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Essential Studio 2013 Volume 4 - v.11.4.0.26

Essential DICOM

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1 Overview

1.1 Introduction to DICOM

The Digital Imaging and Communications in Medicine (DICOM) standard was created by the National Electrical Manufacturers Association (NEMA). Its aim is to support the distribution and viewing of medical images from CT, MRI and other medical modalities. The DICOM format is an extension of the older NEMA standard.

A DICOM file contains a header and the image data. The header stores information about the patient's name, the type of scan, position and dimension of image and lots of other data. The image data part contains all the image information. DICOM is the common standard for scans in hospitals.

1.2 Use Case Scenario

This feature helps users to convert the standard image formats to the DICOM format for medical communications. It is a standard for handling, storing, printing, and transmitting information in medical imaging.

1.3 Prerequisites and Compatibility

This section covers the requirements mandatory for installing Essential DICOM. It also lists operating systems and browsers compatible with the product.

Prerequisites

The prerequisites details are listed below:

Table 1: Prerequisites

Development Environments	• Visual Studio 2010 (Ultimate, Premium, Professional and Express) • Visual Studio 2008 (Team System, Professional, Standard & Express) • Visual Studio 2005 (Professional, Standard & Express) • Silverlight 4.0
.NET Framework versions	• .NET 4.0 • .NET 3.5 SP1 • .NET 2.0

Compatibility

The compatibility details are listed below:

Table 2: Compatibility

Operating Systems	• Windows Server 2008 (32 bit and 64 bit) • Windows 7 (32 bit and 64 bit) • Windows Vista (32 bit and 64 bit) • Windows XP • Windows 2003

1.4 Documentation

Syncfusion provides the following documentation segments to provide all the necessary information pertaining to Essential DICOM.

Table 3: Documentation

Type of Documentation	Location
Readme	**Windows Forms**-[drive:]\Program Files\Syncfusion\Essential Studio\<Version Number>\Infrastructure\Data\Release Notes\readme.htm **WPF**-[drive:]\Program Files\Syncfusion\Essential Studio\<Version Number>\Infrastructure\Data\WPF release notes\readme.htm
Release Notes	**Windows Forms**-[drive:]\Program Files\Syncfusion\Essential Studio\<Version Number>\Infrastructure\Data\Release Notes\Release Notes.htm **WPF**-[drive:]\Program Files\Syncfusion\Essential Studio\<Version Number>\Infrastructure\Data\WPF release notes\Release Notes.htm
User Guide (this document)	**Online** http://help.syncfusion.com/resources (Navigate to the DICOM User Guide.) ***Note: Click Download as PDF to access a PDF version.***

	Installed Documentation Dashboard -> Documentation -> Installed Documentation.
Class Reference	**Online** http://help.syncfusion.com/resources (Navigate to the Reporting User Guide. Select *DICOM*, and then click the Class Reference link found in the upper right section of the page.) **Installed Documentation** Dashboard -> Documentation -> Installed Documentation.

2 Installation and Deployment

2.1 Installation

For step-by-step installation procedure of Essential Studio, refer to the **Installation** topic under **Installation and Deployment** in the **Common UG:**

Common UG -> Installation and Deployment -> Installation topic

See Also

For licensing, patches and information on adding or removing selective components refer the following topics in **Common UG** under **Installation and Deployment**.

- Licensing
- Patches
- Add/Remove Components

2.2 Deployment Requirements

While deploying an application that references Syncfusion Essential DICOM assembly, the following dependencies must be included in the distribution.

DICOM – Windows Forms, WPF

- Syncfusion.Core.dll
- Syncfusion.DICOM.Base.dll

3 Getting Started

3.1 Feature Summary

Essential DICOM is a 100% native .NET library that converts the standard image formats to the DICOM format (.dcm). Essential DICOM is a solution for users who need to convert the ordinary image formats namely JPEG, BMP, PNG, EMF, TIFF, GIF to the DICOM format. It requires a DICOM Viewer or an equivalent viewer to view the converted DICOM image.

The following image shows the converted DICOM Image using Essential DICOM.

Figure 1: Converted DICOM Image

3.2 Adding DICOM to an Application

This section illustrates the step-by-step procedure to create the following platform applications:

- Windows
- WPF

Windows Application

1. Open **Microsoft Visual Studio**. Go to **File** menu and click **New Project**. In the **New Project** dialog box, select **Windows Forms Application** template, name the project and click **OK**.

