Encrpting and Decrypting data using RSA in Windows Phone

This article explains how to encrypt and decrypt data using RSA algorithm in Windows Phone.

Note: This is a community entry in the Windows Phone 8 Wiki Competition 2012Q4.

Introduction

This article explains how to use RSA algorithm to encrypt and decrypt data.

How to Encrypt

- First create new Windows Phone project in VS 2012
- Add namespace `System.Security.Cryptography` in the code behind file, which in my case is the default MainPage.xaml.cs

In this example, I used RSACryptoServiceProvider class which inherits from RSA class and performs asymmetric encryption and decryption using the RSA algorithm.

Declare the data members:

1. `rsaProvider` of type RSACryptoServiceProvider
2. `byteConverter` of type UnicodeEncoding.

Note that `rsaProvider` helps in encryption and decryption whereas `byteConverter` helps in conversion of string to byte array and vice versa.

The following function explains how to encrypt the data:

```
private Byte[] Encrypt(string dataToEncrypt)
{
            Byte[] data = this.byteConverter.GetBytes(dataToEncrypt);
            try
            {
                return this.rsaProvider.Encrypt(data, false);
            }
            catch (CryptographicException ex)
            {
                return null;
            }
            catch (ArgumentNullException ex)
            {
                return null;
            }
}
```

How to decrypt

The following function explains how to decrypt the data:

```
 private Byte[] Decrypt(Byte[] dataTodecrypt)
{
            try
            {
                return this.rsaProvider.Decrypt(dataTodecrypt,false);
            }
            catch (CryptographicException ex)
            {
                return null;
```


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```
            }
            catch (ArgumentNullException ex)
            {
                return null;
            }
}
```

The second parameter of both Encrypt and Decrypt method of `RSACryptoServiceProvider` is kept false to use PKCS#1 v1.5 padding; to perform encryption using OAEP padding keep it true. You can convert byte array to string type using the following code:

```
this.byteConverter.GetString(decryptedData,0,decryptedData.Length)
```


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