



Application Common File System (CFS)

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Activity Usability Testing

Consultants Todd Zazelenchuk, Chad Singer, Abigail Hawkins

Participants	Role	CFS experience	No CFS experience
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	Graduate student	2	1
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TOTAL		2	1
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Executive summary

This study represented a brief follow-up evaluation of the CFS prototype following changes made after the 2001 usability evaluation of the system. The intent of the study was to determine whether the changes made were effective in removing some of the usability problems observed with the original system.

The results of this short follow-up study suggest that the changes made to the CFS based on the 2001 study were very successful. Terminology changes and the rearrangement of main control buttons were found to eliminate earlier usability problems for users.

Users did experience some difficulty with the latest prototype, however, when it came to interpreting the system's feedback screens and making edits to a stored file. A summary of the findings from this study is presented in this report, along with recommendations made for redesign.

Sample screen designs are included to help the development team implement the changes to the feedback screens necessary to remove the usability concerns. In most cases, simple reformatting of existing elements will remove the problems observed so the cost/benefit ratio of implementation is very high.

Purpose of Study

The purpose of this round of usability testing was to evaluate changes made following the previous round of testing in November, 2001. From the 2001 study, several of the recommendations made were incorporated into a new prototype of CFS. The development team wanted to see if these changes resulted in fewer usability problems and whether any new usability problems were introduced prior to the prototype's release for Fall 2002.

Method

Usability testing methodology¹ was used to evaluate the website. This approach involved having authentic users perform authentic tasks using the system, while evaluators observed and recorded their actions and comments. Users were asked to perform a think-aloud protocol² to help the evaluators understand their behaviors and gain insight into the design of the website. Sessions were performed on an individual basis with each session lasting approximately 40 minutes. Following the last session, qualitative and quantitative data were analyzed and summarized and recommendations for redesign were made. Users were rewarded with their choice of a Usability Consulting Services water bottle or CD wallet in return for their participation.

Participants

Participants for the study were identified and recruited by the Usability Consulting Services. Given the short timeframe for the test, only graduate students who were available for testing were recruited. Two students had previous experience with CFS, while one did not and had to initiate a CFS account prior to performing

the tasks. In total, three people participated in the study.

Procedures

Participants were read an introductory protocol to begin the session. Tasks were completed one at a time in sequence due to the fact that later tasks were dependent upon earlier tasks. Task completion was recorded as either 1) success with ease, 2) success with difficulty, or 3) failure to complete the task. All sessions were conducted at 1024x768 resolution using Internet Explorer 5.5 on the Windows 2000 operating system.

Tasks

The tasks used for the study were based on the tasks used in the previous 2001 study. In a few cases, minor revisions were made to avoid cueing users (e.g. the terms "available space" and "folder" were replaced with alternative names to avoid cueing users to labels displayed in the new interface). The final version of the task list is presented in the Results section that follows.

Results

The results of the study have been divided into two sections:

1. Task performance (e.g. successes and failures)
2. Observations and recommendations

¹ Dumas, J. S., & Redish, J. C. (1993). *A practical guide to usability testing*. Norwood, NJ: Ablex.

² Ericsson, K. A., & Simon, H. A. (1993). *Protocol analysis: Verbal reports as data* (Revised ed.). Cambridge, MA: MIT Press.

Task	Success	Success	Failure
	Easy	Difficult	
1 Beginning at the IU home page, locate and login to your CFS account using your username and password.	2	-	1
2 Consider the following scenario. You are at a friend's house working on a group project. You have a large Word document named <i>People.doc</i> on your desktop. You would like to store a copy of this file on your CFS account so that you can retrieve it later from home. How would you proceed?	1	2	-
3 You decide that you would like to change the name of the <i>People.doc</i> file on your CFS account to something more accurate. Change the filename to <i>Students.doc</i> .	3	-	-
4 Imagine that you are now at home and you would like to retrieve and view a copy of the <i>Students.doc</i> file so that you can work with it. How would you proceed?	2	-	1
5 Add your name to the list of names on the first page of the <i>Students.doc</i> file and replace the old version of the file on your CFS account with your new updated document.	-	2	1