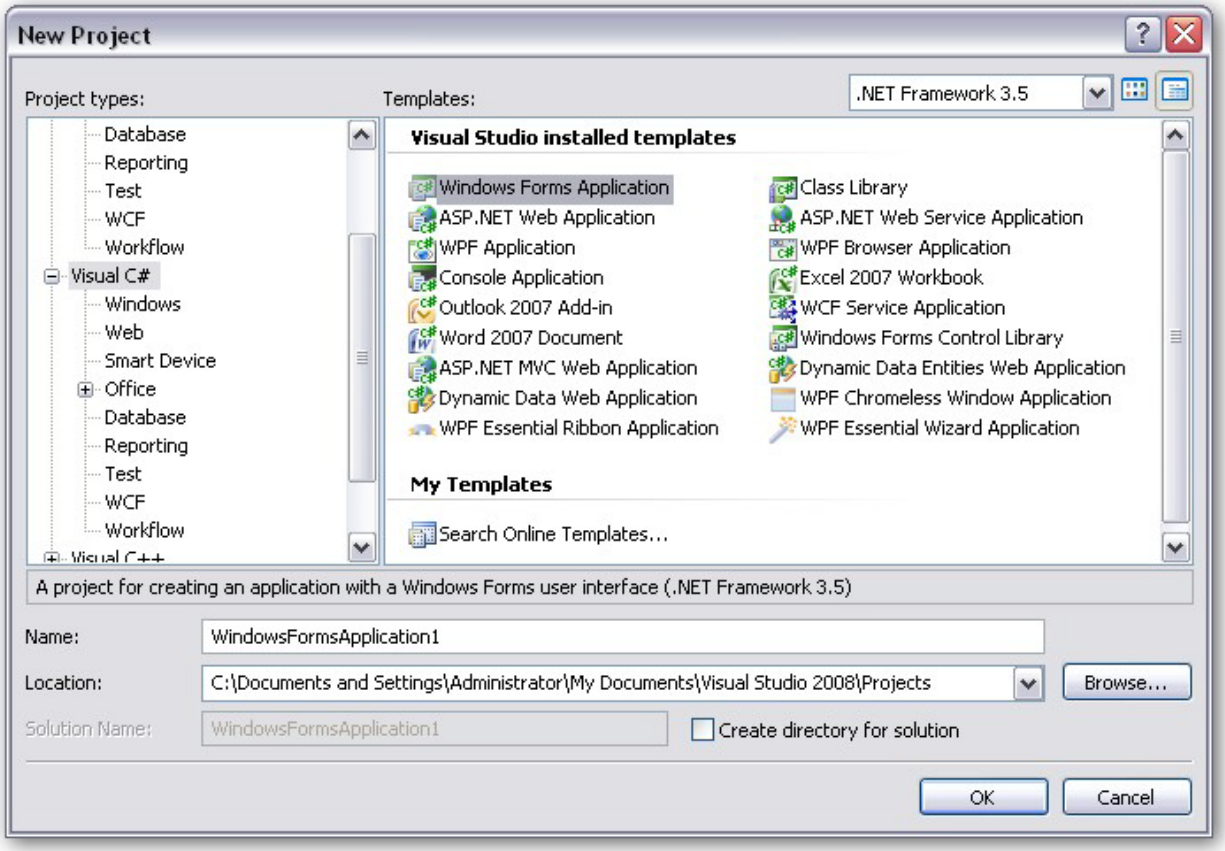

Figure 2: New Project dialog box - Windows Forms Application

A windows application is created.

2. Open the main form of the application in the designer.
3. Add the **Syncfusion.Core** and **Syncfusion.DICOM.Base** reference to the project.

WPF Application

1. Open **Microsoft Visual Studio**. Go to **File** menu and click **New Project**. In the **New Project** dialog box, select **WPF Application** template, name the project and click **OK**.

