
- Application sizing
- Resource forecasting
- Demand forecasting
- Modeling
3. Contingency Planning

Contingency is really the business of continuity management and disaster recovery. The objective is to recover quickly from a catastrophic event and to provide continuity of IT services and data availability with as little interruption and loss as possible.

4. Availability Management

Availability management has to do with identifying levels of IT service which are definable and measurable as applied to Service Level Agreements (SLA).

5. IT Financial Management

IT Financial Management is the business of providing IT services at a cost that is optimal for the organization. It means providing IT services at an acceptable level at the best price to achieve that level.

Planning to Implement Service Management

Planning to implement ITIL standards involves not only the planning, implementation and continuous improvement of ITIL disciplines but is also involved with the organizational and cultural aspects of the business. The following figure illustrates the task of implementing or improving ITIL in an organization.
Security Management

Security management is charged with ensuring security of IT information, processes and architecture. Normally there are defined security controls that are in place, procedures to handle security events, audits to report on security competency and metrics to provide status reporting. Figure 6 illustrates the basic information security mode.
Information and Communications Technology (ICT) Infrastructure Management

The OGC defines Information and Communications Technology Infrastructure Management as “structure, functionality and geographical distribution of the hardware, software and communications components which underpin and support the IS Architecture, together with the technical standards applying to them.” ICT is involved with asking the question of its current architecture, exactly where are we? Then this process is used to establish a baseline of where the IT organization wants to be with its architecture. Planning and methodical implementation, with measurements of success are then part of the cycle for continuous improvement.
Application Management

Application Management is the ITIL process for managing an application through its entire lifecycle. Metrics should be used throughout the process to measure and report progress and performance. A simplified model of the application management process is shown in figure 7.

![Application Lifecycle Diagram]

Figure 7  The Application Lifecycle
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The Business Perspective

The business perspective focuses on the key business and management objectives and requirements of the organization. Its place in the overall ITIL architecture is to bring IT services in line with these overall objectives and to maximize IT resources to meet business objectives. Figure 8 illustrates the alignment at strategic, tactical and operational levels that is necessary for a business led strategy.
Microsoft MOF

The Microsoft Operations Framework (MOF) is similar to ITIL in many ways and is based on the ITIL architecture. Both are built on the best practices of international businesses and governments. Both have several (seven each) functional components that are integrated to provide processes and controls through the entire IT life cycle. They are both flexible in that their practices can be implemented in large organizations, such as a government, and also in small businesses to optimize their IT operations.

The Microsoft model has built upon the ITIL framework and has expanded it to more scalability, to support more distributed environments and to integrate the components into a simplified model that is easy to understand. There are two major frameworks to this model, the Microsoft Solutions Framework (MSF) and the Microsoft Operations Framework (MOF). The MOF provides to manage the people, technology, processes and risks involved with the planning,
design and deployment of an IT solution. Interfacing at the deployment stage, the MOF handles the change management, release, service, support, operations and security components of the IT lifecycle. Figure 9 illustrates this relationship.

**IT Project Life Cycle**

![IT Project Life Cycle](image)

Figure 9  The IT Life Cycle and Microsoft Frameworks
From MOF Executive Overview, V3.0, Microsoft.com

The Microsoft Operations Framework (MOF) is composed of three foundation elements; The Team Model, The Process Model and the Risk Management Discipline.

**The Team Model**

The Team Model is composed of seven role clusters which are made up of individuals or groups with specific assignments and responsibilities and with established guidelines to be followed to
achieve their quality goals. Figure 10 displays the seven role clusters and breaks out the two dozen possible functional roles into their appropriate cluster.

Figure 10  MOF Team Model role clusters and examples of functional roles or function teams
From MOF Executive Overview, V3.0, Microsoft.com

The role clusters are described by Microsoft in the following table.

<table>
<thead>
<tr>
<th>Role Cluster</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release</td>
<td>Tracks changes and lessons learned in a corporate knowledge base. Tracks inventory and changes in a configuration management database (CMDB). Acts as liaison between the change development team and the operations groups; it encompasses the ITIL disciplines of configuration management and software control and distribution.</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Defines physical environment standards. Manages physical assets. Maintains the IT infrastructure and oversees IT architecture evolution. Coordinates building and office moves, expansions and acquisitions, and physical environment changes such as wiring, lab space, and user connectivity.</td>
</tr>
<tr>
<td>Support</td>
<td>Provides technical support for internal and external customers, resolving incidents and problems using highly automated tools and knowledge base systems. Provides production support for line-of-business (LOB) applications. Gives feedback to the development and design team.</td>
</tr>
<tr>
<td>Operations</td>
<td>Ensures that daily, routine tasks are performed reliably within specific technology areas</td>
</tr>
<tr>
<td>Role Cluster</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td>and production systems (messaging, system administration, etc.). Performs scheduled and repeatable processes such as data backup, archiving and storage, output management, system monitoring and event log management, and file and print server management.</td>
</tr>
<tr>
<td>Partner</td>
<td>Defines and manages partnerships in a mutually beneficial and cost-effective manner. Includes both the internal manager responsible for the relationships with external parties, and those parties themselves.</td>
</tr>
<tr>
<td>Security</td>
<td>Ensures data confidentiality, data integrity, and data availability. Influences business policies, such as defining exit procedures to follow when an employee leaves the company.</td>
</tr>
<tr>
<td>Service</td>
<td>Ensures that all of the IT services being provided to customers are aligned to the customers’ need for them. Maintains a working relationship with customers, understanding their need for IT services, and managing the introduction of new services, service improvements, and (eventually) service reductions and retirements.</td>
</tr>
</tbody>
</table>

Table 2  Functions of MOF Role Clusters  
From MOF Executive Overview, V3.0, Microsoft.com

The Process Model

The Process Model is concerned with the day-to-day management, maintenance of IT services and with the change management process life cycle. Microsoft describes the four guiding principles of the process model as follows.

- **Structured architecture.** The MOF Process Model organizes all operational activities needed for mission-critical computing in a complex IT environment.
- **Rapid life cycle, iterative improvement.** MOF supports an iterative IT life cycle that facilitates rapid assessment and change to respond to evolving business needs.
- **Review-driven management.** The Process Model requires operations management reviews (OMRs) at key points in the life cycle. In these reviews, the team and key stakeholders evaluate performance for release-based activities as well as time-based operational activities.
- **Embedded risk management.** Since the ultimate business cost of an IT service failure can be catastrophic, MOF proactively manages risk throughout operational processes.

Table 3  Guiding Principles of the Process Model  
From MOF Executive Overview, V3.0, Microsoft.com

Microsoft groups related service management functions (SMFs) into four quadrants and four operations management reviews (OMRs). Each quadrant has a specific “mission of service”
which can have concurrent activities in various stages as numerous releases are being processed.

Figure 11 depicts the IT life cycle of the MOF Process Model.

Table 4 describes the mission of service for each quadrant and OMR of the Process Model.

