CNS Change Management Procedures

March 2004

Version 2.07

Overview

A structured approach to change management is required for production systems in order to provide quality of service to our clients. The procedures outlined here institute checks and balances, ensuring proper planning and communications between units, support staff, and our clients.

All changes to ***production systems*** are required to follow the change management procedures. These procedures will be updated over time as better ways are developed to coordinate adjustments to large scale systems.

Developmental or test systems are exempt from this process but changes to these systems must be coordinated through unit managers, scheduled, communicated, and documented internally.

Remedy will be used as the mechanism for submitting and receiving approval for all change requests. All CNS FTE staff managing production systems will be required to install and use the Remedy Help Desk Support client.

Note: Remedy's structure is based on a view that is governed by a committee representing multiple departments at Kansas State University. The change management procedure outlined here works within the existing structure of the Remedy change management system.

As such, some of the fields may not be intuitive at first glance and other fields are not used in this implementation, but they may be used by others within the consortium.

Change Priorities

Changes to production systems are prioritized based on:

- amount of downtime to a system or service
- amount of lead time required by the change
- type of service
- severity of the situation requiring the change

The goal is that the majority of the changes will occur as ***planned changes***.

The Remedy **PRIORITY** field will be used to identify the change priorities.

Local Changes

Local changes:

- ***Do not*** have any projected downtime of a production system or service offered to the K-State community

- ***Do not*** require prior notification to groups outside the local unit affected by the change (including other support groups and clients).

- Have minimal risk in causing downtime.

Local changes:

- ***Are not*** required to be reported and reviewed under the change management procedures.

- ***Must be*** approved by unit managers before implementation.

- ***Must be*** scheduled during standard maintenance windows.

- ***Must be*** properly documented and logged according to unit guidelines.

Note: Maintenance on a node in a cluster ***or*** relying on a failover system (such as a local director) does not constitute a local change. While the production system is still available to a customer, the risk associated with working on a component of a fault tolerant system affecting the production system is too high for it to be classified as a local change.

The closing of labs or shut down of a service (such as a web application while the rest of the server is active) for any reason is not considered a local change.

Planned Changes (Remedy Priority – MEDIUM)

Planned changes are changes to production systems or services that:

- ***Will result in any*** interruption of service

  or

- ***Require prior notification*** of the change to the appropriate constituencies (other units, support groups, and clients).

The majority of changes implemented on production systems should be planned changes. Planned changes have three possible levels of urgency that are based on the minimum lead time required to notify units, support groups or clients prior to the implementation of a change ***and*** the expected amount of downtime.

The Remedy field of **URGENCY** will be used to identify the level of urgency of the change.

Note: lead times are minimums, not maximums. Change requests are required to identify projected service periods.

Urgency Levels (As defined by Remedy)

- **High** – No advance notice required ***or*** results in less than 1 minute of downtime.

  Examples: cosmetic changes, wording, planned restart of a web application to recognize access control list (ACL) changes, planned restart of an LDAP server to clear memory cache.

- **Medium** – Requires a minimum of 2 working days notice ***or*** results in less than 15 minutes of downtime.

  Examples: adding features or slight restructuring to eProfile pages, delivering new applications (UCL/InfoCommons), or network service disruption in a single building.

- **Low** – Requires a minimum of 5 working days notice ***or*** results in 15 minutes or greater of downtime. Typically affects critical systems.

  Examples: procedural or operational changes to eProfile pages, mail system upgrades, UCL rollout, system migration to SAN, campus-wide network outage, or loss of Internet connectivity.

Expedited Changes (Remedy Priority – MEDIUM)

Expedited changes are changes to production systems or services that:

- ***Will result in any*** interruption of service ***or*** requires prior notification of the change to the appropriate constituencies (interdepartmental units, support groups, and clients)

  and

- ***Requires*** that they be scheduled outside of the normal change management process ***or*** changes that cannot meet the normal minimum guidelines for notification.

Expedited changes are fast tracked to resolve a serious problem that still allows time for better planning and preparation. Expedited changes are still documented and reviewed as part of the change management process.

Expedited changes ***must:***

- Be handled in one of two ways:
  - Presented as part of the normal change management process with a request for accelerated implementation.

    or

  - Receive approval from one of the department's directors (or their designee) to proceed without being submitted to the change review board first. The director reviewing the change may reserve the right to consult other technical staff prior to making a decision. This could include a conference call with other CRB members. This option should only be used if the change needs to be applied prior to the normal meeting time of the change review board.
- Be documented as a change request by the person implementing the change and submitted to the change review board for later review indicating that the change has already taken place. If a director's approval has been received, that ***must*** be noted in the change request.
- Send appropriate prior notification sent out to other IT groups, support groups, and clients about the service interruption before implementing the change.
- Expedited changes are entered into Remedy with the **PRIORITY** of **MEDIUM** and the **URGENCY** of **URGENT**.

  Example: LDAP servers are experiencing a memory leak and will require attention prior to the next standard maintenance period but do not require immediate attention.

Routine Maintenance Changes (Remedy Priority – LOW)

Some changes may be regularly scheduled events due to system maintenance, backup, or other external event.

Unit managers may request an exception from the change request process by submitting a change request to the CRB that identifies the repetitive function and reason for the exemption request, when the servicing will regularly occur, what back out or recovery steps will be followed to prevent loss of service, and what fault tolerance exists within the system. Routine maintenance changes should be the exception and not the rule.

Maintenance changes ***must***:

- Submit a standard change request form for initial approval.
- Have all changes logged in a manner appropriate to unit guidelines.
- Have a standard procedure to be followed and a standard execution time.
- Describe the level of fault tolerance within the system with a text description.

Example:

Changing web access control lists (ACLs) is an ongoing process that requires the restart of the web server for the changes to take effect. Requests come in on a continual basis. In order to be responsive to customers, a request is being made to apply these changes as needed on a Monday – Friday basis from 5:15 p.m. to 5:30 p.m., during this time one of the web servers is off-line for a period of 15 seconds as it restarts. Local directors provide failover capability while one server is restarted. After the first server is restarted, the backup server will be restarted. Prior to pushing changes out to the production environment, the change in scripts will be tested on a test server. If the test is successful, the changes will be pushed out one at a time to the production servers.

Risk of loss of service – low

Benefit – shorter turn around in meeting client needs

Frequency – 3-5 times a week.

Emergency Changes (Remedy Priority - HIGH)

Emergency changes require immediate implementation due to high risk of service failure and ***will result*** in the interruption of any service to the university community as a part of the change process. Emergency changes are implemented based on the professional judgment of staff managing production systems. Emergency changes should be the exception, not the rule.

Emergency changes ***must:***

- Be approved by the unit manager prior to implementation if possible. This includes calling them at home after hours for approval.
    - If the unit manager is unavailable another team member must be consulted prior to implementing the change if they are available.
    - In the event a second opinion is unavailable, the IT professional on-site should use their best judgment on how to proceed.

- Be documented by the person implementing the change as a completed change request and submitted to the change review board for later review.

- Be documented according to normal unit guidelines on what was done and how to back out the changes or restore the environment to its original configuration by someone other than the person making the change.

- Have appropriate notification sent out to other IT groups, support groups, and clients ***prior*** to implementing the change with as much advance notice as possible.

- Have appropriate post-event notification sent out to other IT groups, support groups, and clients about the service interruption that was experienced.

