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License File Generator Using MAC Address

Anirudha A. Kolpyakwar[1], Piyush M. Dhande[2], Pallavi A. Chaudhari[3]

Assistant Professor, Information Technology, B. D. C. O, E. Wardha, India [1]

Assistant Professor, Electronics & Telecommunication, D. M. I. E. T. R. Wardha, India [2]

Assistant Professor, Computer Science & Engineering, J. D. I. T. Yavatmal, India [3]

Abstract: Whenever any customer purchase any software application (product) from vendor then customer needs serial key or product to start application, this serial key is provided by the vendor of software application but sometimes some users cracks this serial key and uses the features of software application without any permission of vendor that is against the policy of software company. But some users are having different techniques, they purchase single license from the vendor and uses the application in multiple machines or network that is also against the policy of Software Company. In this paper we proposed License file generator using MAC address of the system that will provide security against piracy of the software application.

Keywords: MAC address

I. INTRODUCTION

To stop this cracking or illegal usage of software application, company always tries to create unique serial key or product key but crackers cracks this serial key through some auto generated program. To solve the above problem of cracking or illegal usage, it is required to create license file that will be unique for each computer and also this license file will be associated with the machine.

II. PROCESS TO DEVELOPED THE SYSTEM

After understanding the concept of license generator, it is required to develop system by process, and this process also requires some extra study of different technology as follows.

- Creating GUI of project.
- Creating Main Window
- Creating Menus
- Creating Toolbars
- Creating Information window to accept information.
- Creating panel window to display information of license file.
- Creating panel window to accept MAC address of machine.

A. License Writer

Creating custom format license file along with image and other information with the help of above modules. At the time of creation of license file the information can be reviewed. Before writing the data into license file it is encrypted.

B. License Reader

Creating reader to decrypt all the information of license file and read image as well as stored information from the file. Integration of all the module. Testing of all the modules[1].

III. OBJECTIVE OF PROJECT IMPLEMENTATION / DOMAIN AREA

- To accept customer information and vendor information.
- To encrypt given MAC address.
- To save encrypted MAC address in file.
- To create virtual reader to read license file.
- To create actual reader to read license file for developers.
- To read all the instruction of license files and displays it in window.
- To create test sample application by using license reader module to test the license reader functionality.
- To design proper GUI in vb.net that will run in any operating system.
- To define step by step process to use license reader and writer for Developers.

IV. FEATURES

A. Earn Profit To The Vendor:

In general when customer parches any software application from vendor then he/she just needs a serial key. With this single serial key customer can install that software on no. of machines.

This system allows just single installation for the respective machine, which reduces software piracy interns it increases the total profit of the vendor.

B. Establishes Relation Between Customer & Vendor:

When the customer perches any software with this way, he has to give MAC address of his machine as well as the total personal information. This creates the personal relation between him and the company; also he can suggest more future implementation to the application.

V. ENCRYPTION & DECRYPTION PROCESS

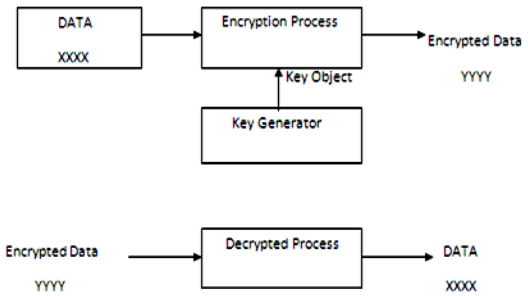

Fig. 1 Encryption & Decryption Process

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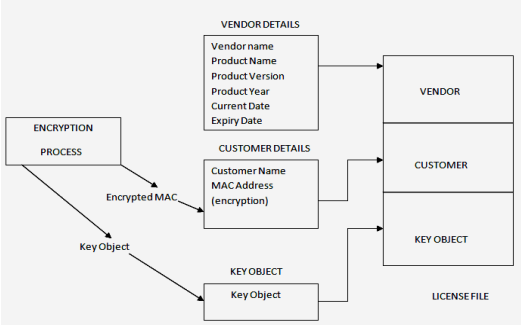