<table>
<thead>
<tr>
<th>Quadrant</th>
<th>Mission of Service</th>
<th>OMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changing</td>
<td>Introduce new service solutions, technologies, systems, applications, hardware, and processes.</td>
<td>Release Readiness Review provides approval to deploy the fully developed and tested release.</td>
</tr>
<tr>
<td>Operating</td>
<td>Execute day-to-day tasks effectively and efficiently.</td>
<td>Operations Review is scheduled periodically to evaluate IT staff’s ability to maintain a given service, meet service level requirements, and document its experience in a knowledge base.</td>
</tr>
<tr>
<td>Supporting</td>
<td>Resolve incidents, problems, and inquiries quickly.</td>
<td>Service level agreement (SLA) is performed periodically and evaluates the staff’s ability to meet the service level requirements defined in the service level agreement.</td>
</tr>
</tbody>
</table>
Quadrant | Mission of Service | OMR
--- | --- | ---
Optimizing | Drive changes to optimize cost, performance, capacity, and availability in the delivery of IT services. | Change Initiation Review increases likelihood that proposed changes are in alignment with business objectives and operability requirements.

Table 4  MOF Process Model Quadrants, Mission of Service and OMRs
From MOF Executive Overview, V3.0, Microsoft.com

The MOF Process Model is the functionality that keeps IT operations functioning on a day-to-day, minute-by-minute basis. When implemented and operated correctly it appears seamless, the ghost in the machine that keeps IT services operating with a minimum of disruptions, but with fast solutions when something does go wrong. As well, a good process model has constant improvement as part of its functionality.

Microsoft converges the Process and Team models together to best illustrate where the role clusters fit into the overall process. The partner Role Cluster is assumed to function in any of the quadrants and as so was omitted from the architecture depicted in Figure 12.

![Figure 12  MOF Team Model role clusters and their alignment to the MOF Process Model Quadrants](From MOF Executive Overview, V3.0, Microsoft.com)
MOF Risk Management Discipline

Microsoft’s guiding principles can, and are, applied at any stage of the process in the models described above. As such, Microsoft defines these principles as disciplines. These are proven risk management techniques provide a reliable and repeatable risk analysis and evaluation process. The five guiding principles are defined by Microsoft in the following table.

Guiding Principles

The Risk Management Discipline for operations advocates these principles for successful risk management in operations:

- **Assess risks continuously.** This means the team never stops searching for new risks, and it means that existing risks are periodically re-evaluated.
- **Integrate risk management into every role and every function.** At a high level, this means that every IT role shares part of the responsibility for managing risk, and every IT process is designed with risk management in mind.
- **Treat risk identification positively.** For risk management to succeed, team members must be willing to identify risk without fear of retribution or criticism.
- **Use risk-based scheduling.** Maintaining an environment often means making changes in a sequence; and, where possible, the team should make the riskiest changes first to avoid wasting time and resources on changes that cannot be released.
- **Establish an acceptable level of formality.** Success requires a process that the team understands and uses.

**Table 5  MOF Risk Management Guiding Principles**

| From MOF Executive Overview, V3.0, Microsoft.com |

Risk Management is a proactive technology. It has at its core the functions of identifying risks, analyzing them, planning and scheduling actions, tracking and reporting and controlling the risk level. When properly administered problems are minimized and the impact of problems is reduced and knowledge is gained that can further reduce the risk level. The following diagram illustrated the risk management process.
Contribution that this Project will make to the Academic Research Network

The contribution to the Academic Research Network that is the objective of this project is to propose the beginning framework for overall operation and integration of the SEAD Practicum with an emphasis on service support and documentation. The key deliverable of this project is the determination of a documentation standard and the creation of documentation of common processes that are performed routinely by the SEAD group. This will serve as a basis for transitioning between subsequent practicum and to establish some basic standards to serve as a foundation upon which subsequent practicum can build.
Chapter 3 Methodology

Research Models to be used

The task of producing documentation was done utilizing the AGOPP model;

A – Ask Questions
G – Gather Information
O – Organize Information
P – Prepare / Produce Documentation
P – Present / Assess Information

The proper contacts were made gather information from the resources. Of special note was Joey Aguilera, a consultant that works closely with Dan and the Regis Academic Research Network (ARN). Routine processes, such as setting up Citrix accounts for remote student access, setting up users in Track-it! and the use of Track-it! to log work requests, etc. were all observed, with screen prints and important information captured. The procedural documentation was then organized, produced and presented. Some key documentation was also converted into PowerPoint presentations and recorded with voice overlay describing the steps to achieve the objective. This was achieved with the help of the Center of Academic Technology (CAT) group.

Life-cycle models to be followed

For the documentation process the IT Life Cycle with Microsoft Frameworks was followed as illustrated in Figure 9. The initial research determined the particular routine tasks that had the highest priority for documentation needs. The work was planned and appointments scheduled with the appropriate contacts. All needed information, directions, screen prints, and standards to be followed were gathered. Part of this process was establishing a standard template which
would be used for all documentation (see addendum A.). The documentation was then written, tested and deployed to the information repository in SharePoint. The documents at this point are considered “living” documents in that as processes, procedures and standards change the process follows the MOF Team Model and Process Model depicted in Figure 12 and the documents are updated accordingly.

**Specific Procedures**

The first basic goal of the 2005A NLP group was to establish a hierarchical chart with all group students assigned to specific groups and positions. That organizational chart is shown in Figure 14.

![Figure 14 SEAD 2005A Organizational Chart](image-url)
The procedure policy, as adopted by the SEAD group, and written by Sandy Legere, set standards for the writing and formatting of documentation materials. The procedure policy is as follows.

**IT Section:** Configuration Management

**Sectional department:** Configuration Management

**Policy Name:** Documentation of Procedures

**Created by:** S. Legere  
**Create Date:** January 16, 2005

**Approved by:** Jim Kapp  
**Approval Date:** February 1, 2005

**Version:** 1.0  
(Document changes will require a version # change lei: 1.0, 2.0 3.0)

**Introduction:** This policy will outline the steps necessary for the creation of procedures within the ARNe-Regis Networking Lab Practicum

**Precedence or reference:** None

**Statement:** The creation of "How to" procedures within the ARNe-Regis NLP will follow these steps:

1) Write the procedure following the 'Procedure template'. To include screen shots with notes.

2) The creating tech will open a work order in Track-It! for another member of the current NLP program to review and validate the procedure. The procedure will be attached as a file in the Track-It! work order.

3) The reviewing tech will validate the procedural steps and if the procedure is accurate will make that note in the work order. If the procedure is not accurate, the reviewing tech will make the appropriate notes in the details section of the work order and assign the work order back to the originating tech.

4) The reviewing tech will assign the work order to the IT section lead.
5) The IT section lead will again review the procedure then sign and date in
the approval spot on the document. The section lead will note this
information in the work order.

6) The IT section lead will then assign the work order to the administrator in
charge of posting documents to Track-It!'s library.

7) The Track-It! administrator will post the document in the appropriate area
of the Track-It! library.

8) All members of the current NLP program and the NLP faculty will have
read only permissions to any posted documentation.

9) The Track-It! administrator will then close the work order after noting the
posting location in the work order details.

10) Any adjustments to a procedure will not be made on the original procedure

11) Changes will be noted with a new procedure that maintains the same
formatting but with a new version number. Ei: 1.0, 2.0, 3.0 etc

12) The version change will utilize the same 9 steps as the original procedure
before being posted to the Track-It! library.

Another key procedure that was established as a standard was the procedure for the creation,
completion and closure of work orders as outlined in the process above. Work orders can be
placed for the creation of Citrix accounts for the Galway students or the DBA classes, for
example. A system is needed that enables the logging, tracking of progress and final closure
notations. Any escalation can be tracked as well. The policy statement for work order creation
follows.

