

CO-MAT-TECH 2005



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NON-TRADITIONAL IN-PROJECT COMMUNICATION

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1 INTRODUCTION

The solution of the research project financed by ESF and coordinated by ŠPÚ “Curricular transformation of Informatics teaching at high schools” has required developing of Storage that is attended for communication (in sense of file sharing) within the group of informatics. They should use that Storage to share all files created during the project progress. Administration and development of the Storage includes several related activities. The development activity is for example working out the modules programmed in web programming language PHP 4, which communicates with users by means of the web server Apache 2 in this installation. Administration of the server includes registration of user accounts, assignment of access privileges, backup of the data on the server for the cases of system failures, movement of data within the server disk space for better orientation of users and others. For storing all program data is designated database server MySQL – last installed version was 4.0.18-nt.

2 STORAGE

As was mentioned before, the Storage provides necessary work space for sharing of the files and information interchange. First suggestion for creating of such as storage was introduced during critical phase of project, when interchange of some files by e-mail became not very simple that is to say ineffective. Several participants did not have permanent access to their e-mail boxes and therefore they could not access to the files, as they wanted. That situation complicated the solution of the project. Storage allows access to the uploaded files from anywhere where the connection to the internet and access to the computer is.

Storage

Horváth

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Ownership of files report

File name	User name
PriiVedDokument.doc	doc. Ing. Martin Mišút, CSc.
Informatika na SS - uvodna predstava.ppt	doc. Ing. Martin Mišút, CSc.
SaskoSuhm.doc	PaedDr. Ladislav Huraj
Informatika vo Velkej Britanii.zip	doc. RNDr. Ivan Kalaš
ACM USA.pdf	doc. RNDr. Ivan Kalaš
Canada.pdf	doc. RNDr. Ivan Kalaš
ICT Nat Curr.pdf	doc. RNDr. Ivan Kalaš
kalas Didinfo 2005.zip	doc. RNDr. Ivan Kalaš
kalas Peskole 2005.doc	doc. RNDr. Ivan Kalaš
informatika v CR.rar	PaedDr. Veronika Gabaľová
RozvrhHodin1.doc	doc. Ing. Martin Mišút, CSc.
PriiVedObl.doc	doc. Ing. Martin Mišút, CSc.
MariSmreMetody.doc	doc. Ing. Martin Mišút, CSc.

Figure 1: Ownership of files report.

Access to the Storage is protected with registration and password authentication of users. Only administrator is allowed to register new users. He also grants necessary access privileges to the users. Then users are able to upload and download the files, modify access privileges to files in their ownership for other users, remove files in their ownership, and move items within the storage directory structure, but this also only within permissions granted for them. Privileged users have access to storage statistics. Example of statistics in the form of report is displayed on the Figure 1. Reports show for example tabled ownership of all files and statistics of each file downloads.

Storage

Logged in user: Ing. Roman Horváth Visitors count: 104

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Root

▲ ▼ ▲ ▼
[Dokumenty](#) <directory>
[Files](#) <directory> [«show privileges»](#) | [«remove»](#) | [«cut»](#) | [«rename»](#) | [«details»](#)

Number of subdirectories: 2

Make subdirectory

Figure 2: Storage root directory.

The Figure 2 displays an example of Storage root directory. Here are visible several Storage features like the ways of the list items sorting by icons over single columns. Longer lists are synoptic when sorted and items can be faster found in such as lists. At the same figure is visible small form for creating of new subdirectories. Only privileged users are able to create new subdirectories. The “New Subdirectory” form stays hidden for the others. This feature was added to the Storage later. As the number of files in the Storage grew up, the feature became essential.

The screenshot shows the 'Storage' application interface. At the top, it says 'Storage' in a large blue font. Below that, it indicates 'Logged in user: Ing. Roman Horváth' and 'Visitors count: 104'. A navigation bar contains links for 'Information', 'Reports', 'Storage', 'Change password', 'Logout', 'English', and 'Slovak'. The main content area is titled 'Current directory: „Dokumenty“'. It features a tree view on the left with 'šlovinsko' expanded. The main list shows files and directories with their sizes and a set of action links for each item.

File/Directory	Size	Actions
<directory>		«show privileges» «remove» «cut» «rename» «details»
ACM USA.pdf	747 423 byte(s)	«download» «show privileges» «cut file» «details»
Canada.pdf	233 582 byte(s)	«download» «show privileges» «cut file» «details»
CielePrirVed0b1.doc	21 504 byte(s)	«download» «show privileges» «cut file» «details»
download.php	2 598 byte(s)	«download» «show privileges» «delete» «cut file» «details»
elektron ver FPPV.pdf	1 022 908 byte(s)	«download» «show privileges» «delete» «cut file» «details»
HumanVzde1ob1.doc	70 144 byte(s)	«download» «show privileges» «cut file» «details»
ICT Nat Curr.pdf	764 831 byte(s)	«download» «show privileges» «cut file» «details»
Informatika na SS - uvodna predstava.ppt	133 632 byte(s)	«download» «show privileges» «cut file» «details»
informatika v CR.rar	193 763 byte(s)	«download» «show privileges» «cut file» «details»
Informatika vo Veľkej Britanii.zip	546 754 byte(s)	«download» «show privileges» «cut file» «details»
Informačná gramotnosť.doc	100 352 byte(s)	«download» «show privileges» «cut file» «details»
kater.pdf	752 145 byte(s)	«download» «show privileges» «cut file» «details»

Figure 3: Listing of Storage directory named “Documents”.