  Example:

  A server has been compromised and needs to be shut down and reconfigured to restore security.

  Note: Special consideration in pre and post event notification must be given to the iTAC Help Desk, Operations, and the CNS receptionist as these locations typically receive most calls concerning service outages.

System Recovery (Remedy Priority - URGENT)

When an emergency situation arises that requires immediate action, staff should respond to resolve the problem. The difference between emergency changes and system recovery is that the service is already down and staff is simply responding to the outage. Individuals performing system recovery are responsible for:

- Sending a brief acknowledgement of the problem and that it is being addressed to the appropriate public forums (ITPROBLEMS and other departments or mailing lists as necessary). **See templates**
    - o This should be sent out as soon as possible to alert the university community the problem exists and is being addressed.

- Send notice of the problem resolution and restoration of service to the appropriate public forums (ITPROBLEMS and, other departments or mailing lists as necessary). **See templates.**
    - o This should be sent out immediately upon completion of the service.
    - o Do not wait until morning send it out before you leave.
    - o If the outage is taking longer than expected, send a status report as necessary to keep the university community informed.

- Be documented by the person implementing the change ***before they leave*** as a completed change request in Remedy and submitted to the CRB for later review.

- Documentation should be according to normal unit guidelines on what was done and how to back out the changes or restore the environment to its original configuration by someone other than the person making the change. This is to be done before they leave.

- If the system fails to recover normally and requires changes to be invoked to restore the service, the unit manager should be contacted for approval of the changes. **Note:** This does mean to call them at home if necessary.

  Example:

  File server or application has crashed. Needs normal restarting.

Change Review Board

The CNS change review board (CRB) oversees all changes implemented within CNS. The CRB provides quality control for the change process rather than for technical details. Technical reviews of change implementation plans must be reviewed by the unit managers before they endorse the proposed change. The CRB may have input into the technical review, but the primary responsibility rests with the unit manager.

The change review board will meet weekly and has four primary functions:

- Review proposed changes and determine if the changes should be allowed to proceed.
    - Has there been a proper technical review of the change?
    - Has there been sufficient testing or prototyping?
    - Does the communication plan include all appropriate groups and appropriate advance notice?
    - Is the lead time for implementing the change adequate?
    - Can the change be coordinated with other changes?
    - Is the change documented?
    - Is the back out/recovery plan acceptable?
    - Have all the units affected by the change been consulted?

- Review expedited, emergency, and system recovery changes to determine if emergency action was warranted and recommendation how they should be handled in the future.
    - Did adequate communications take place during and after the change?
    - Was the situation an emergency?
    - Should more research have been done?
    - Was the change successful?

- Identify change implementations (including local changes) that warrant a post-mortem review to determine what went wrong and how to prevent similar problems from occurring in the future. Post-mortem reviews are scheduled by the CRB chair.
    - Have we recovered from the unsuccessful change?
    - Does it warrant a post-mortem review?
    - Who should be involved in the post-mortem review?
    - When should it be scheduled?
    - What needs to be done to prevent a repeat occurrence (such as modifying a procedure or updating a standard)?

- Coordinating multiple change requests.
    - Identifying changes that can occur concurrently.
    - Look for dependencies among changes that may impact the success of a change.

Note: The CRB reserves the right to investigate local changes that affected the university community in unplanned ways. Specifically, local changes that result in downtime may result in a postmortem review of the local change.

CRB Membership

- The CRB consists of a CRB chair, members from CNS, an iTAC representative, and an administrative assistant to document the meeting.

- Other interested parties may be invited to the meetings at the discretion of the CRB chair. **Examples**: DCE, ISO, ECC, OME, or DIA staff; the CNS directory engineer, or unit managers and technical staff supporting a change.

- The CRB meetings are to be chaired by the director, an associate director, an assistant director, or their designee.

- Non CRB members attending the meeting do so in a non-voting capacity.

- CRB members from CNS and the chair are appointed by the director to serve for 2 years with no limit on the number of terms.
  - Rotation of terms will be staggered such that no more than 3 new members will be appointed in a given year.
  - Terms will follow the fiscal year.

- The iTAC membership is appointed by the director of iTAC.

- CRB members are typically not members of production units. This minimizes the bias of the CRB in their review of proposed changes. If a CRB member is a member of a production unit they are ineligible to vote on changes proposed by their unit.

Change Review Meetings

- Meetings will be scheduled on Wednesday mornings for 1 hour each week and held in person rather than via video conference.

- Meetings are typically limited to CRB members and individuals invited by the CRB chair to discuss specific change requests.

- Meeting agenda (recommended order)
  - The committee chair will send the agenda of changes being considered the day before the meeting.
  - Review pending expedited changes.
  - Review any planned changes or maintenance related changes (typically in order of urgency).
  - Review emergency and expedited changes (post-implementation) – identify changes that need a post-mortem review and the individuals to be involved.
  - Committee chair will schedule any needed post-mortem reviews.

Approval Process

- All change requests (including attachments or links to attachments) should be submitted by Friday at 5 p.m. via the Remedy Change Request form for consideration in the Wednesday morning CRB meeting.

- The **CHANGE SPONSOR** is a unit manager or their designee (in case of sickness, vacation, or travel).

- Staff submit change requests to their **CHANGE SPONSOR** for approval.

- The **CHANGE SPONSOR** reviews the change request and adds their endorsement to those that are well planned, communicated, and adequately scheduled before submitting the change request to the Change Review Board (**CRB)**.

- The **CRB** reviews proposed changes and approves those that are well planned, communicated, and adequately scheduled.

- Minor adjustments to the change request may be ***mandated*** by the CRB and incorporated into the change request.

- The CRB has the authority to set the schedule for the proposed change.

- Major adjustments to the change request will result in the change request being denied and resubmitted by the change sponsor after additional planning.

- Changes are approved by a majority vote of the committee.

- The CRB chair, CNS director, and iTAC director have veto authority on any change request approval. This is the final check and balance on the process.

- Veto authority includes the ability over rule a rejected change, allowing the change to proceed as planned.

- The CRB chair notes the results of the review in the **DESCRIPTION** field of the change request and reassigns the request to the **CHANGE SPONSOR** in Remedy. This approval or disapproval will be made in the meeting and being available to the **CHANGE SPONSOR** late Wednesday.

- The **CHANGE SPONSOR** sees the CRB response to change requests in Remedy and reassigns the request to the staff performing the work. Change sponsors are responsible for providing feedback to technical staff on approved and unapproved changes before the end of the week the decision was made.

- Staff assigned changes are notified via Remedy and initiate approved changes beginning with the communications plan as soon as is appropriate. The change sponsor has the responsibility of making sure technical staff perform the change as planned.

- Change review board meets Wednesday mornings. This allows:
  - Approved changes notification to begin as early as Wednesday afternoon.
  - Approved **Remedy Urgency High** changes to be implemented as early as Wednesday night.
  - Approved **Remedy Urgency Medium** changes to be implemented as early as Saturday night if notification begins Wednesday afternoon.
  - Approved **Remedy Urgency Low** changes to be implemented as early as next Wednesday evening

Standard Maintenance Periods

Standard maintenance periods for production systems are established and published to minimize the disruption of service to the customers. Whenever possible, servicing ***must be*** performed during these times. Exceptions will be ***very rare*** and ***must be approved in advance*** by the director, an associate director, or an assistant director. Servicing may be scheduled to occur any time within the window as long as sufficient time is allows for recovery before the window closes.