**IT Section: Operations**

**Sectional department:** Help Desk

**Policy Name:** Work Order Policy

**Approved by:** Jim Kapp
Approval date: 10/10/05

Version: 1.0

Introduction: The purpose of this document is to provide the steps to be followed in order to request Citrix accounts to be created for the following:

- MSCD courses
- DBA Practicum Members
- Galway students
- DU students
- Individual student accounts

Note: Make this request as early as possible to allow technicians enough time to complete your request in a timely manner. If the Citrix accounts are needed for the start of a new term, please submit your request one week, or at least three days, prior to the start of the new term.

The "requestor" in this process includes: DBA Practicum Leads, Galway faculty, SEAD Practicum Leads, and Regis faculty.

The "technician" in this process includes: SEAD Practicum Administrative Lead, SEAD Practicum Systems and Access Lead, or the appropriate SEAD practicum member.

Precedence or reference:

Process Steps
1. To request Citrix accounts to be created, login to TrackIT and open a new work order. Fill out the requestor information and task sections, including the description tab. Assign the work order to the correct technician. Attach the spreadsheet or document which lists the accounts that are needed. Save the work order.

2. You may try to email the technician from TrackIT, or send a separate email. It is best to email the technician directly. Make sure to include the work order number, details, and attach the spreadsheet or document that contains a list of all accounts needed (i.e. MSCD, Galway, etc.)

3. Once the technician receives your email, he/she will inform you that your request has been received and will work on creating the Citrix accounts.

4. When the request is complete, the technician will edit resolution tab of the TrackIT work order and will close it. (You may view this by searching for the work order number).

5. Finally, the technician will email you to inform you that your request is complete, and will include the account information (login and password).
Process Flow Diagram

Requestor opens a TrackIT case & assigns to technician

Single Excel spreadsheet of all accounts needed is sent to technician via email and TrackIT

Technician receives request notification & Excel spreadsheet list

Technician confirms receipt of request & follows process to create Citrix Accounts

When Citrix Account creation is complete, technician enters account and password completion notes in TrackIT resolution tab and closes case.

Technician emails requestor to notify of request completion & includes list of Citrix accounts and passwords

end
Formats for Presenting Results/Deliverables

The following template, also displayed in addendum 1, was adopted as the standard format for documentation.

REGIS University ARNe Network

(Header Template)

IT Section:
Procedure Name:
Created by: Date Created:
Approved by: Date Approved:
Document Library #

Introduction: This procedure will walk the reader through the process of:

Prerequisites:

Steps:
1)  
   1.1  
   1.2  
2)  
   2.1  

Several of the procedures that were documented were also converted to PowerPoint presentations that were then overlaid with voice describing the steps. This was done at the Center of Academic Technology (CAT) lab. Audio video presentations were created in several formats including Quick Time, Windows Media Player, and Real Player. The documents and the audio visual presentations were then reviewed, approved and saved in the ARN SharePoint site so that they are accessible to current and future students.

The template for the writing of policy statements is attached as addendum 2.
Review of the Deliverables

There were three primary deliverables for this professional project. The first was the organization of the students into functional groups that match their educational background and goals. The four major groups were Data-Access, Network, Development and Operations, which was later changed to Integrated Services to make it sound more descriptive if what the duties in this group are. Dan Likarish directed this accomplishment and involved the author, Byron Mueller and Nick Maki to review the resumes of students. This, combined with Dan’s personal knowledge of some of the students, lead to selections as group leaders and group participants. Nick then created the first organizational chart in Microsoft Visio. Dan had created the original contact list as an Excel worksheet. Both the organizational chart and the contact list were later maintained by the author.

The second primary deliverable for this professional project was for the author to maintain communications with group leaders and students so that everyone had a clear vision of their personal deliverables in the practicum. The author assisted Dan in scheduling meetings, publishing the meeting agenda’s in Microsoft PowerPoint format, setting up for on site meetings and conducting meetings. There was a large amount of participation during the early practicum phase during which templates, policies and procedures were determined. Assignments were made regarding needed documentation and tasks, with strong and deliberate guidance by Dan Likarish.

Once structure, task determination and documentation needs were established the third primary deliverable of completing the tasks and documentation of procedures was accomplished during the rest of the practicum. For the sake of brevity, only those documents and audio visual
presentations that the author was directly involved with will be presented as part of this professional project.

Deliverables that were created by or involved the direct participation of this author, or that were directed by this author as part of the transitioning of the methodology to the successive Administrative Lead are as follows:

- **Add Accounts to Active Directory** – This is a step by step guide to add student accounts to Active Directory over the Citrix Remote access. This document can be found in Addendum C.

- **Adding New Users to a New Organizational Unit** – Usually, as part of the process of Citrix student account creation the account is associated with an established class organizational group. There are times, however, that a new class is established. When this occurs a new organizational unit must be created, desktops associated with it and students assigned. This is a step by step guide to create a new organizational unit, create the necessary desktop options and to add student accounts as part of the Citrix user account creation process. This document is located as Addendum D.

- **Galway Citrix Account Creation** – This document guides the student through creating student accounts for the Galway University of Ireland classes and their assignment to the requested Galway Organizational unit and classes. This document can be located as Addendum E. This procedure was also recorded as an audio-visual PowerPoint presentation (recorded as a Real Audio / Real Video VBR, Windows Media Audio / Video WMV file and as a QuickTime Movie). These audio / visual files can be located on the SEAD SharePoint site or in the CD pockets at the back of this published thesis.
- MSCD Student Citrix Account Creation – Created by Selene Pena, following the basic steps as outlined in the Galway Citrix Account Creation document, these step by step instructions guide the student through the creation of accounts for the Regis Master of Science in Computer Database Technologies (MSCD) classes. This document may be located in the SEAD SharePoint Site with the appropriate credentials at http://www.arn-regis.org/default.aspx.

- Policy Template – Located as Addendum B, this template was created to provide a standard format to policies as they were written. This document was created by Sandy Legere, with input from several of the practicum participants. It was updated by the author to include revision History.

- Procedure Template – This template was created by Sandy Legere, with input from several of the practicum participants, to serve as a format as procedures were created and documented. This template is presented in Addendum A of this paper.

- SEAD Practicum Account Creation - Created by Selene Pena, following the basic steps as outlined in the Galway Citrix Account Creation document, these step by step instructions guide the student through the creation of accounts for the Regis Master of Science in Computer Information Technologies (MSCIT) classes. This document is located in the SEAD SharePoint Site with the appropriate credentials at http://www.arn-regis.org/default.aspx.

- Track-It! Account Creation – Track-It! Is the application that SEAD uses as a Configuration Management Database (CMDB), following MOF standards for call logging, tracking and reporting. As work requests arise, students are guided to follow the procedures established in the Work Order Policy which can be found on page 41 of this
document. In order to create logs in Track-It! students needs a Technician account created providing them with access credential and the appropriate rights to the application. The Track-It! Account Creation procedure, located as Addendum F, is used to create these accounts.

- Synchronization of Track-It! with Active Directory – This procedure documents the steps to synchronize students already in Active Directory (with Citrix Accounts) with Track-It! As users in the application. This procedure was also recorded as an audio-visual PowerPoint presentation (recorded as a Real Audio / Real Video VBR, Windows Media Audio / Video WMV file and as a QuickTime Movie). These audio / visual files can be located on the SEAD SharePoint site or in the CD pockets at the back of this published thesis.

**Academic Journal**

The following academic journal was produced during the course of the practicum.

