UK Data Service



Exercise: Checking checksums using MD5summer

MD5 checksums allow you to check the integrity of data files. By running a checksum, a string is created for each file, allowing comparison between files to ensure that the data within them is exactly the same. This is useful to check that a transferred or backed-up data file is the same as the original. The checksum of a file is like a fingerprint, whereby any change to the file generates a different checksum string.

In this exercise - also shown in this short video - we use MD5summer for Windows.

1. Begin by creating test files in a folder on your Desktop (or use your own files), for example a Word and Excel Document named 'Checksum_Test', in folder 'Checksum_Exercise', with the following content.

Word file:

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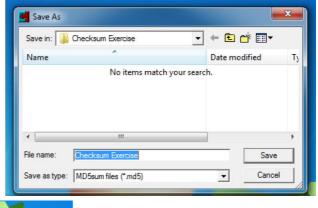
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2	Checksum	Exercise			
3	Data				
4	1	2	3	4	
5	а	а	а	а	
6	b	b	b	b	
7					
8					

2. Open MD5summer, select the folder that contains the files for which you want to generate checksums, select 'Create sums', select the file(s) 'Checksum_Test', click 'add' and then 'OK'.

Please select the root folder:	Create list of files to sum	
Desktop Libraries Summers, Scott B Summers, Scott B Sumvers Computer Sumvers Control Panel Recycle Bin Checksum Exercise	Folders: Checksum Test.docx Checksum Test.xlsx	Number of Items: 2 C:\Users\ssummers\Desktop\Cht C:\Users\ssummers\Desktop\Cht
	Select All Clear List	alv OK Cancel



 You are prompted to save a file with the MD5 checksum strings; save this to the 'Checksum_ Exercise' folder. If successful, a green circle appears by the file name. Close this window.



File		CRC
Checksum Test.docx		6119e74bf18785f18f62aec36bba53b
Checksum Test.xlsx		6e8a2832873bbad07ddd0ff5cc700d0
Unprocessed	100%	Path: C:\Users\ssummers\Desktop\Ch

4. Navigate to the 'Checksum_Exercise' folder, open the .md5 files with a regular text editor, such as Notepad, to view the MD5 checksum strings.



 Change now a data value in the Excel file to identify what impact this will have on the checksum string. In this example, replace one of the 'b's' with a 'c' and re-save the file.

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6. Now run MD5summer again, this time selecting the 'Verify sums' option. It will generate new MD5 checksum strings for the files in the 'Checksum_Exercise' folder and compare these to the old MD5 checksum strings. MD5summer will identify that there is an error between the two checksum strings, indicating that there is a difference between the two files.



7. We can also visually see the difference in checksums for the two saved versions of the file.

Original file:

Cł	necksu	m Exercise	e - Note	pad	
File	Edit	Format	View	Help	
				2aec36bba53ba d0ff5cc700d05	

Changed file:

(c) (i)

ile	Edit	Format	View	Help	
				2aec36bba53ba 826310008f135	

8. As can be seen, by running an MD5 checksum comparison, the integrity of data files can be checked, which is particularly useful in data backup processes.