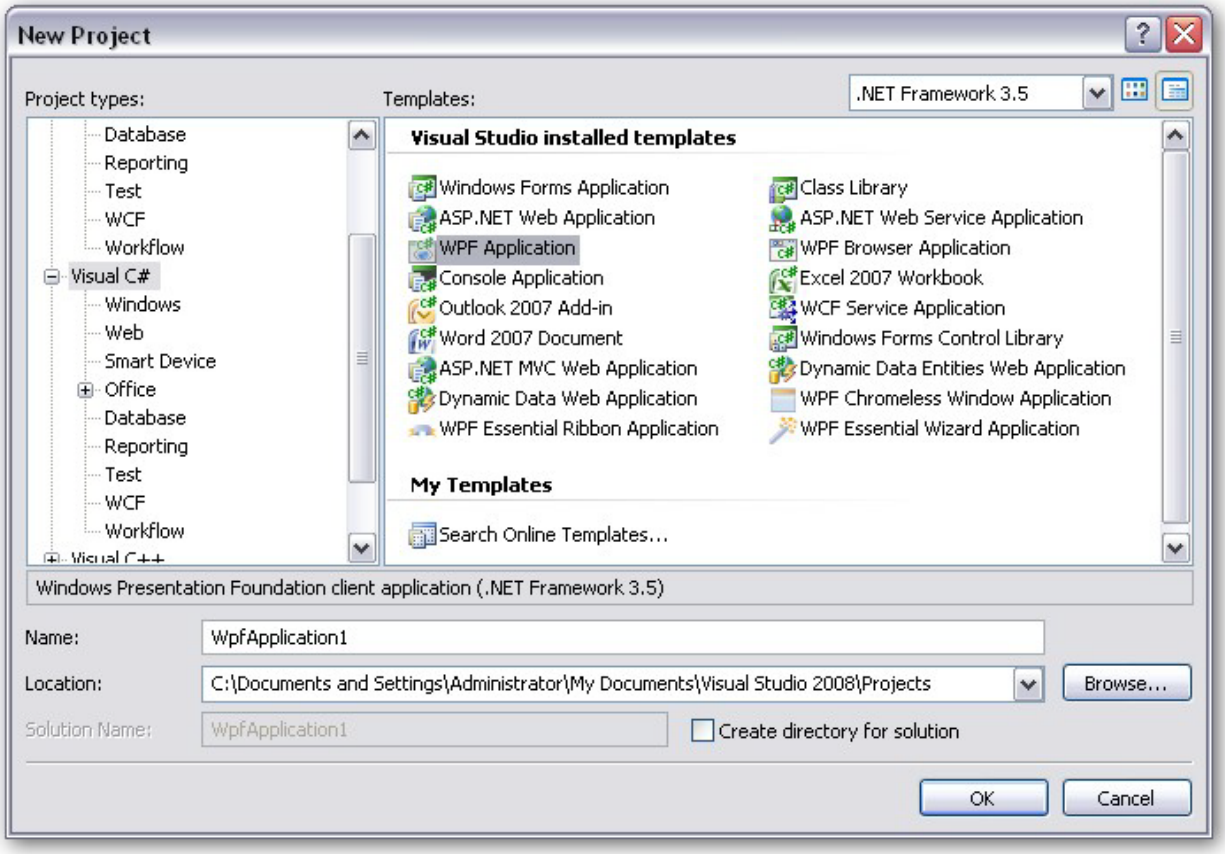

Figure 3: New Project dialog box-WPF Application

A new WPF application is created.

2. Open the main form of the application in the designer.
3. Add the **Syncfusion.Core** and **Syncfusion.DICOM.Base** reference to the project.

4 Concepts and Features

4.1 DICOM Format

Essential DICOM is a 100% native .NET library that converts the standard image formats to the DICOM format (.dcm). Essential DICOM is a solution for users who need to convert the ordinary image formats to the DICOM format. It requires a DICOM viewer or an equivalent viewer to view the converted DICOM image. The following are the list of image formats that are supported for conversion.

- JPEG
- BMP
- PNG
- EMF
- TIFF
- GIF

4.1.1 Properties, Methods, and Events

The following properties and methods will fall under the DICOMImage class.

4.1.1.1 Properties

Table 4: Properties Table

Property	Description	Type	Data Type
FileName	Gets or sets the input image file location	Normal	String
InputStream	Gets or sets the input image as a Stream.	Normal	System.IO.Stream
Image	Gets or sets the input image	Normal	System.Drawing

4.1.1.2 Methods

Table 5: Methods Table

Method	Description	Parameters	Type	Return Type
Save ()	Saves the converted DICOM Image to the specified file or a Stream.	Save(String) Save(Stream)	Normal	void

4.1.2 Adding DICOM to an Application

The following sets of code snippets illustrate the conversion to DICOM Format.

```
[C#]
  //Initailizing the DICOM Image object.
    DICOMImage dcmImage = new DICOMImage((string)this.textBox1.Tag);
  //Saving the DICOM image.
    dcmImage.Save("Sample.dcm");
```

```
[VB.NET]
  'Initailizing the DICOM Image object.
   Dim dcmImage As New DICOMImage(DirectCast(Me.textBox1.Tag, String))
  'Saving the DICOM image.
  dcmImage.Save("Sample.dcm")
```

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