**Academic Journal**  
By James Kapp  
Regis University Network Lab Practicum

9/11/04 First meeting I attended for the Network Lab Practicum. Room 6. ALC.
- Sharepoint - Arn@topica.com
- Thurs., 9/23 – Cybersecurity at Denver Natural History Museum (8 am – 4 PM)
- Bakir – convert McAffee to Symantec Antivirus at ILC

10/9/04 NLP Meeting Room 6, ALC
- Dan Likarish & Darius Taylor
- Active Directory problem at DTC.
- MOF – Microsoft Operational Framework
- Networking changing to Systems Engineer
- Administrative lead assigned to me.
- Meet with Michelle Hermosillo to create accounts. Cell: 303-912-5409, Home 303-306-9074
- MSF – Microsoft Solutions Framework (based on ITIL)
- MOF – Microsoft Solutions Framework
- SMF – Service Management Functions. 20 key processes
- ITIL – IT Infrastructure Library

10/13/04 Dan Likarish suggests that I assume responsibility for installing (replacing McAffee) antivirus campus wide with server located in Broomfield.
- Install server at Interlaken campus. Server will push configuration and updates to individual managed clients. Server will automatically pull updates of virus definitions from liveupdate service.
- OS is Windows 2000.
- After done must re-image and ghost.

10/?? Met Joey Aguilera to review Regis network configuration.
- Citrix1 – Remote desktop connection, FS)!, Domain: Regis.local
- duremote.vbs – creates new users.
- duuserchangepassword.vbs, \fs01\profiles\%username%
- Connect “F” \fs01\windirs\%username%, applications applied by group.
- -login- Regis.edu -> Insight – login – regisnet user login
- Changepassword.vbs; C:\AD, Find or create accounts, move all to new user accounts, run the script changepassword.vbs, move to assigned directories.
- Edit, add to group, C:\AD scripts, enable account – add to group.
10/23/04 Met Michelle at computer lab at ALC. Created user accounts for MSCD classes for Fall8Wk2.

10/27/04  ILC Network lab.
- Installed Symantec System Center and console components on IL01FS03
- Installed Symantec Antivirus Server, Installed the Symantec System Center Console

11/2/04  ILC Network Lab
- Moved 2 firewalls to storage room (old bookstore).

11/6/04 – room 6 ALC.
- Re-ghost hard drives for upcoming class.
- Symanted Multicast, Symantec Ghost Server, Symantec Ghost Multicast Server.
- Multicast ghost image, then rename each PC to it's assigned name & reboot.

11/13/04 – NLP, Room 6 ALC
- Priority projects
  - ILB & DTC:
    - Storage HA Array
    - Citrix N fuse – Oracle, O/S, VM ware.
    - Portals, 10G
  - CS and IC
    - IP addresses
  - Boulder – Managed host – continued support.
- Systems Engineering and Application Development Practicum
  - On Trackit Server
  - 1/3 class based (250), 2/3 on-line (600)
  - Mission statement> must meet needs of Regis NLP > Include on-line students.
Main goals – Document routine processes.

NLP Newsletter, Instructions for setup in Sharepoint.

- What are areas?
- What are routine tasks?
- What are Admin & Technical categories?
  - Read Adam Brennan

11/20/04 Lowell Campus

Met Jim Lupo at 9:30 am to re-image the desktop PC’s to include Citrix access.
Created image on a desktop, ghosted image and saved to server, ghosted all user terminals with correct image.

11/23/04 Meeting at Denver Tech Campus. Dan Likarish, Nick Maki, Byron Mueller and Jim Kapp

- Discussed organizational philosophy of NLP.
- Discussed Mission Statement.
- Reviewed each NLP member resume and located each onto the Organizational chart with preliminary group associations.
- Later, generated Org. chart at home grouped by area and update NLP listing.

12/11/04 Monthly NLP meeting, Room 6, ALC

Orientation for new NLP Group.

- Take ownership or practicum
- We can make mistakes, but learn from them.
- We are team members, not stuck working alone.
- We need to phase from folks that previously performed tasks, assume their responsibilities and document the processes.
- Don’t just show up, participate and contribute.
- Share out (email) the NLP contact list to all members.
- Hopefully the practicum will nudge everyone just a bit out of their comfort zone and make you grow.

ITIL – IT Infrastructure Library (ITIL.org)
12/29/04  -  ILC Campus,  10:15 AM

- De-install McAfee Antivirus from IL01FS03.
- Installed Symantec Antivirus Server on IL01FS03
  - Server name: Symantec Antivirus Server 1
  - Password: nlp2001
  - Performed live update on Antivirus Server for server software and DAT files.
  - Perform virus scan.
- On each lab client machine:
  - De-install McAfee Antivirus, reboot.
  - Install Symantec Antivirus (managed), reboot.
  - Perform Symantec updates.
  - Perform virus scan.
  - Perform Windows updates. (Critical updates=11, Windows 2000=3)

→ Servers and workstations need new GHOST image created.

12/29/2004     Lowell Campus ALC      6 PM

- De-install McAfee Antivirus from GhostALC (192.168.200.15).
- Installed Symantec System Center and Console components on GhostALC.
- Installed Symantec Antivirus Server
  - Server name: Symantec Antivirus Server 2
  - Password: nlp2001
  - Performed live update on Antivirus Server for server software and DAT files.
  - Perform virus scan.
- On each lab client machine:
  - De-install McAfee Antivirus, reboot.
  - Install Symantec Antivirus (managed), reboot.
  - Perform Symantec updates.
Perform Windows updates. (Critical updates=4, Windows 2000=1)
Perform virus scan.
- IL0WS17 & IL0WS18 on separate switch as part of another development domain.
- Servers and workstations need new GHOST image created.

1/8/05 - NLP Monthly Meeting (see slides)

1/12/05, 3:30 PM – Met Joey Aguilara at the network lab at the ALC. Spent about 1 hr. creating requested documentation for Galway student Citrix accounts. Took many screen prints to incorporate into documentation.

1/13/05 – Used screen shots from training with Joey Aguilera to expand documentation for creating Galway student Citrix accounts. Completed document and submitted to Selene and Michelle Hermosillo for review, with a copy to Dan Likarish.

1/27/05 – Met Joey at ALC to migrate Active Directory listed students to Track-it but Synch tool wasn’t installed. Joey will install and we will meet again to perform synchronization.

2/1/05 – Met at ILB Lab and taught Romeo Magalong, Jim Kranz & others how to install Symantec antivirus on servers in back of room. Got all but one server done (bad CD player).

2/3/05 – Met Joey at ALC lab and we migrated about 2/3 of students that already had AD accounts. Synchronized them using Track-it Synch tool. Took many screen shots for documentation of the process.

2/5/05 – Created other student accounts in AD and synched them with Track-it. Notifies users of access availability. I have received emails from students that have old
accounts and don’t remember login credentials. I created new accounts for them and notified them.

2/12/05 – Monthly SEAD Practicum meeting.
- Set up refreshments and projectors.
- Directed meeting (see slides & notes).

3/3/05 – Sent out first notice of NLP meeting.

3/5/05 – Created new student Galway accounts using Joey Aguilera’s Visual Basic script (bulkuser.vbe). Updated documentation to new version (V101.0 from V100.0). Sent updated document to Dan Likarish, Byron Mueller, Sandy Legere, Selene Pena.