- Weekend maintenance window
  - 10 p.m. Saturday evening to 8 a.m. Sunday morning.
  - This maintenance window is typically used for significant changes to critical systems requiring longer service windows, downtime, and recovery times.

- Weekday maintenance window
  - Midnight Wednesday evening to 7 a.m. Thursday morning.
  - This maintenance window is typically used for smaller changes that benefit from having help desk support available the next day to answer questions concerning the change.

- Times outside of these standard maintenance windows must be recommended by the change review board and approved by the director, an associate director, or an assistant director of CNS.

- After the change is completed, staff must be scheduled to monitor systems a sufficient period of time to ensure all systems associated with the change are functioning properly. The scheduling of this staff, must be identified in the project plan.

Standard Notification Templates

Messages sent out prior to and following a change implementation must follow the templates outlined in Appendix B. A standardized format ensures that all the pertinent information is provided and establishes consistency in the quality of the information shared with the university community.

The format of notification templates will be determined by the CRB with input from CNS staff.

Change requests submission

All change requests must go through an approval process which starts with a Remedy change request form submitted to their unit manager. This provides an archive as well as informs all participants supporting production systems.

- Fill out the project plan template. Fill in all the fields. The template is provided to help make sure the planning is complete. If the information is provided in an attachment indicate the name of the file attachment in the field. Consolidate attached documents to minimize confusion. Name all attached documents in a meaningful way to associate them with the proposed change. **See Project Plan Template – Appendix A**

- Attachments must be in one of the following formats: Adobe Acrobat PDF, Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Microsoft Project, or text formats.

- Fill out the change request form in Remedy. Include a link to the project plan document in the description field. Project plans linked in this way must be placed in the CRB Intranet directory. This directory is available to all CNS FTE staff. This option is used when the project plan contains information that cannot be shared with the public.

- Assign the change request to their unit manager (or designee) as the change sponsor using the **SUPERVISOR** field in Remedy. The change sponsor is the unit manager or their designee in the event they are absent for training, vacation, or sickness. Designees should not be used in any other circumstances.

- Change sponsors must review and approve the change request prior to forwarding the request to the CRB. Change requests must be approved by a change sponsor before they are submitted to the Change Review Board. Change sponsors indicate their approval by entering **Approved By: <name> <date>** in the **DESCRIPTION** field of the change request in Remedy.

  Note: this endorsement should not be taken lightly. It is an indication the unit manager has reviewed the materials, considers them to be complete and technically correct, and agrees that the change should be implemented.

- Change sponsor forwards the request to the CRB by changing the **SUPERVISOR** field to **CRB** in the change request form.

- All submissions to the CRB must be submitted by Friday at 5 p.m. in order to allow the CRB time to review the documents prior to the Wednesday meeting.

Change Notification

- The CRB updates the **APPROVAL STATUS** field as appropriate in the CRB meeting and indicates in the **DESCRIPTION** field of the change request:

  Approved by: CRB <date>

  or

  Disapproved by CRB <date>

  This provides a CRB response to all changes by 1 p.m. Wednesday afternoon.

- The CRB adds any mandated changes to the plan or feedback on disapproved plans by adding text below the approval/disapproval statement. Sensitive comments can be submitted by providing document links to the CRB Intranet.

- The CRB reassigns the change request to the change sponsor (unit manager) for review and resubmission to technical staff by changing the **SUPERVISOR** field to the change sponsor in Remedy.

- Change sponsors are responsible for notifying technical leads of approval or disapproval of change requests by assigning the **SUPERVISOR** field in Remedy to the staff implementing the plan.

- Technical staff is responsible for notifying appropriate customers of a pending change. All change notices should be submitted to ITPROBLEMS for complete coverage of these departments. Additional notification is to be sent as needed to other appropriate stakeholders (NETADM, KAWNUG, Human Resources, Admissions, Registrar, etc …).

- All change notices will follow a standard template to ensure that all pertinent information is included. **See templates – Appendix B.**

- After a change has been implemented a follow-up message describing the results of the change is to be posted by the technical staff to the groups outlined in the communications plan. These groups should be the same as those that received the original notification prior to the change implementation. **See templates – Appendix B.**

Post-mortem Reviews

Occasionally a change to a production system will not go as planned. The CRB reviews all completed changes and identifies those that will benefit from a post-mortem review. The review is scheduled by the CRB chair and includes all pertinent parties, the change sponsor, and technical staff who performed the change. The purpose of the review is to identify what went wrong and how it can be prevented in the future, not to point figures or be punitive.

Changes of any type (including local changes) are subject to review by the Change Review Board. Any staff member may recommend review of a change implementation by e-mailing the request to the CRB committee chair.

The CRB chair will have the final decision if the committee should review the change and place changes needing review on the agenda. The committee chair may request additional background information (as needed, especially for local changes) from the appropriate unit manager.

Once a change is placed before the CRB for review, the need for a post-mortem review is generally arrived at through consensus of the CRB. The CRB chair has the power to veto the CRB's recommendation.

It is important that we learn from our mistakes, but also not misuse the post-mortem review process.

Clustered or Fault Tolerant Systems

Systems with redundant capability are not exempt from the change management process, but should be treated like any other changes to a production system. Reliance on failover capability to facilitate a change is by itself an insufficient recovery or back out option. Planning must take into account a failure in the redundant system. Recovery plans should include testing of failover systems before relying on them.

Project Planning

The change review process is not a substitute for formal planning on larger projects, nor does it address the internal planning necessary to prepare for a planned change.

As larger projects enter the production phase they are subject to the same change management guidelines as smaller change events. They too will benefit from more in depth planning.

Documentation Standards

Each project plan document starts with a change log. As the change request process may be an iterative process, this tracks the changes made to the project plan document.

As the document is revised, the change log ***must be*** updated to indicate the changes made to the document and who made them. Change summaries are represented by a bulleted list summarizing the changes.

Example:

Version 2.0 – Chuck Gould – 11/07/03

- Revised plan after initial rejection from CRB.
- Added marketing and pre-publicity to all students as requested by CRB.
- Added InfoTech Tuesday article to communications plan.
- Enhanced iTAC training an additional 5 days (train the trainer).
- Scheduled a fail-over fault tolerance test 1 week in advance as requested by CRB.

Version 1.1 – Chuck Gould – 10/24/03

- Adjusted project plan timelines to account for additional training needed by iTAC for new web interface. Details on page 5.

Version 1.0 – Chuck Gould – 10/23/03

- Created initial document. Placed it on CRB web site.

System Maintenance Guidelines

All projects involving the setup, maintenance, or management of servers and workstations ***must*** follow established guidelines and procedures outlined in the CNS System Maintenance Guidelines document.

If systems require setup and configuration outside of the standard published guidelines, the project plan needs to ***highlight*** this fact and ***explain*** why an alternative setup and configuration is being planned.

Change Request Intranet Website – Mailing List

- A mailing list will be created for CRB members. This mailing list will be used for staff to submit comments concerning changes to the CRB members and for the CRB members to have group discussions.

- An Intranet website will be developed and maintained for the change request management system.

- A section of the website will be open to all CNS FTE to place project plans containing sensitive material. Read/write access to the UNIX file system and HTML browse access will be granted to all CNS FTE to this location.