6 You have a large file of 45MB that you would like to store on your CFS account. Do you have enough room?	3	-	-
7 You would like to better organize your CFS account space. Create a new container in your CFS account, name it <i>School Stuff</i> and store <i>Students.doc</i> in it. Check to see that <i>Students.doc</i> is in the <i>School Stuff</i> folder.	3	-	-
8 How would you use the COPY feature?	2	-	1
9 You decide that you no longer want the <i>School Stuff</i> folder on your CFS account. Go ahead and remove this folder from your account.	3	-	-
10 Whom would you contact if you have questions about CFS?	3	-	-
11 You are now done with CFS and would like to move on to do other things on the web. How would you proceed?	3	-	-

The table on the following page presents the observations, interpretations, and recommendations for redesign.

Layout and presentation		
<p>All three users demonstrated some level of difficulty (ranging from minor to significant) in uploading a file and understanding that they had successfully completed their task. The primary reasons for this were the unclear sequence of steps in browsing and uploading, combined with the awkward display of feedback following a successful upload or folder creation.</p>	<p>The current layout and presentation of steps for uploading new files and creating new folders depends on users' experience with having done this before. Providing users with more of a step-by-step sequence to follow may prove valuable for new users to the system and should not hinder experienced users in any way.</p>	<p>1. Reformat the display of the feedback screens so that the key information (successful or failed) does not compete with the other information on the screen. This may be done by simply rearranging the existing elements and editing the text and font size to present a clear message. SEE APPENDIX: Screens 1-5</p>
<p>2 of 3 users demonstrated difficulty noticing and selecting the "overwrite file" checkbox when uploading a file to replace an existing one.</p>	<p>The current display follows the recommendation made from the last study, but continued to be a problem for users. The crowded nature of the items on the screen and the lack of a clear flow are speculated to be the main reasons for the problem.</p>	<p>2. Present the required and optional steps in a linear fashion for users to consider. SEE APPENDIX: Screens 1-2</p>
<p>Once again, users were unclear about how to sort the files in their list. When asked about the underlined column headings, users were uncertain what they might do.</p> <p>In one case, a user had successfully uploaded a new file but could not find it alphabetically due to the current display (folders first, then files) and thought that she had failed to successfully upload it.</p>	<p>The 2001 study recommended that a dropdown menu titled "sort files by"...name, size, date...might make it clear that this option exists. The current option, while elegant and simple, is likely to go unnoticed by the majority of users and may cause users some difficulty in locating recently added folders or files in a long list if they happen to be sorted by size or date.</p>	<p>3. Instead of using the linked column headings to sort files, present a drop-down menu that covers this functionality. E.g. Sort by [name, size, date modified, type] ... where [] represents the options in a pull-down menu.</p>
<p>Although no tasks were included to specifically test the readability of the "Size" and "Modified" details displayed, it is anticipated that the current display would be improved with additional spacing between columns. The crowded display was more noticeable on the Macintosh interface.</p>		<p>4. Increase spacing between "Size" and "Modified" columns of data for easier readability.</p>
<p>All users demonstrated success in selecting the checkbox prior to performing some action on a file. Once or twice, users failed to notice it initially, but then realized that they had to select it first.</p>	<p>The recommended change from the 2001 study that introduced a "select" title proved successful.</p>	<p>5. Maintain the Select title, but apply a 'bold-face' style to it to help make it stand out as a title.</p>

