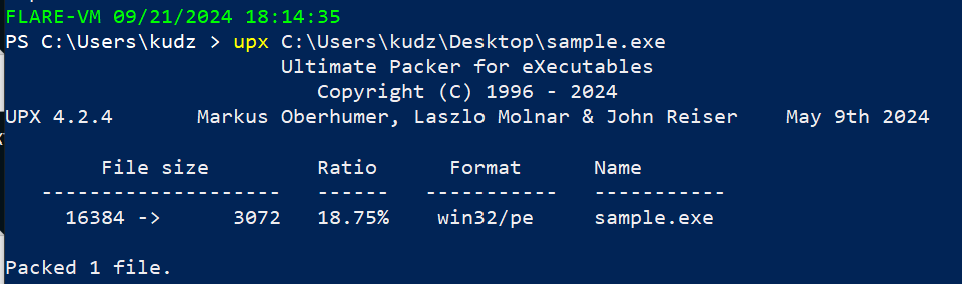
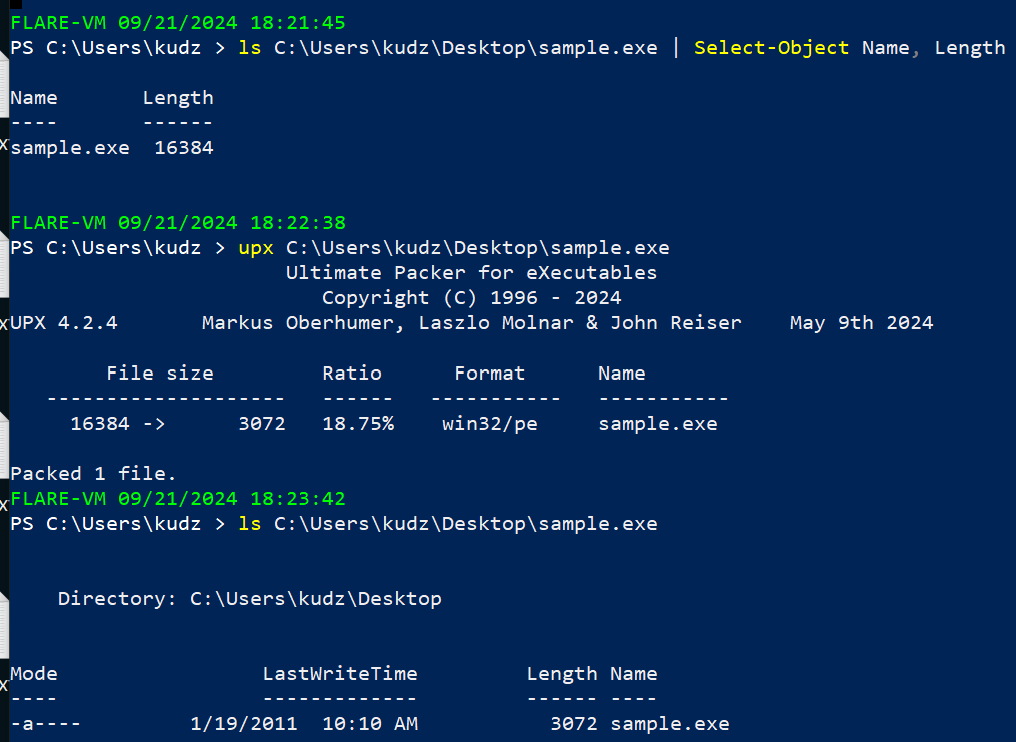
**Step-by-Step Procedure for using the UPX Executable Packer Tool**