  HTML links to these documents will be placed in the description field of the change request form. Security will be provided by requiring an eID and password to access this area. CNS student staff will not have access to this area.

- Copies of current change requests will be available to all CNS FTE staff via Remedy. Any FTE may review any change at any time. Questions and comments concerning changes are to be submitted to the CRB mailing list.

- Staff wishing to comment on completed changes may do so by sending e-mail to the CRB mailing list. The CRB will use this feedback as an aid in determining if a change warrants a post-mortem review. Comments submitted to the CRB mailing list will remain private to the CRB.

CNS Change Request Web Site

An intranet web site has been created for storing information on the change management process and project plans.

The web site is available to all CNS FTE staff using the eID/password pair to control access to the web site.

CNS student staff are not allowed access to the web site without approval from the CRB board and consensus approval by CNS Tech Mgmt. This restricts sensitive material to full time CNS staff.

- Base URL: **http://www.ksu.edu/cns/crb**

- Home Page - The home page of the web site will contain documents, templates, and procedures related to the CNS Change Management Procedures. Current membership of the change review board will also be available.

- Unit Subdirectories - Each unit will have a subdirectory to place project plans. An index page will be provided for each unit. Project plans must be linked to the index page as well as included as a link in the DESCRIPTION field of the Remedy change request.

- Access Control - All CNS FTE will have browse access to the CRB web site and read/write SAMBA access to the root of the CRB web directory. Care must be taken to work within the directories provided to avoid overwriting proposals from other units. Master copies of proposals must be kept in another area as a backup.

Appendix

Appendix A: Project Plan Template Data Fields

Project plans are to be developed and submitted with change requests as attachments to HTML document links. The project plan template is an MS Word template consisting of the following fields.

Some fields in the project plan are duplicated in the Remedy change management system. As the process evolves, the project plan template may change to eliminate the duplication of fields.

- **Change Log** – an initial page containing a summary of the document changes, dates, and who made them.

- **Change Title** – a short title describing the change to be implemented. This should be the same as the entry in the **SUMMARY** field of the Remedy change request.

- **Change Sponsor** – individual sponsoring (presenting) the change request to the CRB. This individual has reviewed the documents and considers the proposal complete and ready for consideration.
    - Typically the unit manager. A designee may be used to cover for the manager's absence for vacation, sick leave, or training.
    - This field will hold the name of the individual approving the change in the case of an expedited change or an emergency change.
    - If the change was affected without approval (as in some emergencies) this field will be left blank.

- **Change Author** – individual(s) who draft the change request.

- **Technical Staff** – individual(s) who actually perform the work.

- **Category** – Indication of type of change and level of priority of a planned change.

- **Statement of work** – what is to be done and why.

- **Service date and time** – by default these should fall within normal maintenance windows. If scheduled at an alternative maintenance time, indicate why.
    - **Service date** – Proposed date to implement the change.
    - **Start time** – Proposed time to begin the service.
    - **End time** – Proposed time to complete the service.

- **Systems, services, & clients affected** – identify systems by name and client groups affected. Check the appropriate boxes; add text for other systems and clients. **Note:** ***<u>all affected systems must be identified</u>***.

  Example:

  A UNIX server hosting an Oracle database maintained by ISO that provides data to an environment managed by LAN Technologies and supported by iTAC. This example requires that EST, LAN, ISO, iTAC, and affected clients be notified as part of the communications plan.

- **Communications plan** – identify the support groups involved and communication avenues to be utilized and a timeline for implementation must be specified. Check the appropriate boxes, add text as needed.

- **Documentation plan** – outline the documentation that has been completed prior to implementation (user training, support documentation, internal) and when the documentation will be finalized.

- **Training plan** – outline training of support groups that will be completed prior to implementing the change.

- **User acceptance testing plan** – describe the user acceptance testing that has occurred during the planning for the change and the results from the testing.

- **System testing plan** – describe the system testing that has occurred in planning for the change and the results from the testing

- **Execution plan** – outline the steps that will be followed in the implementation of the proposed change. Note various checkpoints where back out options exist and when the point of no return is reached in implementation.

- **Back out/recovery plans** – outline the steps that will be taken to recover from an unsuccessful change implementation. Note that there may be varying back out/recovery options depending on the level of progress in the change implementation. Identify any known risks.

- **Follow-up/Evaluation plan** – outline the steps that will be taken to evaluate the effects of the change on the production system. Note any monitoring that will occur after the change, who is responsible for that monitoring, and how long the monitoring will continue.

- **Anticipated impact** – identify potential impact on iTAC Help Desk, Operations, clients, and other support agencies.

Appendix B: Message Templates

IT Service Interruption Template

This template is used as a standard form for submitting outage notifications to the campus community.

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IT SERVICE INTERRUPTION NOTIFICATION

Service to be interrupted:	{brief description of the service that will be affected, identifying all services affected by the outage}
Interruption Date:	{day & complete date of the scheduled event **Example:** Thursday, October 23, 2003}
Time:	{proposed start and end times of the outage **Example:** 1:00 a.m. to 1:30 a.m.}
Services, servers, or buildings affected:	{list of services, servers, or buildings impacted using names recognizable by the university community. Clearly describe how they will be affected.}
Clients affected:	{all faculty staff, members of a LAN, clients using a specific lab, residents of a building}
Reason for the interruption:	{brief, but clear description}
Supervisor requesting interruption:	{name, e-mail address, phone number}
Additional information:	{optional – include a URL to a web page containing any additional information concerning the service outage}
Questions and comments may be sent to:	{E-mail address for collecting responses.}

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IT Service Restoration Template

This template is to be used whenever a service has been restored alert the community of the results of the restoration. This is typically used when there has been an unplanned service interruption.

IT SERVICE RESTORATION NOTIFICATION

Service restored:	{brief description of the service that will be affected, identifying all services affected by the outage}
Restoration Date:	{day & complete date of the scheduled event **Example:** Thursday, October 23, 2003}
Restoration Time:	{time service was restored **Example:** 2:00 a.m.}
Services, servers, or buildings affected:	{list of services, servers, or buildings impacted using names recognizable by the university community. Clearly describe how they will be affected.}
Clients affected:	{all faculty staff, members of a LAN, clients using a specific lab, residents of a building}
Reason for the interruption:	{brief, but clear description}
Staff reporting service restoration:	{name, e-mail address, phone number}
Additional information:	{optional – include a URL to a web page containing any additional information concerning the service outage}
Questions and comments may be sent to:	{E-mail address for collecting responses.}

