UNCC College Of Engineering
Management Process of Application Software on the Mosaic System

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Introduction:

This document outlines the following:
1. Process for making a request for new applications to be added to the Mosaic Application suite;
2. Process for requesting an update to an application in the Mosaic Application suite;
3. Process for requesting an application in the Mosaic Application suite;
4. The decision making process
5. The Mosaic Application suite management process.
6. Rollout process of software
7. Installation of licensed Mosaic software on non-Mosaic based systems.

Process:

New Applications:

A written justification for the software application must be submitted to the Mosaic team, attention to the Mosaic Assistant Dean. The requestor becomes the sponsor of the software application. The is assumed to have the approval of the department chair and the review by the CFAC member. An outline of what should appear in the justification form appears in appendix A. The more complete the information in the application request the quicker it will be evaluated.

Timing of the request is critical for fulfilling any new application request. If the workload permits, the Mosaic Computing group will process and fulfill the request within a reasonable time. Requests for applications must be submitted at least 60 days prior to the desired install date so that there is sufficient time for processing the licensing (with legal), acquiring the software, packaging and testing of the application under the Mosaic environment. Requests for new applications for a new semester should be submitted as follows: for Fall semester by April 15; for Spring semester by Oct 15. Exception to these dates will be handled on a case by case basis.

Prior to the technical efforts to install and test the software application, the Mosaic Assistant Dean will negotiate the best possible educational terms for the licensing of the product at UNCC as well as the end user license agreement. License agreements for software (those that are free also have a license agreement) are reviewed by the UNCC legal department and this can take many weeks of negotiations. Costs for software have a direct impact to the Mosaic budget and it is not always possible to satisfy the full request from the sponsor. Cost based and free software indirectly impact the Mosaic Computing architecture because of:

- Dependency impact on other components of the system.
- Workstation hardware limitations.

The Mosaic team will schedule an evaluation of the request against all other work items. Once scheduled, the request will be assigned to a Mosaic software application engineer specialist who will assess the request to make sure that there are no technical issues. The Mosaic team may need to get the software on an evaluation basis to enable verification and prototyping of an installation. The Mosaic engineer will establish a dialog with the sponsor of the request and the application vendor. A regular status update will be provided to the sponsor of the request as well as the CFAC members.

An application request from a faculty member will require a commitment to some amount of product testing. All new application software will follow a prescribed process of initial testing by the sponsor

prior to the application roll out to a wider spectrum of workstations. Application testing will be documented as individual test cases. A written set of test cases for the product introduces a more comprehensive testing phase of the Mosaic product release process. Both the Mosaic application specialist and the faculty sponsor are required to maintain these written test cases. See Appendix B for a more complete description about the application testing process.

Updating an Existing Applications:

A written justification for any changes to existing software application (adding modules, increasing the number of seats, new version) must be submitted by the requestor to the Mosaic team, attention to the Mosaic Assistant Dean. The requestor is the sponsor of the software application. The justification must have the approval of the department chair and the CFAC representatives. An outline of what should appear in the justification appears in appendix A (section I, II, III, IV, V, VI, VII and VIII will need to be completed).

Timing is critical for any updates to existing application request. Requests for application enhancement should be submitted at least 60 days prior to the desired install date so that there is sufficient time for packaging and testing the application under Mosaic. Remember to consider the impact of an update to an existing application as the application may be used by multiple faculty members in the COE.

Prior to the technical efforts to install and test the software application enhancement, the Mosaic Assistant Dean will negotiate the best possible terms for the licensing of the product at UNCC as well as the end user license agreement. License agreements for software (those that are free also have a license agreement) are reviewed by the UNCC legal department and this can take many weeks of negotiations. Costs for software have a direct impact to the Mosaic budget and it is not always possible to satisfy the full request from the sponsor.

The Mosaic team will schedule the enhancement request against all other work items. Once scheduled, the request will be assigned to a Mosaic software engineer who will assess the request to make sure that there are no technical issues. The Mosaic engineer will establish a dialog with the sponsor of the request and the application vendor. A regular status update will be provided to the sponsor of the request and CFAC members.

Rolling out an enhancement to an existing application software will follow a prescribed process of initial testing by the sponsor of the request and a scheduled time for the roll out. If we have done our job then a written set of test cases will be available for execution to verify the product install on the Mosaic system. A written set of test cases for the product introduces a more comprehensive testing phase of the Mosaic product release process. Both the Mosaic application specialist and the faculty sponsor are required to maintain these written test cases. See Appendix B for a more complete description about the application testing process.