On the Figure 3 is shown the file listing of one of Storage directories. The right side of each listing item contains short list of all applicable functions on the single items. Each user is allowed only download or examine the files in ownership of another user. That behaviour can be changed by granting relevant privileges by administrator or owner of the file. Administrator can move files without any change of privileges.

The screenshot shows the 'Storage' application interface with the 'File details' view. It displays the following information for the file 'Informatika na SS - uvodna predstava.ppt':

- Name: Informatika na SS - uvodna predstava.ppt
- Location: //Dokumenty/
- Size: 133 632 byte(s)
- Type: application/vnd.ms-powerpoint
- Upload date: 2005-06-22 13:32:23
- Uploaded by: doc. Ing. Martin Mišút, CSc.
- Number of downloads: 8

At the bottom of the details view, there is a 'Back' button.

Figure 4: File details view.

The Figure 4 shows file details view. In this view, each user can see miscellaneous information about the file including the number of downloads. However, the system is not able to identify download failures and because that all attempts to download are included in this number. The Figure 5 displays the file privileges. Administrator and file owner can in addition to that change the file privileges in this view. All changes are applied immediately after pressing the given button.

<h1>Storage</h1>												
Logged in user: Ing. Roman Horváth											Visitors count: 104	
Information	Reports	Storage	Change password	Logout	English	Slovak						
Display privileges for file: „Informatika na SŠ - uvodna predstava.ppt“												
User name / privilege	display file	download file	show privileges	change privileges	delete file	move file	display details	notify by mail	Change basic access	Change medium access	Change advanced access	
Ing. Roman Horváth (Level: 10)	+	+	+	+	-	+	+	-	+ -	+ -	+ -	
doc. Ing. Martin Mišút, CSc. (Level: 9)	+	+	+	+	+	+	+	+	+ -	+ -	+ -	
Ing. Katarína Skólková (Level: 9)	+	+	+	-	-	-	+	-	+ -	+ -	+ -	
PaedDr. Veronika Gabařová (Level: 9)	+	+	+	-	-	-	+	-	+ -	+ -	+ -	
prof. Ing. Veronika Stoffová, CSc. (Level: 9)	+	+	+	-	-	-	+	-	+ -	+ -	+ -	
doc. RNDr. Ivan Kaláš (Level: 9)	+	+	+	-	-	-	+	-	+ -	+ -	+ -	
RNDr. Michal Winczer (Level: 9)	+	+	+	-	-	-	+	-	+ -	+ -	+ -	

Figure 5: File privileges.

Last feature visible at Figures 2 and 3 is named “cut” and it is designated for moving the items within the Storage directory tree. This feature is also restricted with given privileges. It works similar like Windows clipboard. Each user can put only one item into the Storage clipboard. The Figure 6 shows new item “Paste here...” displayed every time immediately after pressing the “cut” item. This new item is displayed at the top of these directory listings in which the user the necessary privileges has granted. The file will be moved immediately after pressing that choice.

<h1>Storage</h1>												
Logged in user: Ing. Roman Horváth												
Information	Reports	Storage	Change password	Logout	En							
Current directory: „Files“												
«up one level»												
Paste here: „file Informatika na SŠ - uvodna predstava.ppt“												
	▲▼		▲▼									
pokus.txt		60 852 byte(s)	«download»	«show privileges»	«delete»	«<						
Q13.doc		897 536 byte(s)	«download»	«show privileges»	«delete»	«<						
_kotrne1ce.inserts.sql		10 962 byte(s)	«download»	«show privileges»	«delete»	«<						
Number of files: 3												
Total size of files: 969 350 byte(s)												
Make subdirectory												
<input type="text"/>												

Figure 6: New item “Paste here...” displayed at the top of the file listing .

3 DATABASE AND ISSUES DURING IMPLEMENTATION

The entire Storage database contains overall 27 tables, where are stored data related to the user roles, accounts and privileges, site structure, and all the data necessary for keeping active user connections alive. The core of Storage database module contains four tables, which store data of the Storage directory tree, single files data and data about them (all the data that can be examined by the users etc.), and file and directory access privileges. Storage continuously stores all accessible data about user activities (uploads, downloads, and others) that can be processed later. As it was mentioned before, administrator and file owner have privilege to change all access privileges to its files for the other users (administrator is considered as owner of all files and directories).

During initial run of the Storage, several small bugs have been detected. However, they were eliminated quickly. After longer operation of the Storage one database server limitation that

has not been correctly documented was found out. Server did not allow to upload files larger than round about 1.2 MB. This limit has been determined empirically. Server signalled upload failure after exceeding that limit. At time of creation of this article, the server was reinstalled and the decision has been made that the Storage will be moved to new server, where new version of MySQL database will be installed. All data stored at the old server were exported so they could be imported into new database.

4 CONCLUSION

For covering the needs of informatics part of the ESF project team, which is dealing with curricular transformation, the Storage for sharing the files has been developed. The storage is serving to the given purpose very well. Its functions give more than before used e-mail interchange of files. Every participant has now entire package of files that have been created during the project solution at its disposal. This significantly simplifies the work of the whole part of the team.

References

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