Error prevention		
<p>2 of 3 users demonstrated difficulty (1 severe) in attempting to make changes to a text document and save the changed document on their CFS account.</p>	<p>This error appeared to be due to the browser's "feature" of allowing the user to view their Word document within the browser. The system allows the user to make edits and asks them if they want to save their changes, but it did not save these changes in the CFS account. The only solution for users was to physically download the document, make their edits, and then upload it again.</p>	<p>6. Uncertain...perhaps documentation of problem in the Help section?</p>
<p>Users easily deleted a folder and its contents for Task 9, but then noted afterwards that they expected a warning confirmation.</p>	<p>Users are accustomed to being warned about completing actions that have serious repercussions. Without a warning, users may delete files by mistake.</p> <p>This recommendation from the 2001 study was not implemented in the current prototype and should be seriously considered to help users avoid errors.</p>	<p>7. Add a warning that asks the user if they wish to delete "Folder Name" and all of its contents whenever a folder containing one or more items is selected for deletion.</p>
<p>Finding CFS</p> <p>The two users with CFS experience knew the URL and entered it accurately to begin the test. The inexperienced CFS user was unable to easily locate CFS from the IU homepage.</p> <p>Users hoped to find something about CFS under Libraries and Technology on the IU home page. This was supported by the 2001 study.</p>	<p>The CFS starter kit link is not currently the first result in the list of search results for "CFS Account". This would be ideal.</p>	<p>8. Try and improve the search result placement of the CFS starter kit file to ensure that users who are either looking to open an account or to find out more about CFS are successful.</p> <p>9. Coordinate with the IUB Web team to get a link to CFS on the Libraries and Computing page under the Computing link.</p>
<p>Control Buttons and links</p> <p>One user had some difficulty easily locating the "show available space" link. Initially, she missed it at the top of the screen and then scrolled down, but it was not available there. Once she found it, she noted that it was sufficiently clear.</p>	<p>The current position of the "available space" and "help" links are intended to be separate from the primary action buttons. Similar to the primary buttons, these links should be displayed at both the top and bottom of long screens to increase the chance that users will find them when needed.</p>	<p>10. Include the "Show Available Space" and "Help" links in the script that displays the main control buttons at the bottom of screens that contain multiple items (15 or more?).</p>

All users succeeded in tasks that required them to create a new directory (folder).	The recommended change from the 2001 study proved highly successful.	11. Maintain the label “new folder”.
All users successfully used the Log Out button to exit the system.	The recommended addition from the 2001 study proved successful.	12. Maintain the “logout” button.
All users demonstrated an ability to easily scan the available buttons without missing any required items.	The recommended changes regarding alignment and grouping of action buttons from the 2001 study proved successful.	13. Maintain the current grouping of the action buttons.
For one user who had dozens of files in her account, the control buttons at the top and bottom of the screen were heavily used.	The repetition of the control buttons at both top and bottom of the screen was shown to be helpful.	14. Maintain their display at both top and bottom of the screen depending on the number of items displayed on the screen.
Navigation		
All users used the breadcrumb directory to navigate backwards through the system. One user commented that the “back” button was available on some screens, but missing on others.	Currently, there are a few different ways of navigating the system (breadcrumb trail, back button, and “Up one level” link). The display of the “up one level” link in the list of files is inconsistent in that it is not a filename. Given that the system already has a method for navigating up one level (by the breadcrumb feature), the system could be simplified further by removing this item from the column of files.	15. Remove the “Up one level” link from the list of stored files. Users will still be able to easily navigate the file structure and it will simplify the column of filenames to include only files. 16. In folders where no files exist, place a default text phrase indicating “No files currently in this folder”
All users demonstrated a clear awareness of where they were in the system at any given time.	The recommended changes from the 2001 study to replace the terms “directory” and “?” with “Folder” and “Home” proved highly successful.	17. Maintain the current presentation of navigation labels.

Upload file to Home/

Note: upload file size is limited to 100MB.

Overwrite file if it already exists

Screen 1a: Original UPLOAD screen.

- the 100MB limit message is too prominent and in most cases is inaccurate since users will already have files in their CFS account and therefore the limit will be less than 100MB
- the sequence of events (Browse, overwrite?, upload) is not clear by the presentation of the objects alone.

Upload file (to Home/School...)
 (Note: File size is limited to your available space)

1.

2. Overwrite file if it already exists on CFS?

3.

Screen 1b: Revised UPLOAD screen

- font size of the instructions is reduced to avoid “shouting” at the user
- only the key terms (e.g. Upload file) are bolded
- the pathname details are presented in smaller text and in brackets so as to better accommodate long pathnames where necessary
- the file size limit message is stated more accurately
- the sequence of events is made clear through a presentation of numbered steps so users will not so easily overlook the “overwrite?” step
- *NOTE: ideally, the desired design would be to place the Browse button to the left of its corresponding text field. However, the code block for this element may prevent this.

