CRYPTOGRAPHY

Encrypt information using Cryptographic Tools

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Lab Task 01

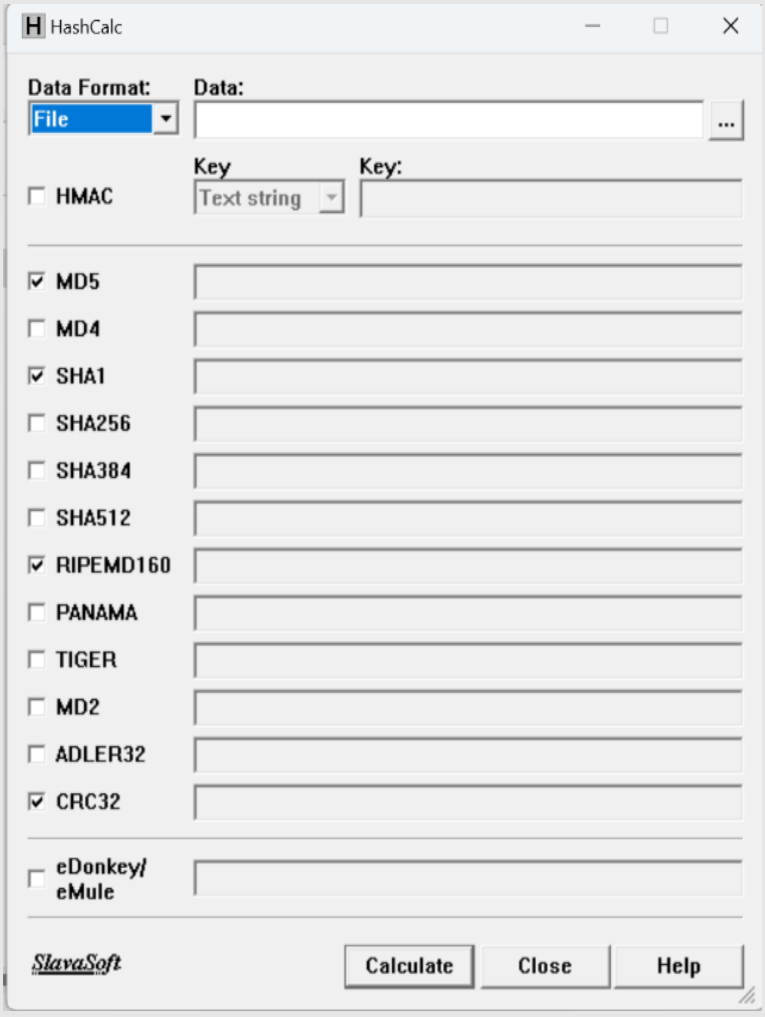
Calculate One-way Hashes using HashCalc

HashCalc enables you to compute multiple hashes, checksums, and HMACs for files, text, and hex strings. It supports the Secure Hash Algorithm family: MD2, MD4, MD5, SHA1, SHA2 (SHA256, SHA384, SHA512), RIPEMD160, PANAMA, TIGER, CRC32, ADLER32, and the hash used in the peer-to-peer file sharing applications, eDonkey and eMule.Here, we will use the HashCalc tool to calculate one-way hashes.