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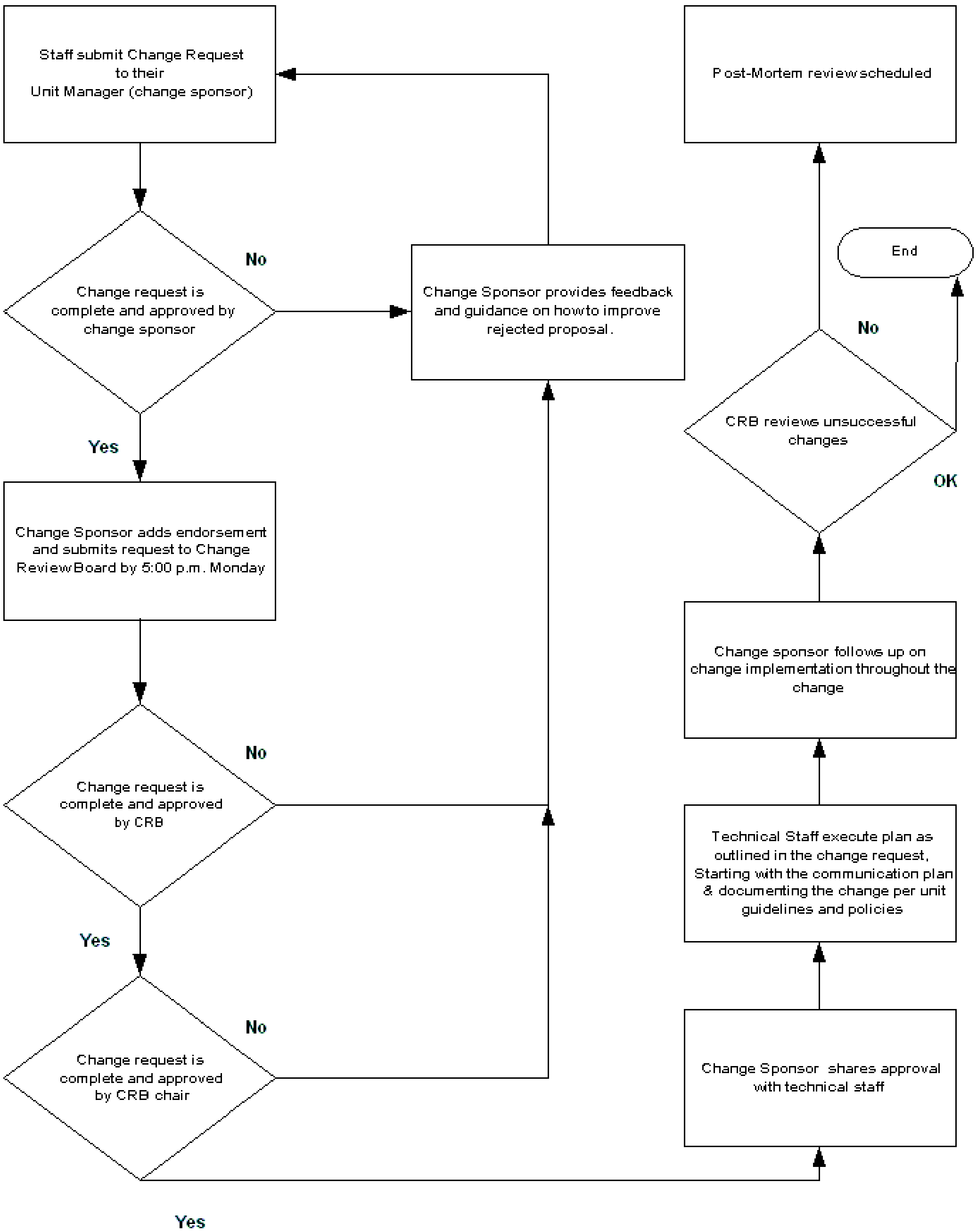
Appendix C: Change Request Flow Charts

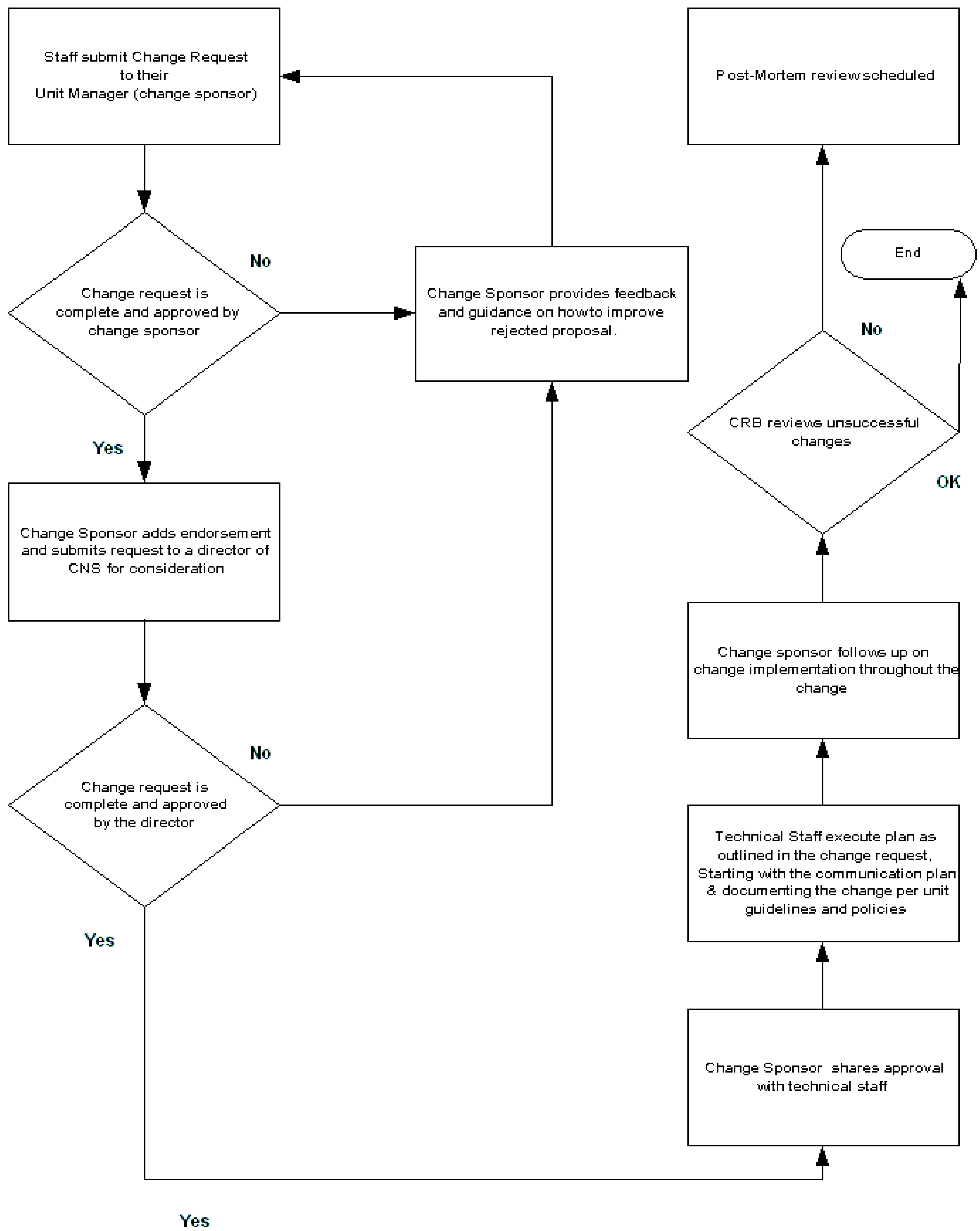
Normal Change Request Submission Flow Chart

Outline of a normal submission for planned, expedited, or maintenance changes to the CRB.