Fig. 2 License File Architecture

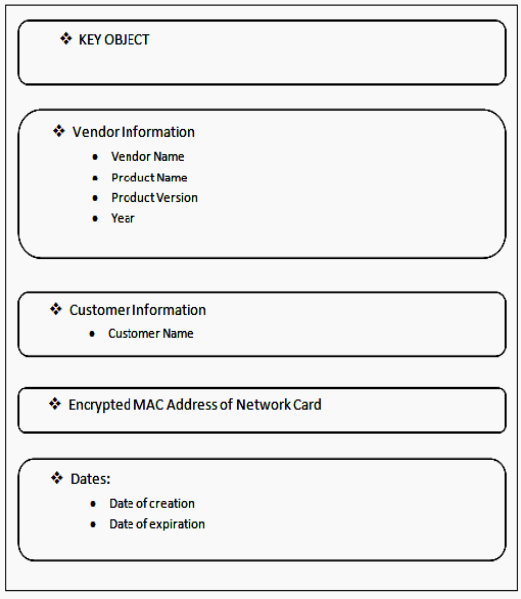

Fig. 3 License File Format

The above license file format describes Sample program to read MAC address of machine. Application will retrieve MAC address of Network Card which is a 6-byte number, for ex. 0 25 -47 -105 -76 -11. MAC address is generated using standard vb interface called Network Interface. Encryption of MAC address by using standard algorithm of vb frame work and not custom algorithm to provide security. We are using MD5 Algorithm.

The encryption is done by the standard algorithm of vb cryptography class on the basis of a key which is generated using machine's time (in milliseconds since 1900) so the key will be unique and the same key cannot be generated again. Decryption of MAC address by using the same standard algorithm of vb cryptography class[4].

VI. SERIALIZATION

Using a DataOutputStream, you could write an application that saves the data content of your objects as simple types. However vb.net provides an even more powerful mechanism called object serialization that does almost all the work for you. In its simplest form, object serialization is an automatic way to save and load the state of an object. However, object serialization has depths that we cannot plumb within the scope of this book, including complete control over the serialization process and interesting conundrums such as class versioning[3].

Basically, an object of any class that implements the Serializable interface can be saved and restored from a stream. Special stream subclasses, ObjectInputStream and ObjectOutputStream, are used to serialize primitive types and objects. Subclasses of Serializable classes are also serializable. The default serialization mechanism saves the value of an object's no static and no transient member variables[3].

One of the most important things about serialization is that when an object is serialized, any object references it contains are also serialized. Serialization can capture entire "graphs" of interconnected objects and put them back together on the receiving end. The implication is that any object we serialize must contain only references to other serializable objects. We can take control by marking nonserializable members as transient or overriding the default serialization mechanisms. The transient modifier can be applied to any instance variable to indicate that its contents are not useful outside of the current context and should never be saved[3].

License file generator consists of two parts as given below:

- License Writer
- License Reader

License writer is graphical user interface application that will accept following information from the vendor of product for each license file.

- Name of vendor
- Product name
- Product version
- Customer name
- MAC address of customer machine.
- Current date
- Expiry date

After accepting all the above information from the vendor or developer of product, writer will generate encrypted binary file known as license file. Generated license file will contain encrypted data and having custom format therefore standard application of any operating system will not able to view its contents. During writing process, writer will generate encrypted code number from the given user information and MAC address and it will store that code number into the license file. Generated license file will contain all the information given by the user.

