

Clipboard Organizer And Manager-For Windows Platform

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Abstract— Clipboard is a software facility used for short-term data storage and/or data transfer between documents or applications, via Copy and Paste operations. The standard built in clipboard of windows operating system store only one item at a time so that it provide speedy access to such content normally windows clipboard has disadvantages firstly it store only one item at a time and secondly when you turn off system it clears memory. My goal is to eradicate the problems of standard clipboard of Windows OS to developed such utility that it contains buffer which is located on hard disk and it is permanent storage need not worry about lost of data. Whatever user copy data that copied is maintained or stored in their respective buffer at the same time the copied data and logs of copied data is stored inside the USB which is attached inside the mouse which is hidden from the user. When I going to perform paste operation it will populate all respective copied buffer data you just select the desired data that you want to paste it save user time and increase the efficiency. Created Hives like Windows Registry whatever user copy data that Copy data logs will be going to under their respective application name entry.

Keywords— Copy-Cut-Paste, Clipboard Manager, Hives, Logs, Clips, Clipboard

I. INTRODUCTION

Clipboard is a temporary storage area for information that enables applications to transfer data or moved one place and plan to use somewhere else. You can select text, graphics or anything and then use the cut or copy commands to move your selection to the clipboard whatever information is copy is store on the clipboard memory, where it will be stored until you use the paste command to insert elsewhere. For example you copy data from word file and then paste that text to e-mail message.

The semantics of clipboard facility is changes or varies from one operating system to another and can also vary according to versions of operating system. The semantics of Clipboard copy and paste operations is embedded in the operating system each operating system has different scenario of copy and paste operations the standards Windows key bindings are Ctrl+C for copy, Ctrl+X for cut and Ctrl+V for paste and the alternatives key bindings derived from IBM common user access are Ctrl+Ins for copy, Shift+Del for cut and Shift+Ins for paste. In Mac OS X key bindings are different.

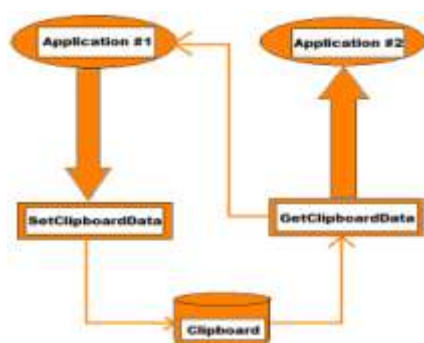


Fig. 1: Working Mechanism of Clipboard

As we know that the standard Windows Built in Clipboard has very obvious limitations firstly it store one item at a time on clipboard memory if you had copy another item it overwritten on previous item and secondly if you turn off or restart the system it clears memory every time if in case you want previous copied contents you will be miss that contents. Suppose the employee working in the organization and the particular information he want to be use it throughout his working day now he go to respective location copy that data and paste it into their respective file but it is ok for only single data you copied then what about if you copy Multiple items at that time it gives you latest copied data for paste operation so to avoid this problem my utility is going to maintain a buffer for copying data whatever user copy data that copied data is stored in their respective buffer memory and the buffer is created on hard disk so that the information you copied is permanent and when user go to for paste operation that time my utility populate all copied data that is stored inside the respective buffer suppose you use to paste the text data in word file that time my utility shows you all copied text buffer data now our job is to select respective data that we want to paste in the file so it save user time need not copy the same data again and again and increase the efficiency now my job is to extend the functionality of the Clipboard.

II. LITERATURE SURVEY

Early implementation of the clipboard stored data as plain text without any Meta information such as color, style or typeface. Recent implementation support the multiple types of complex data structures to be stored such as RTF or HTML or variety of bitmap and vector image formats to complex data types like database entries or spreadsheets. As in the previous versions of Windows Operating system like WIN XP or Vista we have to possible to view the contents

of the clipboard by using the command clipbrd.exe which is stored inside the system32 folder but in WIN 7 or WIN 8 we unable to view the contents so we need to install third party software. There are ample of Clipboard software's are developed but each one has its own advantage and disadvantage [16].