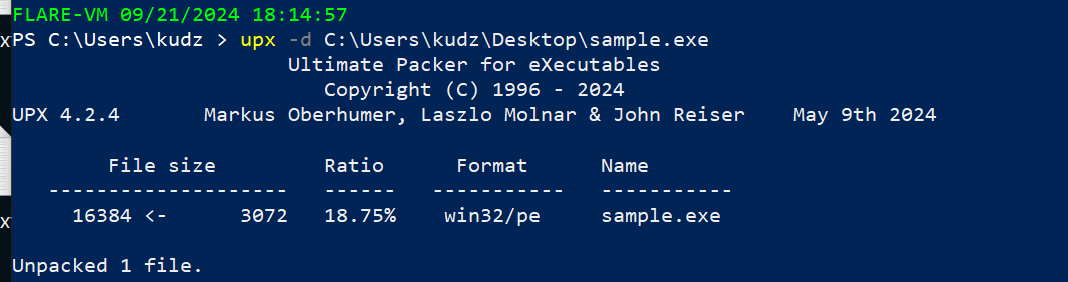
* **Short Introduction**
  + UPX (Ultimate Packer for Executables) is a tool used to compress or "pack" executable files, reducing their size without changing functionality. It's widely used for distributing applications and is also common in malware analysis, as many malware authors use UPX to obfuscate their executables.
* **Installation**
  + Download UPX from the official UPX GitHub: [UPX: the Ultimate Packer for eXecutables - Homepage](https://upx.github.io/)
  + Navigate to the folder where UPX is located on Windows powershell
    - Run ./upx --version to verify installation
* **Packing an Executable**
  + Start by selecting an Executable File - Choose any executable file path (e.g., C:\Users\user\Desktop\sample.exe ) that you want to pack.
  + Compress the Executable - In powershell run **“ UPX C:\Users\user\Desktop\sample.exe”**
    - The executable file will be compressed, and UPX will display the original and compressed sizes, along with the percentage of reduction.



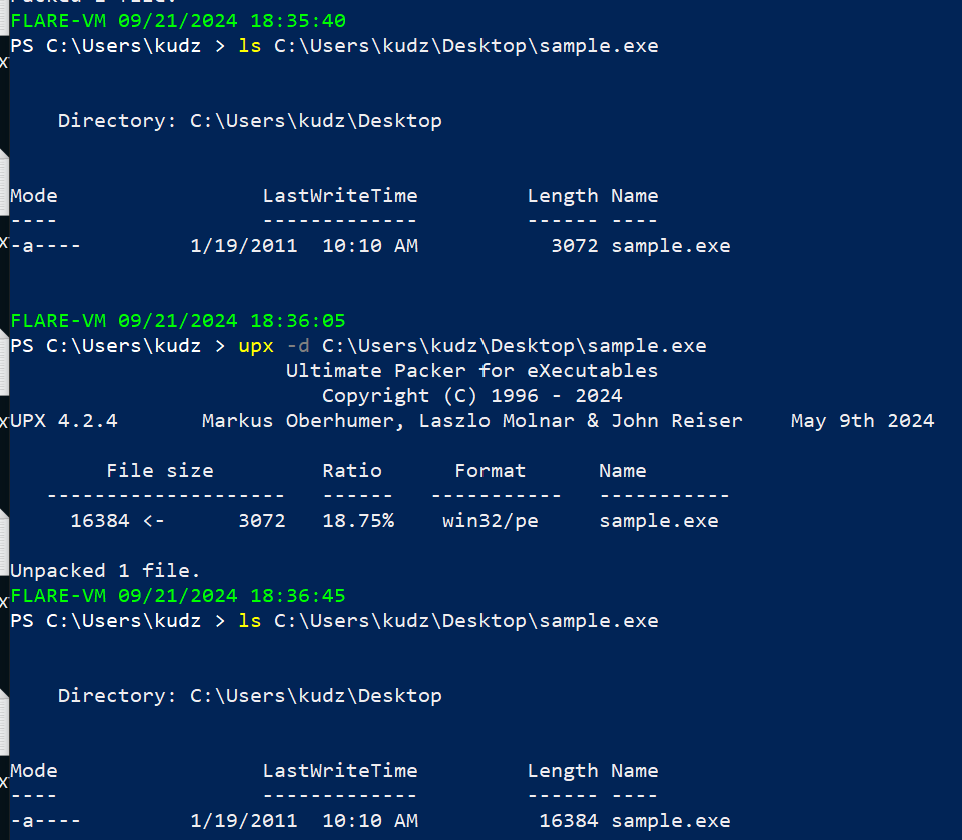
* + To further verify it is compressed - Run “ls C:\Users\user\Desktop\sample.exe | Select-Object Name, Length” command before and after the UPX compression to compare the file size.