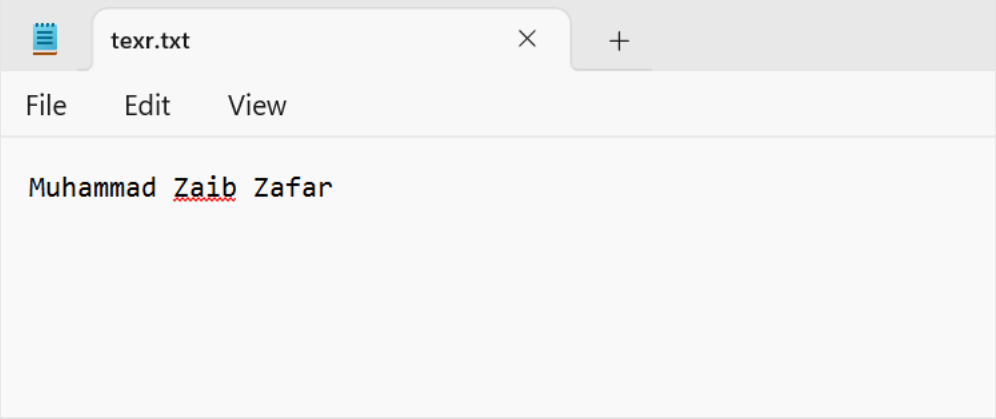
1. Turn on the Windows 11 virtual machine. Click Ctrl+Alt+Del to activate it. By default, Admin user profile is selected, type Pa$$word in the Password field and press Enter to login.
2. Note: If Welcome to Windows wizard appears, click Continue and in Sign in with Microsoft wizard, click Cancel.
3. Note: Networks screen appears, click Yes to allow your PC to be discoverable by other PCs and devices

on the network. Click search icon (🔍) on the Desktop. Type HashCalc in the search field, the HashCalc appears in the results, click Open to launch it.

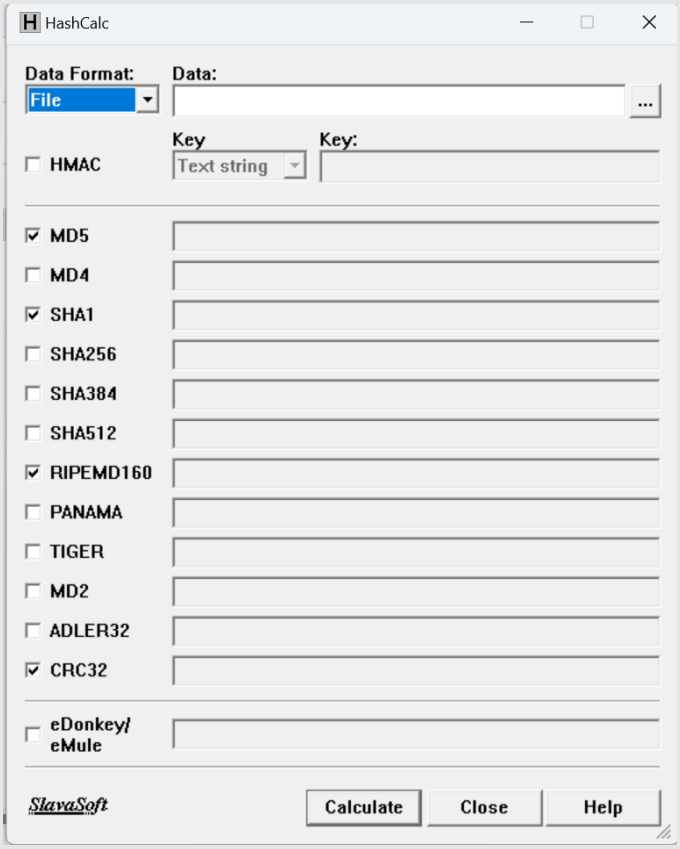
4. The HashCalc main window appears as shown in the screenshot.