3/12/05 – Monthly SEAD Practicum meeting – ALC
- Set up refreshments and projectors.
- Directed meeting (see slides & notes).
  - [http://web-classrooms.regis.edu.8900](http://web-classrooms.regis.edu.8900)
  - Goteamspeak.com
  - 5 page official proposal due in 2 weeks.
  - Talking head document presentations – sound lab at Regis to record voice over PowerPoint presentation.
  - Make MOF ours – 4 quadrants.
- Build and support users on systems engineering side with VLABS – get with Vicki.
  - Contact Domchang and Bob Bowles – msct620.
- Track-it – establish Tier 1 assignments with an escalation scheme. Work with Scott on this.
- Thesis
  - Be familiar with current authors.
  - Use URL references (Bibliography) to get actual articles of credibility.
  - Write it 3 times; rough, refine & flow, refined and correct.
Tell what you are going to tell, tell, tell what you told.

Use APA Standard.

3/19/05 – Created 20 remote user Citrix accounts per Dan Likarish for msct620.
→ Vuser01-vuser020, regisvuser.

4/9/05 – Monthly SEAD meeting at ALC.
- Set up refreshments and projectors.
- Directed meeting (see slides & notes).

5/1/05 – Created Citrix accounts per DBA team leaders request (Greg Schulte & Don Bell). The following accounts were created and tested.

- MSCD*600*M40 (39338) Database Architecture remote01001 - 01020 regis8w1
- MSCD*600*XPS40 (39339) Database Architecture remote01021 - 01040 regis8w1
- MSCD*610*XPS40 (39340) Database Concepts remote02001 - 02020 regis8w1
- MSCD*640*M40 (39341) Database Administration remote03001 - 03010 regis8w1
- MSCD*640*M41 (42397) Database Administration remote03021 - 03033 regis8w1
- MSCD*640*XPS40 (39342) Database Administration remote03041 - 03055 regis8w1
- MSCD*644*M40 (39343) Database Performance Tuning remote05001 - 05010 regis8w1
- MSCD*644*XPS40 (39346) Database Performance Tuning remote05021 - 05030 regis8w1
- MSCD*650*XPS40 (39347) PL/SQL Programming remote06001 - 06020 regis8w1
- MSCD*650*XPS41 (43382) PL/SQL Programming remote06021 - 06040 regis8w1
- MSCD*650*XPS42 (43558) PL/SQL Programming remote06041 - 06060 regis8w1
- MSCD*670*XPS40 (39348) Oracle 9i Appl Svr Portl Admin remote09001 - 09020 regis8w1
- MSCD*676*XPS40 (39349) Enterprise Portal Design/XML remote09301 - 09320 regis8w1

6/11/05 SEAD Monthly Meeting – Selene Pena and Dan Likarish
7/09/05 SEAD Monthly Meeting – Selene Pena and Dan Likarish
8/13/05 SEAD Monthly Meeting – Selene Pena and Dan Likarish
9/10/05 SEAD Monthly Meeting – Selene Pena and Dan Likarish
10/8/05 SEAD Monthly Meeting – Selene Pena and Dan Likarish
10/24/05 Submitted Chapters 1&2 to Dan Likarish
10/25/05 Had on-line meeting with Dan Likarish to discuss chapters 1&2
10/25/05 Received approval of chapters 1 & 2 and direction to proceed with
11/12/05 SEAD Monthly Meeting – Selene Pena and Dan Likarish
Resource Requirements

Firstly, the key resource for this project and for the Practicum was Dan Likarish. Without his selfless, persistent guidance we never would have come near the success we had in this program. A second major resource, and a key individual in the documentation of account creation procedures and Track-It! Use was Joey Aguilera. The Center for Academic Technology (CAT) was integral in the production of the Audio / Visual presentations. Access to the ARN Network was necessary to accomplish much of the work done in the practicum and its reliability was essential. For the purpose of the authors’ project, the student body that comprised the Practicum and their strong dedication to accomplishing the tasks at hand were the heart and soul of the experience.

Outcomes

The outcome of this project was that the students were organized into a virtual IT “company” with a functioning management hierarchy. Standards and templates were created that followed a “best practice” format. A sizeable amount of documentation was produced and the task assignments that the practicum is responsible for were successfully and reliably accomplished. At the end of the practicum, tasks and responsibilities for the practicum members were transitioned to the incoming student group with the goal of building on the foundation of the NLP 2005A practicum.

Summary

In summary, it was the objective of the NLP2005A practicum to organize itself into a functional hierarchy, to assign and complete tasks and to document the procedures used to complete those
tasks. With the strong guidance of Dan Likarish this objective was accomplished, providing a foundation of standards and written procedures that subsequent Practicum can build upon.

Chapter 4  Project History

How the Project Began

The author of this project was assigned the position of administrative lead in the NLP 2005A practicum. Our top level goals, as established by Dan Likarish, the Systems Engineering and Applications Development (SEAD) practicum advisor, were to form an IT “company” using ITIL and MOF Standards and to document the hierarchy and processes as much as possible to serve as a foundation for subsequent practicum to build upon. The creation of the hierarchical chart of practicum members was directed by Dan Likarish with the participation of Nick Maki, a Regis teacher, Byron Mueller, the Technical Lead and Jim Kapp, the Administrative Lead. Leaders for the four main NLP groups (Data / Storage, Networking, Integrated Services and Development) were selected based on Resume strengths and the personal knowledge of Dan Likarish about the individuals. Dan then provided direction as to what tasks needed to be accomplished and what documentation was needed for future training of these tasks.

How the Project was Managed

The project was managed from the top by Professor Dan Likarish, the SEAD advisor. Dan established the top level objectives of establishing the organizational chart with the Administrative and Technical leads providing direction and assistance to the group leads, who in turn, provided direction and assistance for their respective group members. Dan would instruct the leads as what tasks needed to be accomplished. The group leads would then direct their team members, conduct group meetings, provide status reports for the monthly SEAD group meetings.
and help keep their team members timely in regards to task and professional project timelines. The Administrative and Technical Leads directed the monthly meetings, communicated to the SEAD NLP students and scheduled events, received and reviewed completed documentation, and assisted in the direction of the Practicum as far as establishing procedures and standards along ITIL and MOF guidelines.

**Significant Events/Milestones of the Project**

The significant milestones of the project are as follows:

- Review student applications to the NLP and resumes and evaluate strengths and experience for placement in the organizational chart. With the background knowledge and guidance by Dan Likarish, group leads are selected and students are placed in one of the four general groupings of Network, Data-Access, Integrated Services (formerly Operations) and Development.

- Through the venue of all hands monthly meetings, group meetings and communications and individual communications, tasks are assigned and group goals are established.

- Standards are established and templates created for procedure and policy documentation.

- Documentation is created for most major tasks and for network configuration and other elements of the ARN.

- Audio / visual presentations are created for two of the routine tasks; Citrix Account Creation and Track-It! Synchronization with Active directory.

- Students complete Chapters 1 & 2 of their projects.

- Students finish up projects and tasks and complete practicum requirements, thesis are turned in with a descriptive presentation.

- Projects, tasks and responsibilities are turned over to succeeding practicum.
Changes to the Project Plan

As the NLP session developed through time and began to mature, the variability of student availability and productivity meant that some of the work that was intended had to be curtailed or postponed. On a personal, events in the authors’ life caused a postponement in the writing of this document by several months.

Evaluation of Whether or Not the Project Met Project Goals

The author feels that the project met its main goals. The Practicum was successfully organized into and functioned as a business hierarchy. Standards were set for publishing and functioning and they were for the most part followed well. A sizeable amount of “living” documentation was created for task and process completion. Finally, the tasks assignments and responsibilities were successfully transitioned at the end of the practicum. The following practicum was not troubled by many issues that the 2005A session had at startup, largely due to little or no transition at its inception, other than that provided by Dan Likarish and Joey Aguilera.