As stated in Windows, Clipboard is a temporary storage area or set of functions and messages use for to copy data from one application and use it in somewhere else application. When user copy data actually data is not copy its file handle is copied on Clipboard memory. Handle means address of file and which is hidden from user once file handle is copied on Clipboard the User32 DLL API will call empty clipboard function and it empty previous data contents once memory get empty it create memory by using Kernel32 it create Movable memory so that data is transfer from one place to another location after creation of memory it calls the function SetClipboardData by using User32 Library and it set data on the clipboard after data is copied successfully on Clipboard memory it call CloseClipboard function. When you for Paste operation its take data from Clipboard by using GetClipboard Function which is defined inside the User32 Library after getting data from Clipboard it unlock memory which is locked at the time of memory creation[4].

Clipboard is also use for InterProcess Communications operation. Clipboard acts as a central depository for data transfer or for data sharing among applications. When user performs Copy or Cut operations in an application, the applications puts the selected item on the Clipboard in one or more standard application defined formats. Clipboard supports more than fifteen formats you can also register clipboard format if it is not available so to avoid the loss of data. The clipboard is a very loosely coupled exchange medium, where applications need only agree on the data format. The applications can reside on the same computer or on different computers on a network.[2]

The term "cut and paste" comes from the traditional practice in manuscript-editing's whereby people would literally cut paragraphs from a page with scissors and physically paste them onto another page. This practice remained standard into the 1980s. [1].

The act of copying/transferring text from one part of a computer-based document ("buffer") to a different location within the same or different computer-based document was a part of the earliest on-line computer editors. As soon as computer data entry moved from punch-cards to online files (in the mid/late 1960s) there were "commands" for accomplishing this operation. This mechanism was often used to transfer frequently-used commands or text snippets from additional buffers into the document, as was the case with the QED editor [1].

Often this was done by the provision of a 'move' command, but some text editors required that the text be

first put into some temporary location for later retrieval/placement. In 1983, the Apple Lisa became the first text editing system to call that temporary location "the clipboard" [1].

As I studied ample of free Clipboard software utilities for Windows, Mac OS, Linux each one have different functionality some utility store path of copied data some may store copied data but will not shown you copied data at the time you are going to perform paste operation some utility maintain the history of Clipboard.

III. AN OVERVIEW OF NEW CLIPBOARD MANAGER

The term Clipboard Manager is essential for many users to perform various operations. Clipboard Manager Enhance the basic functions of Cut, Copy and Paste operation of default Clipboard with one or more following additional features.

- (a) Maintain all copy data into their respective buffer
- (b) Maintain the logs of copied data the log contains such as date, time, name of application, path of application, Login user name.
- (c) Session Id creation for each user.
- (d) Logs are segregated according to application names. Created Hives like windows registry type structure.
- (e) Permanent storage for all copy data the buffers created for respective data is located on hard disk so need worry about lost of data when you might be turn off system data is still present inside the buffer.
- (f) Searching saved data when user perform paste operation my utility is going to show all copied data from respective buffer your job is only to search the data that you are going to paste from that copied data.
- (g) Buffer Maintenance facility for proper maintenance of buffer space.

IV. IMPLEMENTATION

A. Main Window

This is the main window of my project from which you can access all functionality of my project like view logs, Settings, Refresh, Exit etc. Some functionality is remaining to add because my project is in development phase.

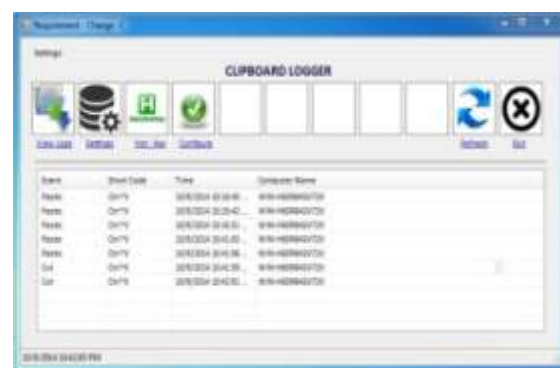


Fig. 2: Main Window of my project.

B. Image Buffer Creation for Bitmap Images

Bitmap image means suppose you opened any image inside paint environment and from that image you copy any area of an opened image this image is converted into bitmap or in some application it converted into tiff format so this images is going to stored inside the images buffer

Of My Project.