VII. LICENSE READER

Vendor of product is considering as administrator and the administrator should have the power to view the license file. Application will provide two types of license reader i.e. virtual reader and real reader, virtual reader accept license file from the user as well as it will ask for MAC address and after the successful comparison of given MAC with the MAC address of license file, it will show the complete information of license file on the screen. Real reader will not work exactly as virtual reader but it is little different, real reader will be one of the module of the any product developed by vendor and when the product (application software) starts running it will read MAC address from the machine and compares the machine's

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MAC address with the decoded MAC address of file and after successful completion of this comparison it will allow user to access application[1].

VIII. RESULT & CONCLUSION

It provides more security to the vendor product. It is more users friendly. It has version number, so we can make further implementation to it. It is platform independent. It gives fast performance. Establishes relation between customer and vendor. Most important any user could not be crack this license file and cannot use illegally, because this license file is generated by encryption process and which is in binary format.

Fig. 4 Main Window License File Generator

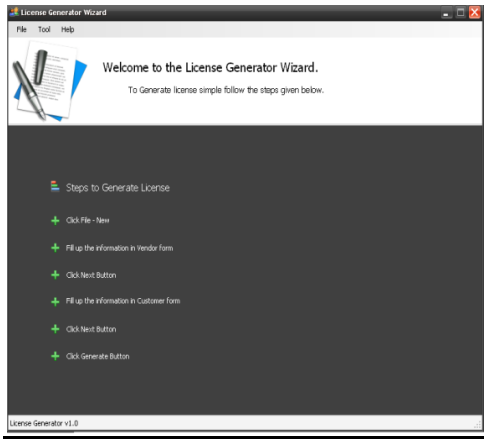

Fig. 5 Customer Panel which Accepts Customer Information

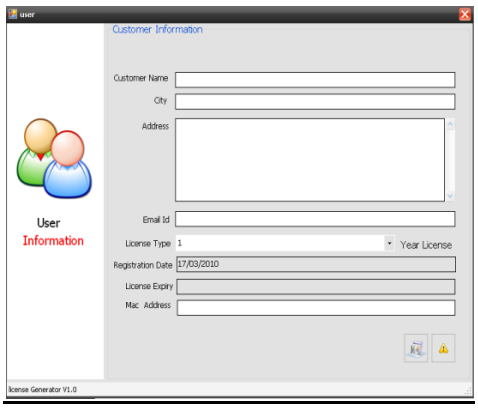

Fig. 6 Vendor Panel Which Accepts Vendor Information

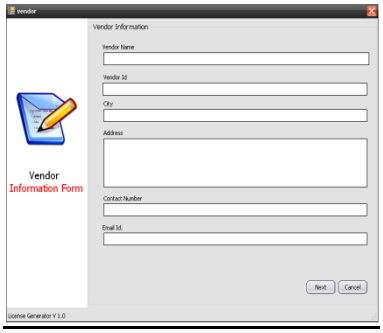

Fig. 7 License Format Which Is Generated After Completion

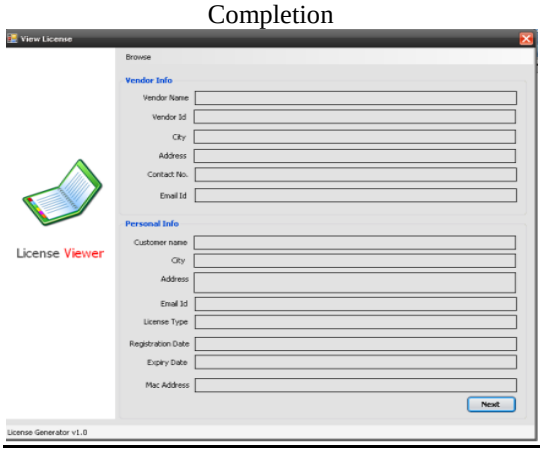

Fig. 8 License Generation Panel:

Future enhancement can be done for this system which can Store user information for license generation in database. Read all the license user information from the database. Filter all the License users information as per the expiry date. Enhance the reader capacity to stop reader after expiry date. Print the License certificate in the printer for the customer.

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