Expedited Change Submission Flow Chart

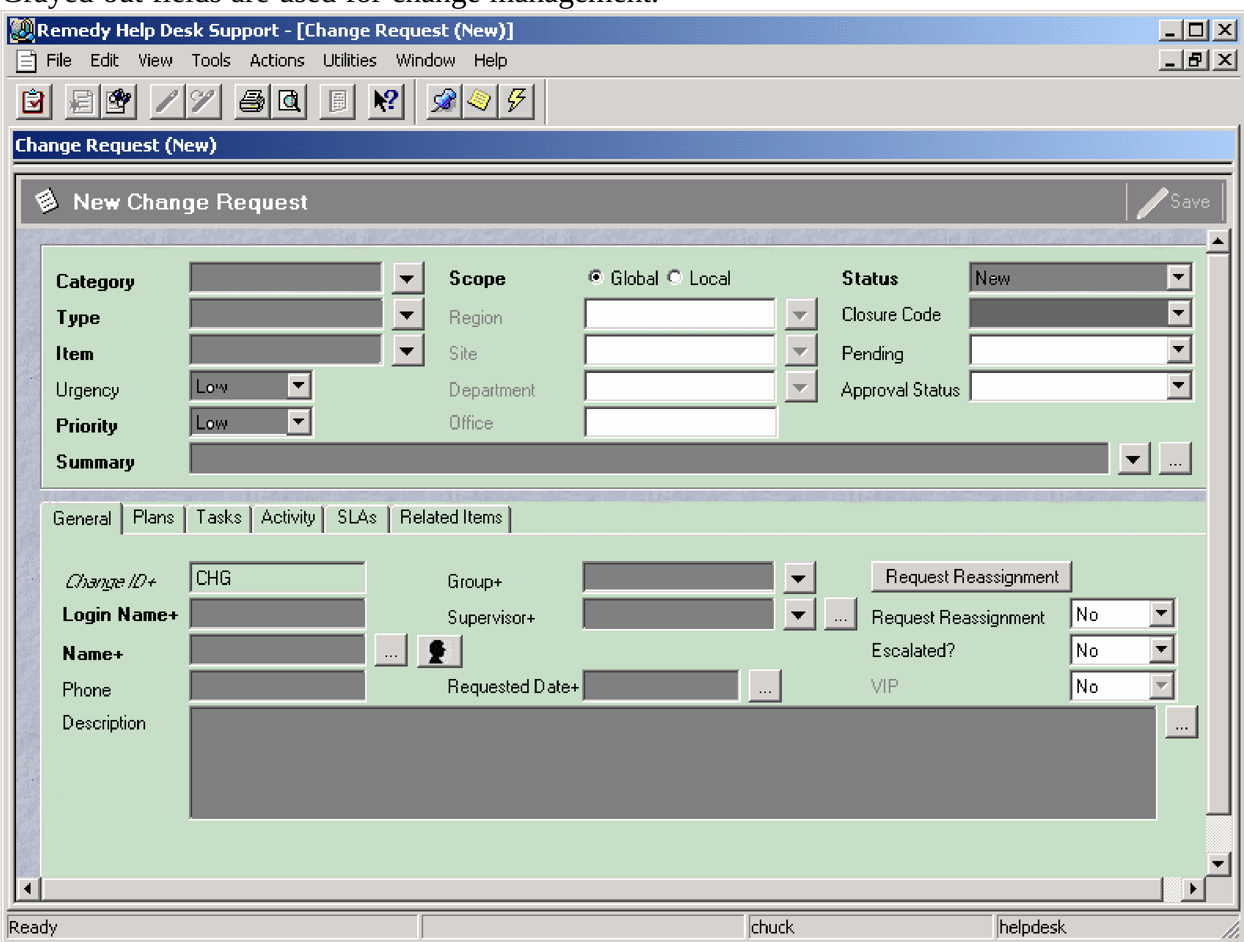
Expedited changes follow this flow chart when they need to be reviewed and approved before the CRB normally meets. A director of the department serves as the approval point in these situations which should be rare.



Appendix D – Remedy New Change Request – General Tab

Category:	**cns**
Type:	**CRB Change Request**
Item:	Pick from list or select **Other**
Urgency:	Select **Low** | **Medium** | **High** | **Urgent** for planned or expedited changes
Priority:	Select **Low** | **Medium** | **High** | **Urgent**
Summary:	Short title identifying the change
Status:	Either **New** | **Assigned** | **Resolved** | **Closed**
Closure Code:	Either **Successful** | **Successful with Problems** | **Unsuccessful** | **Cancelled**
Login Name:	Staff eID submitting the change
Name:	Auto-filled
Phone:	Auto-filled
Group:	**cns - CRB Changes**
Supervisor:	Select your unit manager
Requested Date:	Date service is requested
Description:	Brief description of the change. Enter HTML document links here as: http://www.ksu.edu/cns/crb/document.doc

Grayed out fields are used for change management.



Appendix E – Change Request Submission Workflow

- Download and complete the Project plan template from the CRB web site. Note the version number and author in the change log in the front of the document.

- Save the Project plan on the CRB web site under the subdirectory for your section. Subdirectories are: est, lan, net, other, security, tsc, and web.

  Example: http://www.ksu.edu/cns/crb/lan { LAN directory }

- The file name must include a date stamp and be descriptive for the change request. The date stamp format must be YYYYMMDD. File names **SHOULD NOT** contain blanks. The date stamp should be the date of service.

  Example: 20030820-UCL-Fall-upgrade.rtf {MS Word file 2003, August 20}

- Additional documents must have the same file name and origination date stamp. If multiple files of the same type are saved, add a version letter to the file name.

Example:	20030820-UCL-Fall-upgrade.rtf	{MS Word file }
	20030820-UCL-Fall-upgrade-a.rtf	{Additional file }
	20030820-UCL-Fall-upgrade.mpp	{Microsoft Project}

- Start the Remedy Help Desk Support client. Login using your eID and password.

- Open a new change request: **File | Create A New | Change Request (helpdesk)**

- Ignore any fields not specified in subsequent steps.

- Enter the category: **cns**

- Enter the type: **crb change request**

- Enter the item: **(select the item that best identifies the change)**

- Enter the urgency: (remember the urgency reflects how soon the change will take place)
  - **Urgent** – all expedited changes, emergency, or system recovery changes.
  - **High** – changes that need to be executed soonest (Wednesday night).
  - **Medium** – changes that need to be executed after some notification (Saturday night).
  - **Low** – changes that need longer notification or prep time before being executed.

- Enter the priority:
  - **Urgent** – system recovery
  - **High** – emergency change
  - **Medium** – expedited change
  - **Medium** – planned change
  - **Low** – routine maintenance changes

- Enter a change summary description. This is a brief descriptor that is used as the file name identifying the project plan. This is automatically added to the description field.

  Example: 20030820-UCL Fall upgrade

- Enter the Login Name: **(enter your eID)**

- Enter the group: (**Select your unit name**. Groups are listed as cns – CRB <unit name>)

- Enter the supervisor: (**select your manager** or their designee from the pull-down list)

- Enter the requested date & time: (**Enter the projected date of the service**)

- Enter the description: (**Enter a brief text description** of the change request, ***including an html link*** to the project plan document and all other related documents.)

  Example:

  20030820-UCL Fall upgrade
  The fall rollout of the UCL/infocommons image updating the workstations to Windows XP and adding pay for print support.
  Project Plan: *http://www.ksu.edu/cns/crb/lan/20030820-UCL-Fall-upgrade.rtf*

- When completed SAVE the document. This will send an e-mail to your supervisor that indicates a change has been submitted.