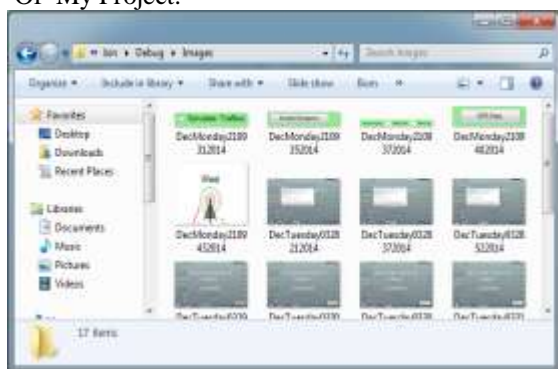


Fig. 3: Image buffer Window for bitmap images.

C. Text Buffer Window

The text buffer which contains all copied data whatever user copy data that copied data is stored inside the text buffer with copied data log. The log contains date & time, Application name, Path and Login User Name of copied data. Same Buffer I am going to maintain for Images, Audio, Video, Folders etc.

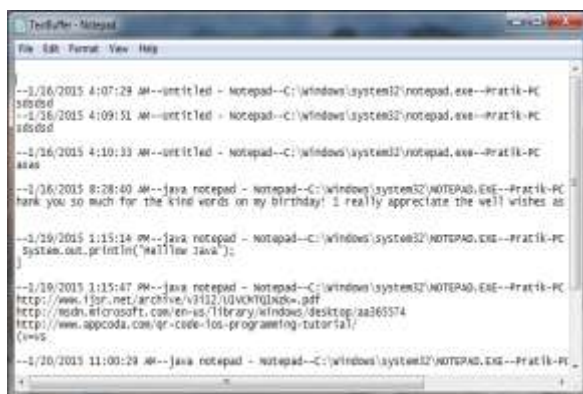


Fig. 4: Text Buffer Window

D. Implementation of Forensic application context with Clipboard management using hidden USB inside the Mouse

I have featured a few ways to hide your data in plain sight by using put USB drive inside mouse the purpose of this above implementation is that whatever user copy data that copied data is stored inside the respective buffer of my project which is located on hard disk at the same time the copied data is also stored in the USB drive which is present

inside the mouse. When you attached USB mouse the USB drive present inside the mouse is not shown in the my computer window for that I have written script which make entry in the windows registry file to hide the USB drive. Also I make the entry of this script in the startup so that you don't require executing the script again and again and which is continuously executing in the background. The advantage of above feature is it is used for Cyber Forensic purpose. Suppose any disgruntle user try to conceal data from your system if he/she has copy any data the copied data and its log will be stored inside USB drive which is hidden inside the Mouse and user even don't get any clue.



Fig. 5: USB dongle inside the Mouse for hidden storage for logs data.

E. Creation of Hives for data segregation

The Copy data is segregated according to respective application names for that I have created Tree structure. Suppose you copy data from notepad application then data is going to be store inside notepad text buffer.

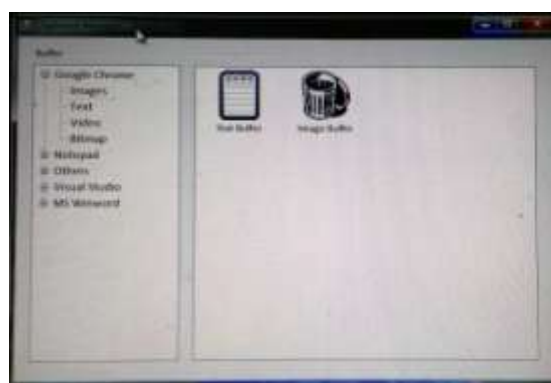


Fig. 6: Hives Creation window for segregation of copy data according to application name.

V. CONCLUSION

As detailed in the previous Section, We know very well that Windows Clipboard has limitations that firstly it store only one item at a time an secondly when system turn off it clears memory every time. So my Utility is going to

eradicate this limitations and going to extends the functionality of clipboard manager so that it provide better and consistent user interface that save user time and enhance the efficiency. At the same time my utility is implemented as Cyber Forensic application context with Clipboard Management using hidden USB drive inside the Mouse.

[16] [http://en.wikipedia.org/wiki/Clipboard_%28computing%29]

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