Discussion of What Went Right and What Went Wrong in the Project

Despite some curtailment of work due to lack of participation of some students and attrition of others that could not handle the practicum load as well as classes and the demands of their work, a substantial body of documentation was created and a new technology introduced with the presentation of material in audio / visual format. Much of the work was not perfect but lessons were learned to refine some processes to help avoid the mistakes that were made. For example, it was discovered that you could not simply delete student Citrix accounts and then recreate them
with different characteristics for another class. It is necessary to remove the association to their current attributes and then reassign them to the new attributes. Documentation was then modified to prevent the same mistakes from happening. In another instance it was assumed by the author that student volunteers would follow up themselves on when and where to be for a move of servers from the DTC campus back to the Interlaken campus. The author failed to follow-up with clear concise instructions and as a result several students weren’t sure what to do and did not participate. This highlights the point that clear and concise communication is always a core principle to follow. Another good rule to follow is to never assume.

**Discussion of Project Variables and Their Impact on the Project**

The biggest variable in the project was the students that comprised the practicum. There were a few that were willing and able to shoulder a greater level of responsibility than others. These generally surfaced as the leaders of the practicum. Some members were very productive at task completion and documentation. Others were more focused on their own personal project objectives, with less contribution to the group objectives. This is typical of most organized groups, however the NLP is completely voluntary and there is little pressure that can be exerted to influence students to be more productive.

The connectivity outage at the Interlaken campus caused some access issues until the servers were moved to the DTC campus. Track-It! access was limited at one point due to server problems. Other minor issues were encountered but overall, with the help of Joey Aguilera, most problems were resolved quickly.
Summary of Results

In summary, the practicum was organized initially by Dan Likarish who provided guidance and advice throughout the practicum. The Administrative and Technical leads participated in the placement of students on the organizational chart and help lead the Network, Data-Access, Integrated Services and Development groups on a broad level. These leads also helped run the monthly meetings, assist and advise other students and assigned tasks for completion. The individual group leads advised and directed the students in their groups on a more individual level. Standards were implemented for the production of documentation and a repository in SharePoint was created for document organization and storage. Numerous procedural, policy and descriptive documents were produced. A new technology for creating audio / visual presentations was successfully applied to two procedures. Finally, at the end of the practicum the main tasks and responsibilities were transitioned to the successive group of students. There were problems and mistakes but these were overcome and corrected to leave a successful legacy upon which future practicum can build.

Lessons Learned

What Was Learned from the Project Experience

Perhaps the biggest lesson learned in the practicum and from the personal research was what best practices in the MOF and ITIL framework are. These practices can be difficult to implement in a short term environment such as the practicum and essentially the same lessons are learned by each successive group. Some foundation elements, such as the documentation of policies and procedures can be carried forward as “living documents” to be enhanced by future groups. Working with people is always a learning experience. A good lesson in this instance is that communications should always be clear and concise, with feedback to insure understanding. In a
leadership position those that you lead should always feel that you care about their circumstance and success and that you will give the extra effort it takes to help them. As much as possible the K.I.S.S. principle (keep it simple stupid) should be followed.

A key lesson for this author is that when things seem at their worst it is best to still make small gains and to keep involved with the task at hand. While undergoing a life changing event the author stayed in touch with the program, still made small steps forward until the opportunity presented itself to clear some of the obstacles enough to finish this document and the coinciding presentation to finish the degree plan. “Never give up, never surrender!” (Dr. Lazarus in Galaxy Quest).

What Would Have Done Differently in the Project

Better, more complete and concise communications on the authors part would have prevented a few issues in the program. The demands of personal and work life were detrimental here but a more organized approach to scheduling tasks and communications would have helped overcome those demands. Also, the author would have started his research much sooner than it actually was started.

Discussion of whether or Not the Project Met the Initial Project Expectations

The author feels confident that the project met the initial project expectations. Documentation was created for a number of routine tasks that the NLP group performs. As well, the audio-visual presentations that were created were a ground breaking development for the SEAD group. The organization of the SEAD students into the functional Network, Data-Access, Development and Integrated Services (Operations) groups worked very well and the group leads were, for the
most part, very effective. There were the usual problems of varying levels of participation by the students.

**What the Next Stage of Evolution for the Project Would Be if Continued**

The next stage of evolution for this project would be firstly to create audio / visual presentations of many of the procedures documented. Secondly the author would review the documentation for any lapses and would fill any gaps to round out the library. Thirdly, given the time the author would work with the current practicum members to learn SharePoint and to modify the current file structure. I would organize the main page of the ARN SharePoint Portal so as to navigate more simply and directly. I’m not sure how it would look but I would create some different groups or areas. For Example:

PEOPLE
>Contacts
>SEAD Roster
>Org Chart
>etc

PROCESSES
>Track-it!
  >Account Creation
  >AD synchronization
  >Using Track-it!
>Citrix Accounts
  >Account Request Process
  >Galway
  >DB Classes
>
>Database Administration

ARCHITECTURE
>ARN Network Diagram
>ARN Security
  >Security Policy
  >SonicWall configuration
ANNOUNCEMENTS
> Monthly SEAD Meeting
> Seminars, Webinars, Lectures
> Group Meetings
  > Network
  > Data-Access
  > Integrated Services
  > Development

There would be other categories but this conveys the concept. The goal would be to develop a simple hierarchy to allow the user to quickly locate key areas of interest without trying to figure out what group a certain document would be in, etc. Much of what consumes space on that initial page can be consolidated elsewhere. The key is direct access to key information and simplicity in format.

The best way to accomplish this would be to copy the whole SharePoint application and setup over to a DEV (development) box so that it can be worked on prior to going to the PROD (production) environment. At least that way any major screw ups are as simple to fix as copying over the PROD information again.

**Conclusion**

In conclusion the author would like to express his profound respect and thanks to Don Likarish for his leadership, friendship and direction in making this practicum the rewarding and educational experience that it was. We were also very fortunate to have the mix of experience, education, maturity and dedication in the majority of the students that comprised the “company” that we organized and ran. Most of the assigned tasks were completed and documentation was created to support future iterations. Turnover was not a smooth as the author would hope for but overall went well thanks to Dan’s steady guidance. The author feels that the practicum was a
successful experience for all involved and indeed our advisor Dan Likarish expressed that he felt so as well. If the author could make one recommendation it would be that the SharePoint site be reorganized to make it easier to use, perhaps as suggested above.

Summary

The key events and milestones achieved having already been discussed, there are a few key points that the author would like to convey for an Administrative Lead viewpoint. Any success that the author had as the Administrative Lead had was based on a few basic management principles. They are as follows:

- When providing direction or instruction be clear and concise. Have the receiver of the information repeat back if necessary to make sure that the message is understood.
- Be supportive and positive when dealing with other students. This is an educational environment and it is expected that people will make mistakes. The key is that everyone learns from the mistakes and keeps moving forward. Whenever possible try to make it fun.
- Always show respect for your peers and those that you lead. Maintain a positive attitude as it is you that will influence the attitude of those around you.
- Communicate frequently. In the business world there is something called MBWA, or management by walking around. It involves walking through your department and “touching” each person on your team. It may just be a casual “hi, how are you?” or it could be “What is the help center call volume this morning?” but each person is addressed in one form or another. There are meetings at least weekly to review status of each project and for key initiatives the communication may be a daily 15 minute brief. Effective and timely communication is imperative.
• Document everything, do not assume you will remember.