Upload report

Upload of *speech* to */disssdata/* successful

Upload file to Home/disssdata/

Note: upload file size is limited to 100MB.

Overwrite file if it already exists

Screen 2a: Original UPLOAD FEEDBACK screen.

- The term “report” is unnecessary and even confusing in that users are not “uploading a report”
- The key information on this screen (that the user’s effort was successful) is easily overlooked due to its small text size being overshadowed by the text above and below it
- Both the oversized text and the file size limit message cause users to focus on this part of the screen, making them think that they have made an error when in fact they were successful.

Result: Successful

File *Speech.doc* has been uploaded to *Disssdata*.

Upload another file? (in Home/Disssdata...)

1.

 2. Overwrite file if it already exists on CFS?

 3.

Screen 2b: Revised UPLOAD FEEDBACK screen

- font size of the instructions is reduced to avoid “shouting” at the user
- only the key term (e.g. Result) is bolded so that it stands out among the rest. This will be consistent with all result screens.
- the details of the successful action (filename and location) are presented in smaller text and in brackets so as not to distract the user from the key information
- the opportunity for users to immediately upload another file is made available
- the same display from the regular upload screen is used to provide consistency for user

Make a new folder in Home/

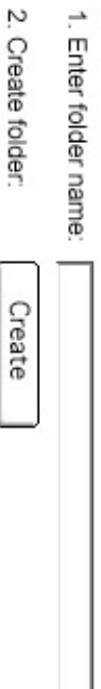


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Screen 3a: Original CREATE NEW FOLDER screen.

- The large font size of the instructions tends to shout at users
- In the case of a long pathname, this instruction will wrap around and be even more dominating and possibly hard to interpret
- The sequence of events (enter text in field, click New folder button) is relatively clear given that there are only two elements...however, in the previous UPLoad screen, the user is not expected to type a filename in the text entry box, whereas on this screen, they are. This inconsistency could result in errors made by users.

Create a new folder (in Home/...)



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Screen 3b: Revised CREATE NEW FOLDER screen

- font size of the instructions is reduced to avoid “shouting” at the user
- only the key terms (e.g. Create a new folder) are bolded
- the pathname details are presented in smaller text and in brackets so as to better accommodate long pathnames where necessary
- the sequence of events is numbered to clearly indicate what the user should do and in what order

Make report

Make of folder /test successful

Make a new folder in Home/

Screen 4a: Original NEW FOLDER FEEDBACK screen.

- The term “report” is unnecessary and confusing in that users are not “making a report”
- The key information on this screen (that the user’s effort was successful) is easily overlooked due to its small text size being overshadowed by the text above and below it

Result: Successful

Folder /test has been created.

Create another new folder? (in Home/...)

1. Enter folder name:

2. Create folder:

Screen 4b: Revised NEW FOLDER FEEDBACK screen

- font size of the instructions is reduced to avoid “shouting” at the user
- only the key term (e.g. Result) is bolded so that it stands out among the rest. This will be consistent with all result screens.
- the details of the successful action (filename and location) are presented in smaller text and in brackets so as not to distract the user from the key information
- the opportunity for users to immediately create another folder is made available
- the same display from the regular Create New Folder screen is used to provide consistency for user

Delete report

Delete of file */.../acel.indiana.edu/fs/djst/H/acelen/dissdata/speech* successful

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Screen 5a: Original DELETE FILE FEEDBACK screen.

- The term “report” is unnecessary and confusing in that users are not “deleting a report”
- The critical information here (that the user’s efforts were successful) is placed at the very end of the feedback statement and may be easily overlooked if the pathname is long.

Result: Successful

File *asd/asd/asd/a* has been deleted.

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Screen 5b: Revised DELETE FILE FEEDBACK screen

- font size of the instructions is reduced to avoid “shouting” at the user
- only the key term (e.g. Result) is bolded so that it stands out among the rest. This will be consistent with all result screens.
- the detail of the successful action (filename) is presented in smaller text and in brackets so as not to distract the user from the key information