Renewal of Existing Applications:

A re-justification will be solicited from the CFAC members prior to the expiration of an existing application on the Mosaic system. The CFAC members will need to review the application renewal with their faculty to determine if there is a change of the sponsor and/or a change to the targeted classes. The number of concurrent seats of the licensed product renewal will also need to be reviewed. A written justification for the renewal from the sponsor must be submitted to the Mosaic team, attention to the Mosaic Assistant Dean. The justification must have the approval of the department chair. An outline of what should appear in the justification appears in appendix A (section I, II, III, IV, V, VI, VII and VIII will need to be completed).

Prior to the technical efforts to install and test the software application renewal, the Mosaic Assistant Dean will negotiate the best possible terms for the licensing of the product at UNCC.

The Mosaic team will schedule the renewal request. Once scheduled, the request will be assigned to a software engineer who will assess the request to make sure that there are no technical issues. The

Mosaic engineer will establish a dialog with the sponsor of the request and the application vendor. A regular status update will be provided to the sponsor of the renewal. The renewal of an existing installed application typically entails installation of a new license key file. The process of installing a new license file is typically completed within a few days after the vendor sends us a new license key file. If the renewal request requires an update of the application software then this process is lengthier and follows the "Updating an Existing Applications" process above.

Rolling out a renewal to an existing application software will follow a prescribed process of initial testing by the sponsor of the renewal and a scheduled time for the roll out of the renewal.

Decision Making Process:

At the end of the day the ultimate resolution of what gets installed on Mosaic and what gets deferred centers on key areas of: class needs served by the applications software, the impact of the dollar cost associated with the application, the availability of alternative installed applications on Mosaic and the available Mosaic resources (engineering time, workstation limitation) to handle the installation.

On a regular basis each department must rank in priority order of the application software that they require for fulfilling the education mission of the department, tagging the application as Mandatory or Desirable is suggested.

The department requesting the application software should make a concerted effort to see if an existing installed application serves the needs of the class. If application A has the same functionality as a new request for application B then use of application A is the prudent choice.

It is expected that for the foreseeable future, the sum of expenses for all the application software requests as well as the associated yearly maintenance charges to sustain installed applications on Mosaic will out strip the available Mosaic funds. Budgets for software applications will need to be bounded and controlled to avoid an upward spiraling cost. At some point, with help from the Dean and the COE department Chairs, the priority for selection of software to be installed on Mosaic systems for the COE educational mission will follow these guidelines:

1. Any updates or maintenance renewal to existing installed engineering educational software must be justified in writing from a sponsor in the COE. If there is no justification from a sponsor then the application will be either removed or left on the system with no maintenance support.

2. Applications will be reviewed to determine if it is possible to reduce costs by reducing the number of concurrent license seats or functional modules

3. Any request to add a new software application is assessed favorably if an existing application is identified for removal from Mosaic.

4. Any new software request that can be used by multiple departments in the COE for educational purposes has a high value to the COE and will be installed provided that the funds are available for the acquisition of the product.

5. The final approval/decision will be based on a dialog between the sponsor of the request, the department chair and the Dean's office (including the Mosaic Assistant Dean).

6. Finally, there are exceptions to these guidelines. For example, new application software can be approved for installation if they are funded by additional funds that may be allocated from the Dean's office. Departments might also get donations, receive new funds or simply decide they need to purchase a product.

Management of Installed Software:

Prior to the start of an academic semester, a list will be compiled by the Mosaic team which will identify software applications that are no longer used by the COE. Software applications that have had no usage for 2 consecutive semesters will be targeted for the "Removal List". Another list will be compiled to identify software applications where usage characteristics show that the licensed number of seats needs adjusted (decrease or increase). This list will be referred to as the "Adjust List".

The "Removal List" and the "Adjust List" will be published for review by CFAC. CFAC members will review the lists within their departments. A meeting will be scheduled (if appropriate) with the Mosaic Assistant Dean, COE Dean, COE Department chairs, and CFAC members to review and finalize the lists. Once the lists are finalized they will be forwarded to the Mosaic team for processing.

At least once per year an audit will be done of all existing sponsored application software on the Mosaic system. The audit is designed to verify the association of the sponsoring faculty member with the tagged application software.

Roll out process for software

The Mosaic team handles application and system software rollout in a reasonable fashion. The following guidelines are used by the Mosaic team:

The current installed version of the application software is typically reviewed and if necessary updated at license renewal time. Normally the application license key is re-issued by the vendor for the existing version of the application.

