

## USB-Privacy: Security to Software Using USB

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**Abstract**— The general way of providing a security to any software or application, is, a key verification. If we share this key and try to use the software on different machines. . We can create the copies of the software. This is basically known as a 'piracy'. To prevent such a illegal activities, there are many security applications present in the market nowadays. But piracy prevention can be achieved by simply making it machine specific. The software is provided with USB-drive which is when connected check for the valid machine and allow using the software only on the valid machine. This paper will explain the concept in detail.

**Keywords**—USB (Universal Serial Bus), Machine Specific, Dongle, Piracy, Vendor

### I. INTRODUCTION

A USB-Privacy is a piece of hardware containing an electronic serial number, which must be plugged into the computer to run the software. This adds extra cost for the software vendors, so USB-Privacy are uncommon for games and are found mostly in expensive high-end software packages. For even stricter anti-piracy requirement, a USB-Privacy product that supports code porting mechanism is a good choice for software developers.

A registration key is a series of letters and numbers that is asked for when running the program. Many computer games make the use of registration keys. The software will refuse to run if the registration key is not typed in correctly, and multiplayer games will refuse to run if another user is online who has used the same registration key. Name & Serial, a name and serial number that is given to the user at the time the software is purchased, and is required to install it. Key file, which requires the user to have a key file in the same directory as the program is installed to run it. The usual function of a USB-Privacy is to authenticate a piece of software. Without the USB-Privacy, the software will run only in a restricted mode, or not at all. USB-Privacy are used by some proprietary vendors as a form of copy prevention or digital rights management, because it is much harder to copy a Hardware than to copy the software it authenticates.

A USB-Privacy is a dedicated computer on a chip or micro-processor for carrying out cryptographic operations, embedded in a packaging with multiple physical security measures, which give it a degree of tamper resistant.

### II. LITERATURE SURVEY

Over the past few years, USB thumb drives have become very popular. They transfer files relatively fast (compared to CD's), happen to be extremely small and unobtrusive, and plug into almost any computer with a USB port. Personally, I have two flash drives on my keychain right now, and I can't imagine how I ever got by without them. Thanks to the convenience of the modern thumb drive, I can copy documents or other important files onto a small drive that fits in a change pocket, and transfer them to another computer. This is in fact, what most people do with thumb drives—nothing special so far. Using your flash drive as a backup and transfer device is great—but you haven't really unlocked the potential of the USB until you've installed some programs on it.

These systems have following drawbacks.

1. Only key is enough to provide the security.
2. Key can be guessed easily.
3. No limitations about the machine on which software is used.
4. Copy of software can be made easily.

### III. PROPOSED METHOD

Keeping in view all of the drawbacks of the existing system, goal of our project is to reduce limitations and problems in the current systems. In this system, we are trying to make software's machine specific. The term machine specific specifies that the software is to be used on a single machine only. We cannot use it on a two different machine simultaneously. This helps us to put the restriction on a piracy of software. Since, we are allowed to use it on a valid machine only.

**A. Purpose:** - The purpose of this document is to present detailed description of our desktop based application on 'USB-PRIVACY'. The following document describes the functional and nonfunctional requirements for our project.

**B. Project Scope:** We are designing security application that will:

- Use USB to store application.
- For using application we need to plug-in USB to system, and use the application.
- Our security application will,
  - Validate license key
  - Validate system
  - If Both are valid then only application exe will run and use will able to use application
- Whenever USB is used for first time, It will,
  - Validate license Key only
  - Take machine -id
  - Generate a using both keys Generate new key, which will used to validate system for next time.

This system has following advantages:

1. Security increased.
2. Can be used for USB data protection.

### IV. ARCHITECTURE

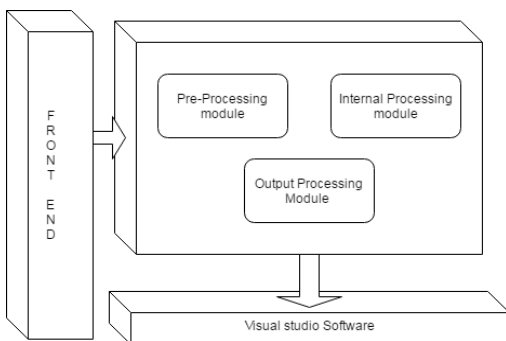


Fig. 1: Software Architecture

The software architecture of a program or computing system is a depiction of the system that aids in the understanding of how the system will behave. Software architecture serves as the blueprint for both the system and the project developing it, defining the work assignments that must be carried out by design and implementation teams. The architecture is the primary carrier of system qualities such as performance, modifiability, and security, none of which can be achieved without a unifying architectural vision. Architecture is an artifact for early analysis to make sure that a design approach will yield an acceptable system. By building effective architecture, you can identify design risks and mitigate them early in the development process.

The Software Architecture clearly depicts that the project has a front end which interacts with the user as well as the backend which does all the background processes. The backend consists of various modules which do the predefined tasks.

### V. IMPLEMENTATION DETAILS

The aim of this system is to provide the security to software's. For this, software's are provided in a USB-drive. This USB-drive we need to connect to a machine while using the software. Whenever the USB-drive is installed it collects the unique identities like machine ID, biased ID, from the machine itself. These details are stored on a USB only. Hence, whenever, the USB is connected it validates these details with the details of the machine to which the USB is currently connected. If the machine is valid, then only the software inside the USB will auto-run. This way we can prevent the copying of the software and use it on a different machine.

The Flow-graph will explain the working of the system:

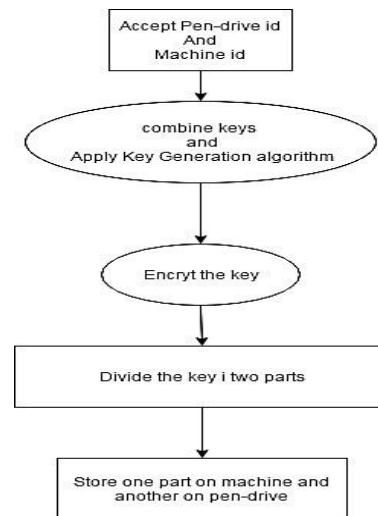


Fig.2: Flow graph

## VI. FUTURESCOPE

Along with the security system this architecture can be used for protection of various data in USB-drive. Since we are making it machine specific if a user has to two machine he need buy two USB-drives if he wants to use software on both machine. This may result in costly product. User need to carry the USB-drive always. This limitation can be overcome in future.

## VII. CONCLUSION

It can be concluded by saying that “USB-PRIVACY” is focused exclusively on bringing the benefits of the USB security to industry. “USB-PRIVACY” does not only give the benefits to many fields but proves to be a boon to fields like education, tourism, film industry and many more, thereby preventing their software’s and/or application from getting pirated. It’s easy, fast and more secure way for users to enhance their experience without the fear of piracy.

In future scope, unlike the existed one, which is generally used by people now a day of authentication with the help of username and password, the “USB-PRIVACY” takes the help of Dongle and make it more secure because of software and hardware. Example similar to the concept of “USB-PRIVACY” is the dongles used in network connection.

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