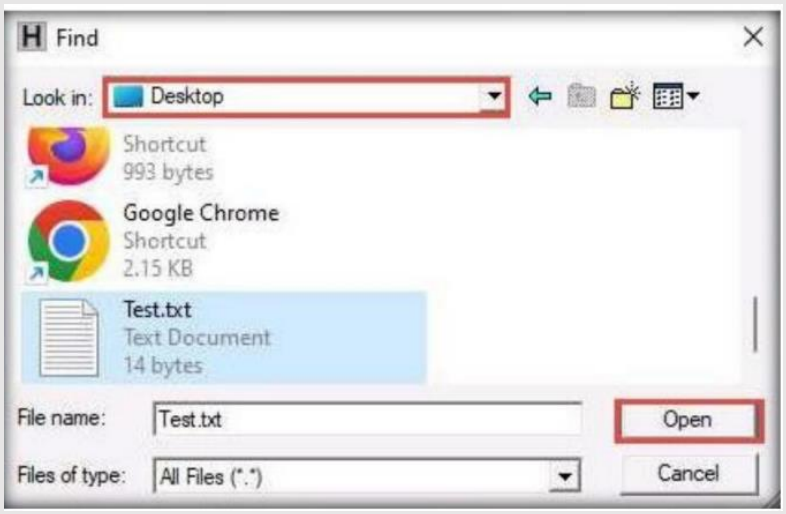
5. Minimize the HashCalc window. Navigate to Desktop, right-click on the Desktop window, and navigate to New → Text Document to create a new text file. A newly created text file appears; rename it to Tesr.txt and open it. Write some text in it (here, Muhammad Zaib Zafar) and press Ctrl+S to save the file. Close the text file.



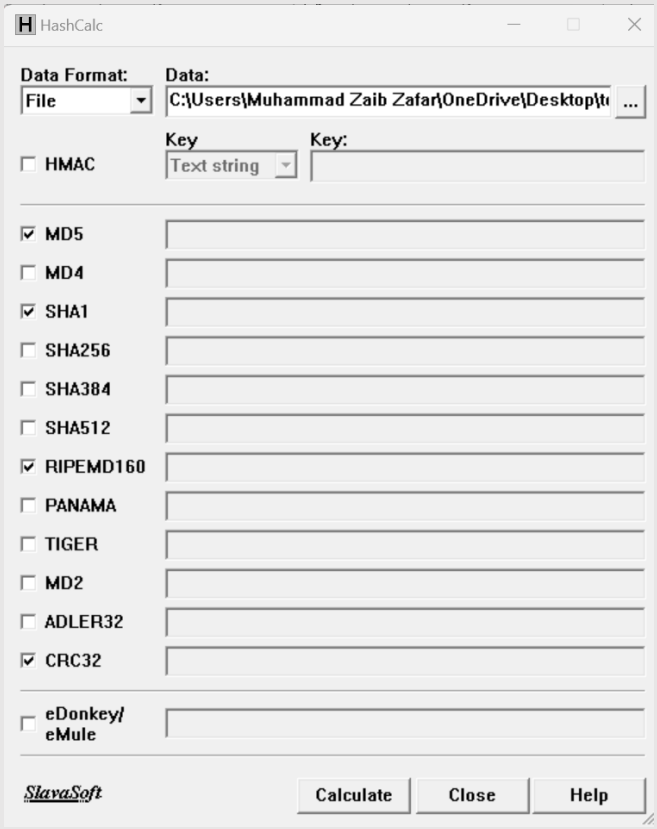
6. Now, switch back to the HashCalc window; ensure that the File option is selected in the Data Format field and click ellipsis icon under the Data field.



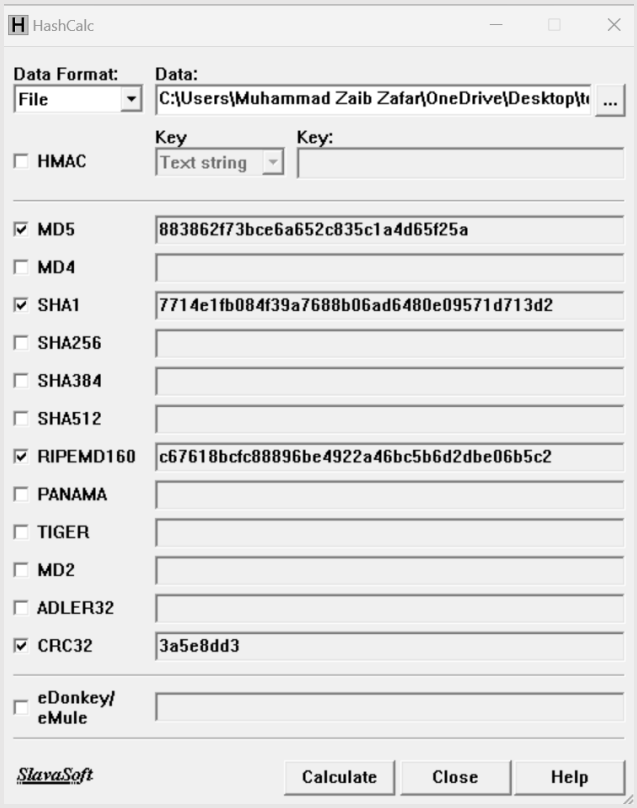
7. The Find window appears, navigate to the location where you saved the Texr.txt file (here, Desktop) and click Open.



