TO: UCA Faculty Senate

FROM: Department of Geography

(Communicated by Jeff Allender, Chair)

DATE: September 13, 2011

SUBJECT: Concerns about changes in Admin privileges

Several of the faculty of the Department of Geography have concerns about the possible loss of Administrative abilities for both the classes they teach and research. The following are the primary Admin access needs of four of our faculty, all teach Geographic Information Systems (GIS) courses, both at the undergraduate and graduate level, as well as remote sensing and satellite imagery courses.

Mary Sue Passe-Smith: GIS Lab Director, Teaches GEOG 2475 Cartography; GEOG 3303 Intro to GIS; GEOG 3307 GIS Business & Social Science Apps; GEOG 3319 Geographic Field Techniques

* Needs full administrative capacity in the GIS Lab (BURD 313) and her office machine.
* In charge of both the ESRI and ERDAS software and its installation, updates, add-ons, and extensions.
* Teaches at least two nights a week until 9:00 and likely will not have access to ready assistance if the lab has an issue or her students have to install a minor tool (many of which she has in her exercises).
* Over a dozen add-ons and freeware (SAFE) have been installed in the lab in the last three weeks, often during a class to show the students how to handle problems. This is typical throughout the year.
* Needs to install devices that install themselves (Windows Mobile devices) for Geographic Field Techniques; it cannot be done on the image, to her knowledge. Also, the GPS devices go on/off/on/off all the time to synchronize, both in the lab and out in the field.
* She images all the lab machines, and if something was left off despite her best efforts, may have to install it quickly during class.
* Needs to install programs to access NOAA weather data and other U.S. government data for her tornado impact research.
* She has worked for 19 years as a GIS Lab Instructor and Director to do just these things; has worked with and alongside Computer Services/IT/IST since then on lab needs, troubleshooting faculty, staff, and lab computers, as well as built her own lab computers, bought/installed software, taken administrative Windows classes to run a small server, etc. She has never obtained a virus or malware on her UCA machines. She knows what she’s doing.

Brooks Pearson: Teaches GEOG 3306 Remote Sensing & Image Interpretation; GEOG 5310 GIS; GEOG 4345 Digital Image Processing; GEOG 5315 Mapping Fundamentals; GEOG 6320 Technical Issues in GIS; GEOG 6380 Research Methodology; GEOG 6328 Spatial Analysis & Modeling; and is Chair of most of the thesis committees for our online MGIS program.

* There is numerous software which is required for his research and teaching which UCA does not support that he must both purchase and maintain himself.  Examples include CorelDraw, Photoshop, Pkware, WordPerfect, Multispec, NASA's Eyes, Lizardtech, SpreadGIS, etc.  He needs to be able to install and update these and similar noncanonical software systems on a regular basis.
* For purposes of memory and hard drive management, he needs to be able to customize the installation of software, deleting functions of limited utility and then adding them back if they are absolutely needed.  This is especially true with GIS and remote sensing software which frequently have extraneous functionalities that need to be curtailed to facilitate smoother operations.
* Especially when working with his raster programs (and to a lesser degree with GIS), he needs to be able to tailor the basic Windows setup to provide streamlined operations that minimize background demand on RAM.  Raster datasets he works with are commonly multi-gigabyte in size and processing time can be dramatically reduced and system stability greatly enhanced by managing paths as well as system settings and the availability of programs on his system.  Basically, he needs to be able to eliminate unnecessary functionality on his machine to clean paths, provide more hard drive scratch space, and generally to establish as streamlined a platform as possible.
* Needs to be able to manipulate memory management on his system back-and-forth between more regularized settings and extreme settings necessary to force operations to work with extremely large raster datasets.
* Currently directs over 20 master theses and graduate projects.  Many of these require specialized plugins or programs which he has to install, modify, and periodically delete to be able to assist students in completing their work.
* Our graduate students are online and therefore they have to install self-contained versions of ArcGIS and Erdas Imagine on their personal machines.  To best guide them in this task, he needs to be able to run through the installations himself on his own machine and, occasionally, to uninstall to see if he can replicate their installation problems to reverse-engineer a solution.  This is frequently a priority regarding Imagine, although it does pop up with ArcGIS as well.
* ArcGIS (and to a lesser degree Imagine) is notorious for leaving junk floating around in the system and not cleaning up after itself (thumbnails, scratch data, temp data, etc.).  He needs to be able to access Windows management tools to clean the system up on a regular basis.  During periods where he is engaging a lot of intensive geoprocessing with large files, it is sometimes best to clean his machine daily to insure quick and stable operations.
* As workflow needs change, he needs to be able to manage partitions on his hard drive or portable hard drives.

Steve O’Connell: Teaches GEOG 6V60 Directed Readings in GIS; runs numerous teacher workshops around the state for middle and high school teachers on using GIS, StoryMaps, and related on-the-fly GIS software for teaching.

* Has/uses a locally installed version of ArcGIS (currently 10.2). This software includes numerous extension packs that are not always activated. He periodically needs access to these tools and must use the ArcGIS Administrator functions to do so.
* He is also responsible for instructing people who use GIS on non-campus machines (MGIS students, teachers participating in geography workshops) and needs to document the proper set-up instructions for GIS software and ancillary programs; that would be difficult to impossible if he was not able to screen capture administrative steps during installation.
* Only UCA computer is a laptop. He uses this computer off-campus and off-schedule and would be severely hampered in routine tasks (ie. connecting to a home printer, updating device software for scanners used in archival data collection, etc) if he did not have a way to access administrative privileges in a timely manner.

Dr. Matt Connolly: Teaches GEOG 4330 Geographic Information Analysis and ENVR 4410 Practicum in Environmental Science

* Many of his recent research projects involve **very large** data sets (1,000 to 1,500 or more data values for each of 15 or more variables).  These large data sets often require him to use parallel processing algorithms which require direct/machine level access to individual CPUs on his machine.  Without administrative access, he cannot manually configure the CPUs to process the data correctly.
* Lack of administrative access to his local machine would also impair his ability to test new software for course development and/or research purposes before formally requesting an IT approved install.
* Installing new libraries (chunks of code) for R (a statistical software that he uses) and Python (scripting language for ArcGIS and general data processing) would also be impaired by a lack of administrative access.
* Occasionally, he needs to install software to create ad-hoc solutions and workarounds to solve student and/or research problems.  Ad-hoc installations are not possible without administrative access**.**