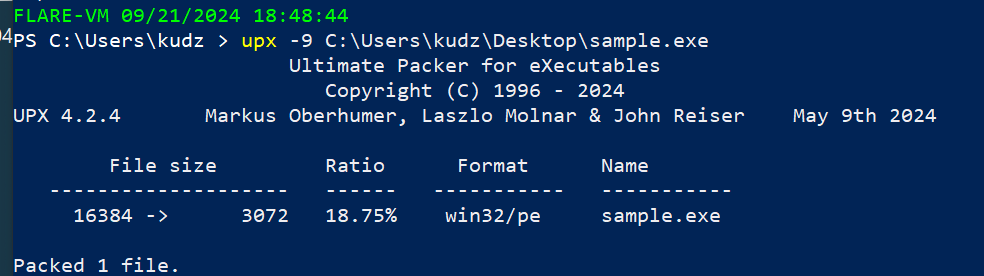
* **Unpacking an Executable Using UPX**
  + Select a an Executable File has been packed using UPX - Choose any executable file path (e.g., C:\Users\user\Desktop\sample.exe ) that you want to unpack.
  + Unpack the Compressed Executable File - In powershell run “**upx -d C:\Users\user\Desktop\sample.exe**”
    - The executable file will be decompressed, and UPX will display the compressed ad decompresses sizes, along with the percentage of reduction.



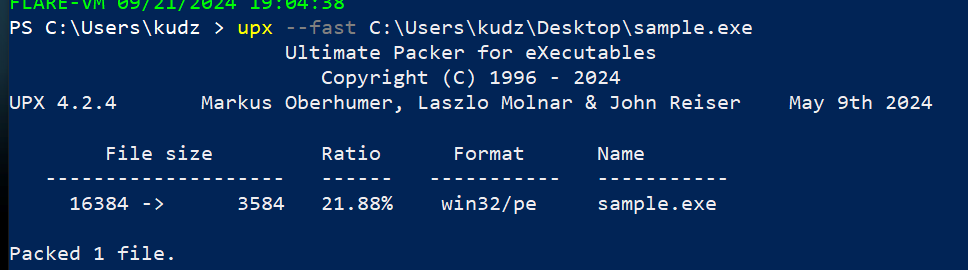
* + To further verify it is compressed - Run “ls C:\Users\user\Desktop\sample.exe” command before and after the UPX compression to compare the file size.



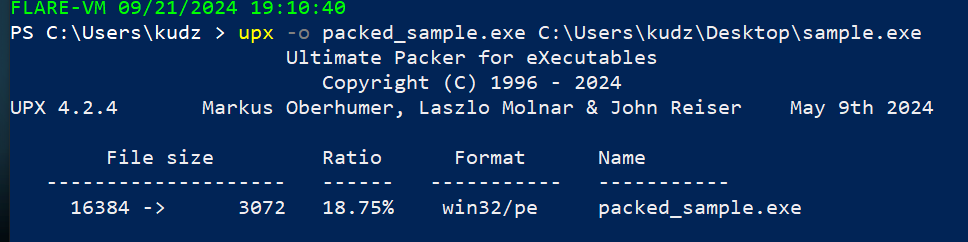
* **Advanced UPX Options**
  + UPX offers an extensive range of commands and options to fine tune it your file to your specific need;
    - **-9** / **--best**
      * **Usage**: “upx -9 sample.exe” or “upx –best sample.exe”
      * **Description**: Compresses the file using the maximum compression level.



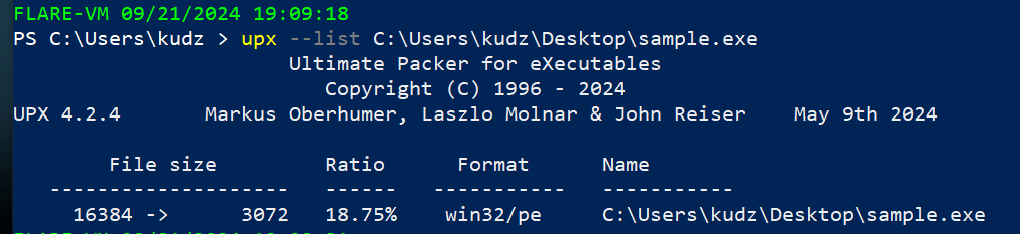
* + - **-1 / --fast**
      * **Usage:** “upx -1 sample.exe” or “upx –fast sample.exe”
      * **Description:** Compresses the file using the fastest method, prioritizing speed over size.



