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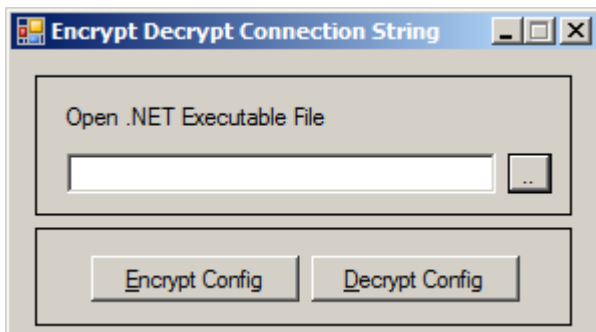# Encryption Decryption Connection String for the App.Config File

Preetam U Ramdhave, 14 Jun 2013

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How to develop connection string encryption on the application config file.

Update:- 1. The virsion of the project is upgraded nwo it is in 4.6.1

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Introduction

This tip is about encryption of the connection string from *app.config* file. I searched a lot on the net but was not able to find proper step by step information, which gives us proper instruction on how we can develop this functionality. Then I found a good link on Microsoft forums where I found how we can encrypt the connection string. Then I found it is very easy and can be implemented within no time. This application will generate the Encrypted connection string from the *config* file. We just need to copy that section and put in our *app.config*.

Background

If we want to encrypt the Connection with a Windows Application Service while deploying the application to the customer we can use this code.

Using the Code

This project is very simple. I have used Microsoft's
`ConfigSection.SectionInformation.ProtectSection("DataProtectionConfigurationProvider")`
using this command it will encrypt the *config* file. What my program does is that it will look for .NET executable file. When you provide the executable file, you will have two options:

1. Encrypt File
2. Decrypt File

The below code is very easy to understand. The `EncryptConnectionString` takes two parameters. We are passing the .NET executable file name which we need to execute. The code will convert the `ConnectionString` Section in the encrypted format and open the file in Notepad.

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```csharp
public static void EncryptConnectionString(bool encrypt,string fileName)
{
    Configuration configuration = null;
    try
    {
        // Open the configuration file and retrieve the connectionStrings section.
        configuration = ConfigurationManager.OpenExeConfiguration(fileName);
        ConnectionStringsSection configSection =
        configuration.GetSection("connectionStrings") as ConnectionStringsSection;
        if ((!(configSection.ElementInformation.IsLocked)) &&
            (!(configSection.SectionInformation.IsLocked)))
        {
            if (encrypt && !configSection.SectionInformation.IsProtected)
            {
                //this line will encrypt the file
                configSection.SectionInformation.ProtectSection
                    ("DataProtectionConfigurationProvider");
            }

            if (!encrypt &&
            configSection.SectionInformation.IsProtected)//encrypt is true so encrypt
            {
                //this line will decrypt the file.
                configSection.SectionInformation.UnprotectSection();
            }
            //re-save the configuration file section
            configSection.SectionInformation.ForceSave = true;
            // Save the current configuration

            configuration.Save();
            Process.Start("notepad.exe", configuration.FilePath);
            //configFile.FilePath
        }
    }
    catch (Exception ex)
    {
        MessageBox.Show(ex.ToString());
    }
}
```

If you set the *config* file entry like below:

Section 1

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```xml
<connectionStrings>
    <add name="SecurePassDataBase" connectionString="Data Source=D-6058;
```

```
    Initial Catalog=DEMO_Test;User ID=sysdba;Password=xxxxxx" />
</connectionStrings>
```

You will get the encrypted connection string like below:

Section 2

```xml
<connectionStrings configProtectionProvider="DataProtectionConfigurationProvider">
    <EncryptedData>
      <CipherData>
        <CipherValue>AQAAANCMnd8BFdERjHoAwE/Cl+sBAAAATeylFe/
        xsUiVdcZvovEYDwQAAAACAAAAAAADZgAAwAAAABAAAABZsoaKP62hL85wpS+O3+
        znAAAAAASAAACgAAAAEAAAAHZ5NcKcDcWuEVDKyU4mz7J4AQAAAILD3fmIimyY2rkEkAdAtRn0dh9tI7+
        Y5+ILciikoSd/y2myUS88vJ59pIf82vOLk/0UwKL8TnHEaFTeX7SJ5par6pW7Pyhu4kKTEMyMUQsZX/
        h8RjNOnt+Q/kZIdqF2YWxFUP0RF3GWirvMNWS3do7IE0WaJ1W3wL+HhalglmKURWIGHsvJlybl+
        EGI8crPnli0W/yMN+fR0P/ndaTY87kR4+0gvKDWzZ/dMh8E7ZtodFzTQ4pjpl5YyRHH/
        Tc3oFUtimCnzXvCVT4ykK6NEQfPiPc5KJW6ajTEEGOrAXTnr9HF2wCRekE3WUVPYkeHRTjtuf
        2hUyvYx4eoGeOIAzFFXxY1GzZqhl8YaHlukZagiTVbfXA6Wh+K0dsAiOPz+wbCT92/
        blgsdkoKSMy8vRqFxAhX8HoW6KbJhsBPOvv36iBr1RecCpzUxWrVssS+wi/JclVfVs0nYb/
        pFidcJwhuwBsS6IzvV1tgrk8F9CUor+6DYHd/ABQAAABZjFi30hPRmKj+pvxFzjeNH+
        Dhhg==</CipherValue>
      </CipherData>
    </EncryptedData>
</connectionStrings>
```

Just replace Section 1 with Section 2 in your application *config* file.

You can easily access the connection in your program like below:

```csharp
string connectionString = ConfigurationManager.ConnectionStrings["SecurePassDataBase"].ToString();
```

No need to change or do anything else to be able to access the connection string. Hope this code will help you to generate the encryption in your WinForm application.

Acknowledgement

I would like to thank Shreyas Ramdahve who reviews my articles and makes them perfect.

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