We may be forced into an update of the application/system software for some reason (by vendor or by a show stopper bug fix or by for OS compatibility, security, license key, feature.). The application software faculty sponsor and CFAC will be notified of the proposed update to ensure that course material is synched to the new version. The Mosaic team members are not experts on every engineering application software package thus engagement with the faculty sponsor is important. We will also work with the faculty sponsor on application testing of the updated software.

We try to bundle the updates and the install of new applications into a specific period, typically between semesters.

Once we have the application software in place for testing we run some standard set of tests on the application; the identified faculty tester from the COE department will also conduct more extensive testing. All tests are to be inserted into a text file as test cases (describe the test, the files used, version of software used, date tested, test results (pass, fail)). We are assuming that the software vendor's QA process was sufficiently robust and covered many test and use cases. Our test efforts are to strictly ensure that the application software behaves well under Mosaic and catch any compatibility issues. We will use these test cases for all future releases of the product.

Applications are "generally" installed for the COE mission of student education, so "in general" this means the applications are targeted for the Mosaic labs, but may also embrace all faculty and staff.

For a single staff or faculty member we can make exceptions if the application is to be placed only on a single machine. We can always run the XP Maintenance update on a single machine at just about any time, we just need to get the user to confirm when they want the application. We need to be the holders of the license for the application. Of course we need time to install software and get a package ready to ship down to a single machine. For a single user there will also be the problem of available space on their hard drive, since all the machines have the same partition size regardless of the disk size. Because of the partition size restriction we really must regulate the size of applications we ship down to individuals or they might be impacted when we ship out a global application. Also, the application targeted for a single machine will only be available on that machine. We will keep track of the application install for the single machine but will not be responsible for the tracking the new releases, updates. Keep in mind that a single application install for a single user is lowest on our priority list and will be done when time permits.

We handle application update priorities based on the following order...

1. Global
2. Multiple, or all student labs
3. A single student lab (a small "group" of machines)
4. Single machine

Releasing an application globally is the most complex since it definitely requires an "overnight" period, or depending on how large the update will be, can require "successive nights".

Global application releases are certainly the ones we would like to curtail during semesters. Because of classes being held during a semester the applications will be "in-use", so we shouldn't upgrade them unless there is a critical problem.

Concerning the hard disk partition size issue... The Mosaic XP main partition "drive c:" size is the same on all machines (currently 40 Gig) because of the "lowest common denominator" (LCD) problem. Without having to keep track of and find out if there is enough space available on all the machines for applications that are being globally released, we have historically limited the partition size to the LCD machines capabilities. Why?

1. Limiting what goes on a machines local disk in the first place will save network bandwidth during updates and speed up the machine build time. We generally install everything we can into network space (AFS) for this reason.

Policy on installation of licensed Mosaic software on non-Mosaic based systems

Periodically, a faculty or staff member requests or needs a Mosaic licensed application software to install on their non-Mosaic systems.   The general policy is that Mosaic licensed software is not to be released and installed on non-Mosaic systems. There are several reasons why this is the policy:
1. When we license the software we do it based on usage by students and faculty for academic/teaching purposes.
2. The license server, associated vendor license daemon and license file that governs the floating licenses for a product is managed, updated and cared for by the Mosaic team in conjunction with the application running on the Mosaic work station. Mosaic does not manage non-Mosaic systems so there is no way for us to determine the impact of our efforts to these non-Mosaic systems.
3. We have no way of regulating how licensed software applications proliferate in the COE or on campus.
4. In some cases the media cannot be duplicated due to DRM measures on the CD/DVD or sheer number of discs let alone the manpower required to manage it. There is a high risk to us if we loan out the originals and they are lost/not returned/ damaged.

Exceptions to this policy are when the Mosaic installed software application is campus licensed, is available thru ITS or the library to faculty or staff then the software can be made available to install on non-Mosaic systems. This exception is evaluated on a case by case basis as some campus licensed software is actually re-licensed to the COE Mosaic group for a fixed number of concurrent seats on Mosaic based systems only.