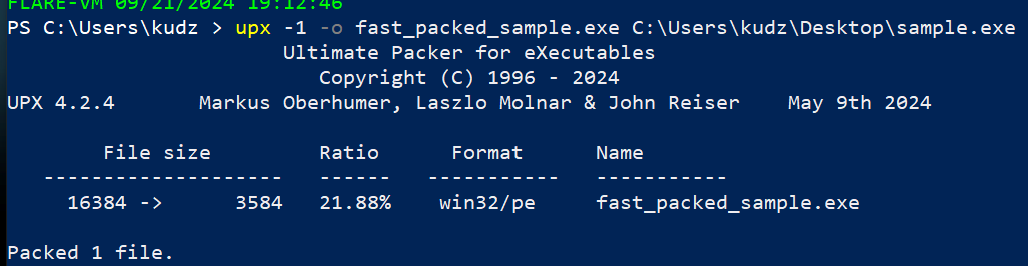
* + - **-o [filename]: Specify Output File Name**
      * **Usage:** “upx -o packed\_sample.exe sample.exe”
      * **Description:** This option allows you to specify a different name for the packed file instead of overwriting the original.



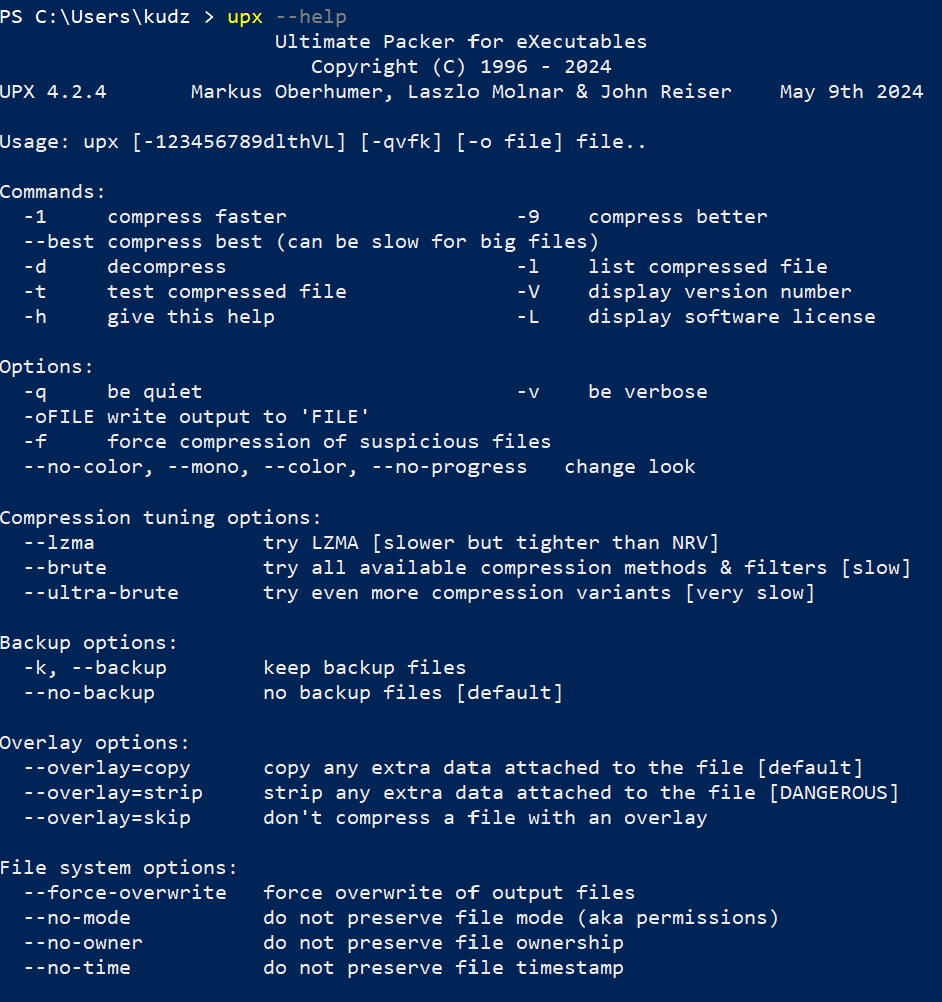
* + - **--list**
      * **Usage:** “upx --list sample.exe”
      * **Description:** Lists the UPX information about the packed executable, including original and packed sizes.



* + - **You can combine several options in a single command for more flexibility**
      * **Example Usage:** “upx -1 -o fast\_packed\_sample.exe sample.exe”
      * Description: These options allow to fast pack your file while also writing it to a different file



* + - **To find more options run upx –help in powershell and it will list a bunch of options**

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