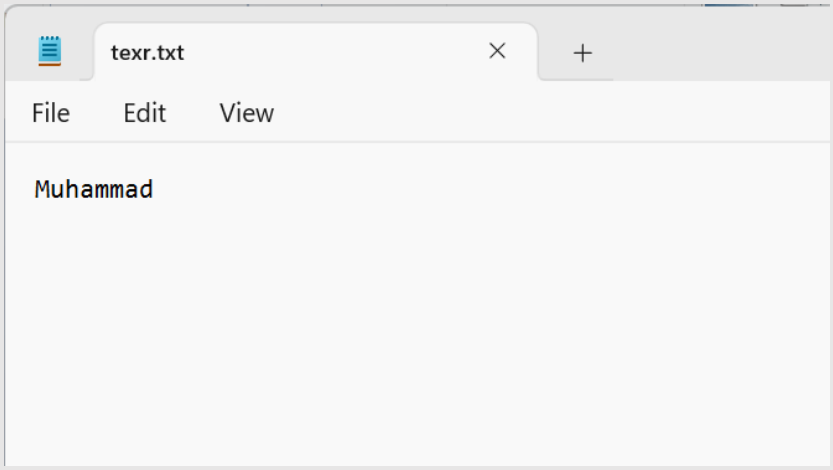
8. The path of the selected file (Texr.txt) appears under the Data field. Ensure that the MD5, SHA1, RIPEMD160, and CRC32 hash functions are selected. Click the Calculate button.