Appendix A
Request for New Install/Update to an existing Install/Renewal of Installed Software on the UNCC COE Mosaic System (Ver 092806)

I. Sponsor Information:

Sponsor Name:	Submit Date:
Sponsor Department:	Phone Number:
Sponsor Email Address:	
Indicate if this request has been approved or reviewed by Department Chair name: (Yes, No)	

II. Application Software Information:

Application product name:	Version:	
Install /Update/Renew on a single machine (machine name):	Install /Update/Renew on specific Mosaic Lab(s)- lab names:	Install /Update/Renew Globally on all Mosaic based systems (yes-no):
Install /Update/Renew for the following Operating System:		
Date needed for Install /Update/Renew on Mosaic:		
Special Notes on the product:		

III. Vendor Information:

Vendor/Distributor Name:	Phone Number:
Address:	
Vendor/Distributor Contact Name:	Phone Number:
Vendor/Distributor Email Contact:	Product Web Link:

IV. Product Information:

Specify License handling mechanism by the product:		Circle or specify the number of concurrent seats required. Specify Educational costs break down (seats) if you know. Indicate if you are not sure.						
Software based (FlexLM node lock or Network based)	Hardware Based (dongle)	1	5	10	20	30	other	Not sure
Specify Annual Support Fee:								
Specify location of Product (CD, network):								
Specify the name and email address of who will be helping with the testing of the product:								

V. Educational Requirements:

List class id	Class name	Expected number of Students	Semester(s) typically taught		
			Fall	**Spring**	**Summer**

VI. Research Requirements:

Research Area	Faculty names engaged in effort	Number of students involved in Research area

VII. Justification:

List similar products that have functionality of this product request and why this request is justified. Identify why enhancement request is justified.

VIII. Additional Notes:

Additional Notes to help with processing this request:

IX.

To be filled out by COE Dean's Office	
Reviewed by:	Review Date:
Dispositions (Approved, Deferred, Rejected):	
Disposition Notes:	

Notes:

Use this form for New Engineering Application software Requests, Renewals of licensed installed software, and for version updates to currently installed software on the Mosaic system. This completed form is required for any Engineering Application, those that are free and those that incur a cost to the COE. This form, the product License Agreements, are review by the COE department head and are submitted to the University legal department for a review – regardless if there is a cost associated with the product. Not all the fields are applicable for each type of request so enter an NA for those that are not applicable.

Section I. Sponsor Information should have all fields completed for new, renewal and update requests.

Section II. Application Software Information. Be sure to indicate the Version number for New and for an Update. In the Operating System field indicate and rank the OS platform release you prefer to see (current choices are Windows, Unix and Linux). In the Special Notes on the product you should indicate any information about your priorities for the install since Mosaic installs on Unix and Linux are typically not as difficult as on Windows and can be available quicker. Indicate if the product is for evaluation purposes

Section III. Vendor Information. You are not required to fill out this section for Renewals and Software Updates where Mosaic has the vendor information from a previous form on file.

Section IV. Product Information. Any information on the number of concurrent licenses or seats is very helpful to Mosaic Computing and can potentially bring down the costs. If you don't know indicate this in this field. We need a name of who will be helping test the product (new, update or renewal) to make sure that there is no problems.

Section V. Educational Requirements. List which engineering courses over a 12 month period in your department will use this software and, if you know, list those courses in other engineering departments who will use the software. Rough projections on the number of students who will use the product in a semester will be useful.

Section VI. Research Requirements. List the information in this table if you plan to use the product as part of a research effort.

Section VII. Justification.   For a new request you will need to be clear why you are justified with this request if there is a similar product already available on Mosaic that delivers similar functionality. A renewal request should assess why the renewal is justified if a similar functionality is already available on Mosaic from another product. Updates to installed software need to be justified with data that identifies the compelling reasons for the features in the new release.   Updates to software products sometimes are as much work as a complete new install.

Section VIII. Additional Notes. This is where you can provide any additional data to the Mosaic Computing group about the request. For example, you can identify in this section any information you want the Mosaic Computing group to address for this request.

Section IX.   Do not fill this section.

Appendix B. Application Testing

We create a product directory on AFS for each product we install; we compile a text file for each test case of the product describing the testing that we do. The generation of test cases will be done by both the Mosaic team of application specialists and the faculty member who will test the application to certify the proper installation and operation before it is general released to the public. The developed test cases will be reviewed and updated before each application software update to ensure that that the test cases are applicable/pertinent to the updated application . Documenting the test cases will benefit us in several ways. One, it will engage the faculty in the testing process thus helping with the quality. Two, it will be possible down the road, in most cases, to push application testing to a TA, streamlining the entire release process.

Store these on a shared drive on AFS for now - eventually this set of test cases will be more streamlined.

Proposed text file format of test cases generation is as follows:

Application Name:
Version:
Operating System:
Date of test:
Tested on WorkStation Name:
Test Set up Requirements (any special pre-launch set up for the test):
Any data Files for the Test:
Test Number:
Test Description:
Test Results (Pass, Fail):