Appendix F – Manager's Approval Workflow (to CRB)

- Start the **Remedy Help Desk Support** client. **Login using your eID and password.**
- Look for all change requests: **File | Search for a | Change Requests (helpdesk)**
- Enter the category: **cns**
- Enter the type: **crb change request**
- Select the **SEARCH** button (upper left corner). This displays all matching change requests in the upper portion of the screens along with the details of the highlighted change request in the lower portion of the screen.
- Highlight the change request to be reviewed. This will display the rest of the change request in the lower section of the screen.
- Review all documents provided in the description field as HTML links.
- If the plan is complete and technically sound:
  - Select the **Activity** tab to display the work log field.
  - Indicate your approval by adding **Approved** to the work log field along with any pertinent comments. Remedy will automatically add the date, time, and your ID.
  - Select the **General** tab to redisplay the description field.
  - Change the Group to: **cns - Change Review Board**
  - Leave the Supervisor field ***blank***.
  - Save the change request using the **SAVE** button in the upper left corner of the Modify Change Request form. This submits the change request notification to the CRB via e-mail and updates Remedy.

- If the plan needs reconsideration:
  - Select the **Activity** tab to display the work log field.
  - Indicate your disapproval by adding **Disapproved** to the work log field along with comments explaining why the change request was not approved. Remedy will automatically add the date, time, and your ID.

    Example: I would like to discuss enhancements to the communications plan and the timing of the change. We need to provide additional time for iTAC staff to be trained on the changes and include DCE in the communications plan. Please see me at your earliest convenience.

  - Select the **General** tab to redisplay the description field.

  - Change the Supervisor field ***to the person*** requesting the change.
  - Save the change request using the **SAVE** button in the upper left corner of the Modify Change Request form. This submits the change request notification to the CRB via e-mail and updates Remedy.

Appendix G – Manager's Approval Workflow (from CRB to staff)

- Start the **Remedy Help Desk Support** client. **Login using your eID and password.**
- Look for all change requests: **File | Search for a | Change Requests (helpdesk)**
- Enter the category: **cns**
- Enter the type: **crb change request**
- Select the **SEARCH** button (upper left corner). This displays all matching change requests in the upper portion of the screens along with the details of the highlighted change request in the lower portion of the screen.
- Highlight the change request to be reviewed. This will display the rest of the change request in the lower section of the screen.
- Review all documents provided in the description field as HTML links. Review the comments provided by the CRB.
- If the plan was complete and technically sound:
    - Select the **Activity** tab to display the work log field.
    - Indicate your approval by adding **Approved** to the work log field along with any pertinent comments. Remedy will automatically add the date, time, and your ID.
    - Select the **General** tab to redisplay the description field.
    - Change the Supervisor ***field to the person*** requesting the change.
    - Save the change request using the **SAVE** button in the upper left corner of the Modify Change Request form. This submits the change request notification to the CRB via e-mail and updates Remedy.
- If the plan needs reconsideration:
    - Select the **Activity** tab to display the work log field.
    - Indicate your disapproval by adding **Disapproved** to the work log field along with comments explaining why the change request was not approved. Remedy will automatically add the date, time, and your ID.
    - Select the **General** tab to redisplay the description field.
    - Change the Supervisor field ***to the person*** requesting the change.
    - Save the change request using the **SAVE** button in the upper left corner of the Modify Change Request form. This submits the change request notification to the originator of the change via e-mail and updates Remedy.

Appendix H – System Recovery Workflow

- Notify appropriate groups that the problem has been acknowledged and is being responded to using the appropriate message template.

- Complete the system recovery work.

- Notify the appropriate groups that the problem has been resolved with an explanation of what has happened using the appropriate message template.

- Download and complete the system recovery template from the CRB web site.

- Save the system recovery document on the CRB web site under the subdirectory for your section. Subdirectories are: est, lan, net, other, security, tsc, and web.

  Example: http://www.ksu.edu/cns/crb/est { EST directory }

- The file name must include a date stamp and be descriptive for the change request. The date stamp format must be YYYYMMDD. File names **SHOULD NOT** contain blanks. The date stamp should be the date of service.

  Example: 20030820-LDAP-server-restart.rtf {MS Word file 2003, August 20}

- Additional documents must have the same file name and origination date stamp. If multiple files of the same type are saved, add a version letter to the file name.

  Example: 20030820-LDAP-server-restart.rtf {MS Word file }
  20030820-LDAP-server-restart-a.rtf {Additional file }

- Start the Remedy Help Desk Support client. **Login using your eID and password**.

- Open a new change request: **File | Create A New | Change Request (helpdesk)**

- Ignore any fields not specified in subsequent steps.

- Enter the category: **cns**

- Enter the type: **crb change request**
- Enter the item: **(select the item that best identifies the change)**

- Enter the urgency: (remember the urgency reflects how soon the change will take place)
  - **Urgent** – all expedited changes, emergency, or system recovery changes.

- Enter the priority:
  - **Urgent** – system recovery

- Enter a change summary description: This is a brief descriptor that is used as the file name identifying the project plan. This is automatically added to the description field.

  Example: 20030820-LDAP server restart

- Enter the Login Name: **(enter your eID)**

- Enter the group: (**Select your unit name**. Groups are listed as cns – CRB <group name>)

- Enter the supervisor: (**select your manager** or their designee from the pull-down list)

- Enter the requested date: (**this is the date the service was performed**)

- Enter the description: (A brief text description of the change request, including an html link to the project plan and all other related documents.).

  Example:

  The LDAP server was not answering requests. After a power outage the LDAP service did not start back up. Changed the startup script to correct the problem.
  Recovery Doc: *http://www.ksu.edu/cns/crb/est/20030820-LDAP-server-restart.rtf*

- Set the status field to: **Closed**

- Set the Closure Code to the on of these values: **Successful, Successful with Problems, Unsuccessful, or Cancelled**

- Select the **Activity** tab to display the work log field.

- Enter comments concerning the change outcome in the work log field. Remedy will automatically add the date, time, and your ID. **Something must be entered in this field.**

- Select the **General** tab to redisplay the description field.

- When completed **SAVE** the document. This will send an e-mail to your supervisor that indicates a change has been submitted.

Appendix I – CRB Approval Workflow

- Start the **Remedy Help Desk Support** client. **Login using your eID and password.**
- Look for all change requests: **File | Search for a | Change Requests (helpdesk)**
- Enter the category: **cns**
- Enter the type: **crb change request**
- Select the **SEARCH** button (upper left corner). This will display all matching change requests in the upper portion of the screens along with the details of the highlighted change request in the lower portion of the screen.
- Highlight the change request to be reviewed. This will display the rest of the change request in the lower section of the screen.
- Review all documents provided in the description field as HTML links.
- If the plan is complete and technically sound:
  - Select the **Activity** tab to display the work log field.
  - Indicate approval by adding **Approved** in the work log field along with any pertinent comments. Remedy will automatically add the date, time, and your ID.
  - Select the **General** tab to redisplay the description field.
  - Change the Group to: **the unit performing the change**
  - Change the Supervisor field to: the **unit manager** or their designee
  - Save the change request using the **SAVE** button in the upper left corner of the Modify Change Request form. This submits the change request via e-mail and Remedy to the unit manager for review.
- If the plan needs reconsideration:
  - Select the **Activity** tab to display the work log field.
  - Indicate disapproval by adding **Disapproved** in the work log filed along with comments describing why the change request was not approved. If needed, provide HTML links to additional notes. Remedy will automatically add the date, time, and your ID.