9. The calculated hash values of the texr.txt file appears,as shown in the screenshot.

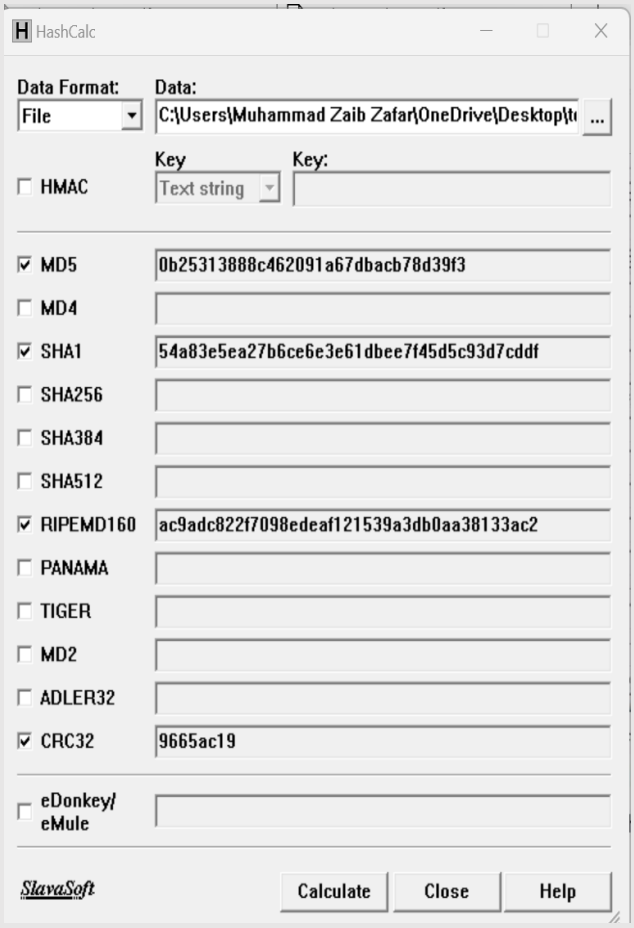


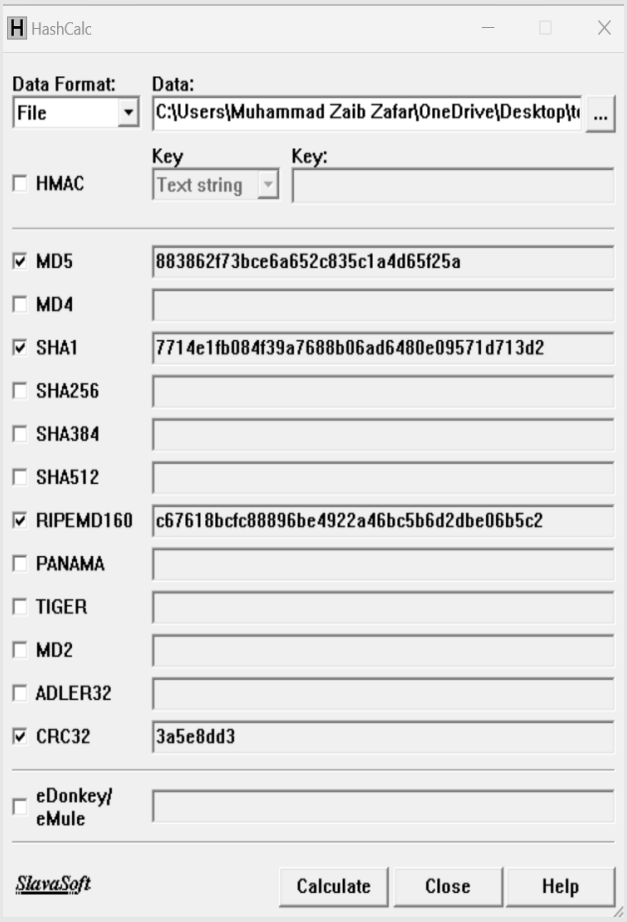
10. Minimize the HashCalc window, navigate to Desktop, and double-click the Test.txt file to open it. Modify the file content by writing some text (here, Muhammad) and press Ctrl+S to save it. Close the text file.



11. Click Search icon (🔍) on the Desktop. Type HashCalc in the search field, the HashCalc appears in the results, click Open to launch it.

A new HashCalc window appears, perform Steps #6-9. Now, maximize the first HashCalc window and place it beside the second. HashCalc window. You can observe changes in the hash values of the (Tesr.txt) before and after the modification, as shown in the screenshot.


HashCalc
Data Format:
File
Data:
C:\Users\Muhammad Zaib Zafar\OneDrive\Desktop\t
...
HMAC
Key
Text string
Key:
MD5
0b25313888c462091a67dbacb78d39f3
MD4
SHA1
54a83e5ea27b6ce6e3e61dbee7f45d5c93d7cddf
SHA256
SHA384
SHA512
RIPEMD160
ac9adc822f7098edeaf121539a3db0aa38133ac2
PANAMA
TIGER
MD2
ADLER32
CRC32
9665ac19
eDonkey/
eMule
SlavaSoft
Calculate
Close
Help


HashCalc
Data Format:
File
Data:
C:\Users\Muhammad Zaib Zafar\OneDrive\Desktop\t
...
HMAC
Key
Text string
Key:
MD5
883862f73bce6a652c835c1a4d65f25a
MD4
SHA1
7714e1fb084f39a7688b06ad6480e09571d713d2
SHA256
SHA384
SHA512
RIPEMD160
c67618bcfc88896be4922a46bc5b6d2dbe06b5c2
PANAMA
TIGER
MD2
ADLER32
CRC32
3a5e8dd3
eDonkey/
eMule
SlavaSoft
Calculate
Close
Help