• Always be honest about your work. Do not exaggerate to look better or to hide a mistake or a tardy deliverable. When you show integrity your staff will too. If you don’t you are just asking for the same.

• When leading a project be sure to solicit input from your team members and implement their suggestions whenever feasible. This will keep the whole team involved and locked in to the completing your goal, the successful culmination of the project.

• Whenever possible follow the K.I.S.S. principle – Keep it simple stupid.
Back Matter

Annotated Bibliography


Worthen, Ben. “ITIL Power, Why the IT Infrastructure Library is becoming the most popular process framework for running IT in America, and what it can do for you.” CIO 1 September 2005.


Exhibits / Addenda

Addendum A. Documentation Template

REGIS University ARNe Network

IT Section:
Procedure Name:
Created by: Date Created:
Approved by: Date Approved:
Document Library #

Introduction: This procedure will walk the reader through the process of:
Precedence or reference:

Prerequisites:

Steps:
1)
   1.1
   1.2

2)
   2.1

Revision History

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<td>Jim Kapp</td>
<td>Addition of Revision History listing</td>
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Addendum B. Policy Template

REGIS University ARNe Network

IT Section:
Policy Name:
Created by:
Create Date:
Approved by:
Approval Date:
Document Library #

Introduction:
Precedence or reference:
Policy:

1) Revision History

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Addendum C. Add Accounts to Active Directory

IT Section:

Procedure Name: Add Accounts to Active Directory
Created by: Jim Kapp

Date Created: 2/4/2005

Approved by: Jim Kapp

Date Approved:

Introduction: This is a step by step guide to add student accounts to Active Directory over the Citrix Remote access.

Precedence or reference:

Prerequisites:

Steps:
1. Log into Citrix Metaframe
2. Select Remote Desktop – FS01
3. Log on as the Administrator.

4. Open Active directory
5. Open the NLP Directory

6. Rt. Click on a previous group user and select copy
7. Enter the new users first name, last name and User Logon name (the user logon name is the first letter of the first name followed by the first 5 letters of the last name – all lower case. Then select next.

8. Enter and confirm password (nlp2004 for the NLP 2005A group):
9. Select “Next” and then “Finish”
Delete old users from NLP group. Use the user node created above to go through the prior steps to create all new NLP Active directory users.
When finished, close out of Active Directory.

10. Be sure to log off as administrator, DO NOT SHUT DOWN.

11. Log off from the Citrix ICA Client
Revision History

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<td>Jim Kapp</td>
<td>Addition of Revision History listing &amp; formatting</td>
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Addendum D. Adding Users to a New Organizational Unit

Introduction: This procedure will walk the reader through the process of adding Citrix users to organizational and then to security groups, followed by the assignment of a desktop to the new unit.

Prerequisites: The administrator must have the correct authentication and administrator rights to access the necessary applications and servers for this process.

Steps:

2. Once logged in to the MetaFrameXP server double-click the “Admins Desktop”.

![MetaFrameXP interface showing the Admins Desktop and applications]

Welcome

MetaFrame XP Applications

Welcome to your personalized view of MetaFrame XP applications. The Applications box contains icons for the applications that you can use. Click an icon to launch an application. Click Refresh to view the latest applications. Click Settings to change your settings. Click a folder icon to display its contents. If you have problems using an application, please contact your help desk or system administrator for more information.

MetaFrame XP Message Center

The MetaFrame XP Message Center displays any informational or error messages that may occur.
3. Once logged in to the citrix desktop. You are now on citrix01 at CSD. Click on full access and ok.

4. Double click on the “Remote Desktop Connection” Icon for access to the “FS01” server.
5. Enter your (or administrator) username and password.
6. Go to “Start” → “Programs” → “Administrative Tools”.

“Administrative Tools” → Active Directory Management
7. Select the Major category under which you want to create an Organizational unit. This can be a new class (mscdtest) or a subunit to a class (m70). Right click on the major unit that you are going to build under, select “New”, then select “Organizational Unit.”
8. Enter the name of the new Organizational Unit.
9. It is assumed that student accounts have already been created by the steps described in one of the account creation documents (Galway Citrix Account Creation V103 by Jim Kapp, Student Citrix Account Creation by Selene Pena, DBA Practicum Citrix Account Creation by Selene Pena). In the “newusers” directory, highlight the new user accounts that will be included in the new organizational unit, right click the highlighted group and select “Move”. With the Move location window that opens, select the destination for the new user accounts. Click “Ok”.

![Diagram of Active Directory Management with highlighted newusers and Move window]

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10. Now navigate to the newly created organizational unit. Highlight the new user accounts that were just moved. Right click on the highlighted group and select “Add to a group..”.
11. The select group window will now open. In the data entry window titled “Enter the object name to select (Examples):” enter the name of the group that you have moved the new user account to. When done typing in the name of the group, select “Check Names”. If the name is correct it will resolve which is indicated by it being underlined. If it is in error a group error message will appear. Check the name and correct the typing. Once resolved, click OK. A message will appear stating that the Add to Group operation was successfully completed.
12. Close the “Active Directory Management” window and log off from FS01 gracefully. Please do not EVER select Shut Down as this will actually shut down the server, disabling it from use until it restarted.

13. From the Administrator Desktop” now create a remote desktop connection to “nfuse01” desktop where the management console is located. Double click on the Management Console Icon on the desktop.
14. The management console displays the applications published by Citrix in the upper left. Click on applications.
14. Locate the application DESKTOP that you are adding users. Right click on the desktop
to which the new users need access. Move to “Properties” and right click on it,
displaying the selected desktops properties.
16. After right clicking properties, find and select users. This screen allows you to add users to the desktop through active directory. Using the “Look in:” navigation pane, locate the group in “REGIS.LOCAL” that you are selecting a desktop for. Add the new organizational unit, such as mscctest (or msc660, m70) by clicking the “Add” button when you are down to the appropriate organizational level.
17. Double check to make sure that the organizational unit that you selected has been added to the group, then click “OK”.

18. Close the “Management Console”. Logoff from the nfuse01 desktop. NEVER select Shut Down, always logoff gracefully. The accounts are now active and should be tested.
19. Test several of the newly created and assigned accounts.
20. Logoff from the Metaframe server and close any open connections to Citrix. Send out the appropriate notifications that the accounts have been completed and are now available for student use. Make the appropriate entries in your practicum journal. Good Job!

### Revision History

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Addendum E. Galway Citrix Account Creation

REGIS University ARNe Network

IT Section: General Information

Procedure Name: Setup of Galway (Citrix) Student User Accounts

Created by: Jim Kapp
Approved by: S.Legere

Date Created: 1/23/05
Date Approved: 5/31/05

Document Library # GI Pro-009

Introduction: This procedure will walk the reader through the process of creating student accounts for the remote Galway student body located at the National University of Ireland, Galway. Remote courses are offered by Regis University in association with the Galway campus. These accounts are set up in order to provide remote Citrix access for this remote coursework.

The process detailed below guides the administrator through all of the required steps involved in creating new Galway user accounts

Precedence or reference: Citrix login

Prerequisites: The administrator must have the correct authentication and administrator rights to access the necessary applications and servers for this process.