    Example:

    The projected change does not adequately account for affects to DCE, specifically K-State Online. Discuss with DCE the interaction with your environment and synchronize the change schedule with an appropriate low volume period for K-State online.
    Additional notes: http://www.ksu.edu/cns/crb/crb/<change name>.rtf

- Select the **General** tab to display the description field.
- Change the Group to: **the unit performing the change**
- Change the Supervisor field to: the **unit manager** or their designee
- Save the change request using the **SAVE** button in the upper left corner of the Modify Change Request form. This submits the change request to the unit manager of the change via e-mail and Remedy for review and reconsideration.

Appendix J – Change Completion Workflow

Staff – Change Completion Process

- Start the **Remedy Help Desk Support** client. **Login using your eID and password.**
- Look for all change requests: **File | Search for a | Change Requests (helpdesk)**
- Enter the category: **cns**
- Enter the type: **crb change request**
- Select the **SEARCH** button (upper left corner). This will display all matching change requests in the upper portion of the screens along with the details of the highlighted change request in the lower portion of the screen.
- Highlight the change request to be reviewed. This will display the rest of the change request in the lower section of the screen.
- Change the Status field to: **Resolved**
- Select the **Activity** tab to display the work log field.
- Add to the work log field. **Closed <full name> < date>**
  Add descriptive text or comments concerning the resolved change as needed.
- Select the **General** tab to display the description field.
- Change the Supervisor field to: your **unit manager** or their designee
- Save the change request using the **SAVE** button in the upper left corner of the Modify Change Request form. This submits the change request notification to the unit manager via e-mail and updates Remedy.

Manager – Change Completion Process

- Start the **Remedy Help Desk Support** client. **Login using your eID and password.**
- Look for all change requests: **File | Search for a | Change Requests (helpdesk)**
- Enter the category: **cns**
- Enter the type: **crb change request**
- Select the **SEARCH** button (upper left corner). This will display all matching change requests in the upper portion of the screens along with the details of the highlighted change request in the lower portion of the screen.
- Highlight the change request to be reviewed. This will display the rest of the change request in the lower section of the screen.
- Review all comments provided in the description field.
- If the change has been completed to your satisfaction:
    - Select the **Activity** tab to display the work log field.
    - Indicate your approval by adding **Resolved approved** to the work log field along with any pertinent comments. Remedy will automatically add the date, time, and your ID.
    - Select the **General** tab to redisplay the description field.
    - Change the Group to: **cns - Change Review Board**
    - Leave the Supervisor field **blank.**
    - Save the change request using the **SAVE** button in the upper left corner of the Modify Change Request form. This submits the change request notification to the CRB via e-mail and updates Remedy.

- If the plan was not resolved to your satisfaction:
  - Select the **Activity** tab to display the work log field.
  - Indicate your disapproval by adding **Resolved disapproved** to the work log field along with pertinent comments. Remedy will automatically add the date, time, and your ID.

    Example:

    The system documentation was not completed per unit guidelines. Focus on completing the necessary documentation in the next two days. Please see <supervisor name> for additional details.

  - Select the **General** tab to display the description field.

  - Change the Supervisor field **to the person** who resolved the change.
  - Save the change request using the **SAVE** button in the upper left corner of the Modify Change Request form. This submits the change request notification to the originator of the change via e-mail and updates Remedy.

CRB Change Completion Process

- Start the **Remedy Help Desk Support** client. **Login using your eID and password.**
- Look for all change requests: **File | Search for a | Change Requests (helpdesk)**
- Enter the category: **cns**
- Enter the type: **crb change request**
- Select the **SEARCH** button (upper left corner). This will display all matching change requests in the upper portion of the screens along with the details of the highlighted change request in the lower portion of the screen.
- Highlight the change request to be reviewed. This will display the rest of the change request in the lower section of the screen.
- Review all comments provided in the description field.
- If the change has been completed to your satisfaction:
    - Select the **Activity** tab to display the work log field.
    - Indicate approval by adding **Resolved approved** in the work log field along with any comments. Remedy will automatically add the date, time, and your ID.
    - Select the **General** tab to display the description field.
    - Change the status field to: **Closed**
    - Change the Closure Code field to: **Successful, Successful with Problems, Unsuccessful, or Cancelled**
    - Add any final comments to the work log field.
    - Select the **General** tab to display the description field.
    - Save the change request using the **SAVE** button in the upper left corner of the Modify Change Request form. This submits the change request notification to the CRB via e-mail and updates Remedy.

- If the plan was not resolved to CRB satisfaction:
    - Select the **Activity** tab to display the work log field.
    - Indicate disapproval by adding **Resolved disapproved** to the work log field.
    - Add descriptive text underneath the disapproval, explaining why the change request was not approved.

      Example:

      The system documentation was not completed per unit guidelines. Focus on completing the necessary documentation in the next two days.

    - Select the **General** tab to display the description field.
    - Change the Supervisor field **to the unit manager** who resolved the change.
    - Save the change request using the **SAVE** button in the upper left corner of the Modify Change Request form. This submits the change request notification to the originator of the change via e-mail and updates Remedy.

Appendix K – Activity Work Log

The activity work log field is a running diary of events within a change request.

Change request comments, approvals, and disapprovals are placed in this field.

As comments are added to the work log the date, time, and your ID are logged as part of the comments. Once comments are entered and the change request is saved, the comments become a PERMANENT copy of the work log and cannot be edited.

As part of Remedy's work flow, the use of the Activity work log is required by the internal business rules of Remedy.

The benefit of this is that the description field now remains unedited throughout the lifecycle of the change request, eliminating the confusion caused by multiple people/groups adding to the initial description.

Appendix L – Change History

YYYY/MM/DD – initials

2004/03/17 – cjg – v2.07

- Changed submission deadline from Monday 5:00 p.m. to Friday 5:00 p.m.

2003/11/26 – cjg – v2.06

- Updated appendix J – staff completion workflow to show entry of comments and completion notice in the work log rather than the description field.
- Changed commitment of CRB response on Wednesday from 1 p.m. to "late" Wednesday to avoid a specific time commitment.

2003/11/20 – cjg – v2.05

- Updated appendices E and H to indicate that date stamps in file names should reflect the service date, not the origination date as originally proposed.

2003/11/13 – cjg – v2.04

- Updated appendices F, G, H, I, and J – workflows. Minor wording changes to the effects of SAVING a change request to be clearer.
- Updated appendix J – removed a step involving the Closure Code, not needed for Resolved tasks.
- Changed file name examples in appendices E & H to not have blanks.
- Changed Appendix H system recovery workflow to be Closed rather than Resolved.

2003/11/12 – cjg – v2.03

- Updated Appendices F, G, H, I, and J – workflows to use the Activity work log as a diary of approvals, disapprovals, and comments. Also added clarification on the use of the closure fields.
- Updated graphic in Appendix D to indicate use of closure field.
- Added appendix explaining the Activity work log field.

2003/11/11 – cjg – v2.02

- Inserted appendix workflow for manager's approval (from CRB to staff). Adjusted all other appendices letters accordingly.
- Changed date formats to YYYYMMDD-filename.
- Change system recovery submission from unit manager to CRB (page 8).
- Added change history.