**JSON Web Encryption (JWE) using  
C# and .NET 4.8 Solution or  
.NET Standard 2.0 / Core 3.1 Solution**

**Build/Install Encryption Library**

1. Open up a Visual Studio 2019 “Developer Command Prompt” window
2. Change directory to the solution folder
3. Run the following command build a Release version

For .NET 4.8:

msbuild.exe Encription-Lib\_CLR\_4.8\_Solution.sln /t:Clean,Build /p:Configuration=Release

For .NET Core 3.1

msbuild.exe Encryption-Lib\_CLR\_Core\_3.1\_Solution.sln /t:Clean,Build /p:Configuration=Release

**Implementation Details**

The T-Mobile Encryption Library uses the following logic for creating the JWE.

* Obtains public RSA and/or EC keys from a JWKS REST Service.
  + Caches the public key list
  + Refreshes the public key list each hour
* Uses the public key to encrypt a PII string and creates a JWE encode string.
  + For RSA key, uses **RSA\_OAEP\_256** and **A256GCM**
  + For EC key, uses **ECDH\_ES\_A256KW** and **A256GCM**
* Uses the private key to decrypt a JWE encode string
  + Uses public Key Id is the same as the private Key Id.