16. Once logged in to the MetaFrameXP server double-click the “Admins Desktop”.

17. Double click on the “Remote Desktop Connection” Icon for access to the “FS01” server.
4. Enter your (or administrator) username and password.
18. Open Active Directory - Once access has been achieved, double-click the “Active Directory Users and Computers” Icon.
19. Search, either manually or by selecting “Action”, “Find”, for user accounts in the needed ranges. If located, and the prior class is over, they can be reassigned by moving them to the proper location, adding them to the new group and resetting the password to the new one. If not created, follow next steps.
20. Access the Active Directory scripts used to create and manage the student accounts. On the fs01 remote desktop screen, select Start, My Computer and double-click the “Local Disk (C:)” for the folder list on the fs01 C:\ drive. Open the C:\AD Scripts folder for access to the scripts used to create and manage student accounts.
21. Locate the “bulkuser.vbe” script and double click it. Follow the defaults and accept them unless there is a change that you need to make. When prompted for information, fill it in as needed.
22. Usually for this exercise the destination is the “newusers” folder.
23. For this exercise the user name prefix is “galuser”.
24. Enter the starting 5 digit range number as prompted, click “OK”.
25. Enter the ending 5 digit user account range number, click “OK”.
26. Generally you will accept the default UNC path to PROFILE Share. Do not change unless you exactly what the results will be. Click “OK”.

![Image of Remote Desktop and File Explorer with UNC path input]

*[Uncropped and slightly zoomed-in image of the remote desktop and file explorer windows showing the UNC path input]*
27. Generally you will accept the default UNC path to HOME Share. Do not change unless you exactly what the results will be. Click “OK”.

![Image of Remote Desktop window with UNC path input dialog box open]

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28. Generally, you will accept the default Home Drive Letter, click “OK”.
29. Generally you will accept the default UNC Path to Logon Script, click “OK”.

![Remote Desktop showing Logon Script dialog box](image-url)
30. Enter the new password for the new student accounts, click “OK”.
The review screen appears, if all is correct, click “OK”. Otherwise click no and start over.
31. Add the new users to the correct student Group.
32. Move the new user accounts from the “newuser” folder into the appropriate student group folder. To do this, make sure all accounts are highlighted (highlight one account and press Ctrl A). Then right click the highlighted group and select “Move”. Select the assigned group folder that you were building the student accounts for and click the “OK” button.

33. Close the “Active Directory Users and Computers” window. On the “fs01 – Remote Desktop” window the Task bar is hidden so place the mouse cursor on the bottom border of the window to pop up the task bar and select “Start”, “Logoff”, “Logoff” to gracefully exit the desktop window. Perform the same steps to exit the “Admin Desktop – Citrix ICA Client” window (Logoff Administrator). Logout from the Internet Explorer window displaying the MetaframeXP Desktop.

34. You should now be back to the Metaframe login screen. If not, go to the following URL: http://citrix.arn.regis.edu.
35. Log in to the MetaframeXP using a sampling of the accounts that were created. If different groups were created use a sampling from each group.
36. Check to verify that the appropriate desktop for the group created is displayed.

37. When finished, logout from the Metaframe XP server and close the Internet Explorer window.

38. Send an Email to the following contacts to notify them of the completion of the accounts: Dan Likarish, NLP Administrative lead, any contacts that are indicated in email correspondence or on the change request form. Update the work order that was (should have been) entered in “Track-it” and close the work request as completed.

39. The task is now complete. Record the event in your NLP Journal.

### 27. Revision History

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Addendum F. Track-It! Account Creation

Introduction: This procedure will walk the reader through the process of creating technician user accounts in the Track-it! Help desk incident tracking tool.

Precedence or reference: The reader may also want to reference the Track-it! Synchronization with Active Directory documentation and the documentation about entering tickets in track-it!.

Prerequisites: The reader will need administrator rights in Track-it!

Steps:
1) Log into Track-it!

![Image of Track-It! login screen]
2) Click on the “Administration” option.

3) Select “Lookup Tables”.
4) Under “User Management” select “Manage Technicians”.

5) In the left hand side menu box select “Add Item”.

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6) Fill in the appropriate information. My convention for creating user names is to use the first initial of their first name followed by the first 5 initials of their last name. To enter the new users email address, click on the “Configure Notify” bar and enter the email address and other contact information as requested. Click “OK” when you are done.
7) To save it click the top of the left hand box at the bottom of the screen or select the “Security” tab and click “OK”.
8) Verify that the account has been published to the listing.
9) Exit Track-it! By clicking the “Sign Off” option on the left of the menu bar, then click OK.

10) Log in using the credentials that you just created.
11) Once verified, sign off and send credentials to the new user.
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Addendum F. Track-It! Account Creation

REGIS University ARNe Network

(Header Template)

IT Section:

Procedure Name: Track-It! Synchronization with Active Directory
Created by: Jim Kapp
Date Created: 2/5/2005
Approved by: 
Date Approved: 

Document Library #

Introduction: This procedure will walk the reader through the process of: synchronizing Track-It! With the student accounts already created in Active Directory.

Precedence or reference:

Prerequisites: Student must have administrator rights and credentials to access Active Directory and to the Track-It! User Synch application in the Citrix Remote Desktop.

Steps:
Log into Citrix Metaframe

![Image of Citrix Metaframe login screen]

Welcome to the Academic Resources Network! This system will support your course application needs using a "Virtual Lab" environment. The Academic Resources Network is supported by Faculty and Staff. If help with any issue, please do not contact the Academic IT Department of the Academic Resources Department. Help will only increase the response time for other users. If you require further assistance, you may call a support contact listed in the support menu.

For the planned outage:
No planned outages, visit this page for future planned downtime.

The MetaFrame XP Session Center displays any notification or error messages that may occur.

Welcome.
Please log in.
Welcome to the Academic Resources Network! This system will support your course application needs using a "Virtual Lab" environment. The Academic Resources Network is supported by Faculty and Staff. If help with any issue, please do not contact the Academic IT Department of the Academic Resources Department. Help will only increase the response time for other users. If you require further assistance, you may call a support contact listed in the support menu.

For the planned outage:
No planned outages, visit this page for future planned downtime.

MetaFrame XP Session Center.
The MetaFrame XP Session Center displays any notification or error messages that may occur.

Log in.
Select Remote Desktop – FS02
Track-It! User Synch 6.5 Log
Running on FS62 (Windows XP)

Log Entries (Up to 20 log entries displayed. Most recent first.)

1. 02/23/2005 09:00:44 AM
   0 groups and 1 user were selected for synchronization. 0 users failed

2. 02/23/2005 09:44:59 PM
   0 groups and 25 users were selected for synchronization. 0 users failed

3. 02/23/2005 04:00:43 AM
   0 groups and 1 user were selected for synchronization. 0 users failed

4. 02/23/2005 04:00:43 AM
   0 groups and 1 user were selected for synchronization. 0 users failed

5. 02/23/2005 04:00:42 AM
   0 groups and 1 user were selected for synchronization. 0 users failed

6. 02/23/2005 04:00:42 AM
   0 groups and 1 user were selected for synchronization. 0 users failed

7. 02/23/2005 04:00:41 AM
   0 groups and 1 user were selected for synchronization. 0 users failed

8. 02/23/2005 04:00:41 AM
   0 groups and 1 user were selected for synchronization. 0 users failed

Kapp – Professional Project
<table>
<thead>
<tr>
<th>Date</th>
<th>Revised By</th>
<th>Brief definition of Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>02/05/05</td>
<td>Sandy Legere</td>
<td>Initial creation of procedure</td>
</tr>
<tr>
<td>11/05/05</td>
<td>Jim Kapp</td>
<td>Formatting and Addition of Revision History listing</td>
</tr>
</tbody>
</table>