CP2071 - Plotting and Publishing Drawings with .NET

Lee Ambrosius – Autodesk, Inc.
Principal Content Developer – IPG- AutoCAD Products- User Assistance

Where Am I and Who Should Be Here

You are in session:

- CP2071 - Plotting and Publishing Drawings with .NET

You should know:

- *AutoCAD 2013 (or AutoCAD 2010 and later)*
- *Visual Studio 2010 (or Visual Studio 2008)*
- *VB.NET or C#*

Overview

This session will help you automate many of the tasks related to setting up a drawing for plotting or publishing through the Managed .NET API.

In this session, you will learn to:

- *Create and import named layouts*
- *Create and set the scale of viewport objects*
- *Work with visual styles and render presets*
- *Access and assign plot configurations, plot styles, and page setups to a layout*
- *Plot and publish drawings*

Who Am I?

My name is Lee Ambrosius

- Principal Content Developer at Autodesk
- Work on the Customization, Developer, and CAD Administration Documentation
- AutoCAD user for over 18 years; started on R12 DOS
- Customizing and programming AutoCAD for 16 years
  - *AutoLISP/DCL, VBA, Managed .NET, and ObjectARX/MFC*
- Author/Contributing and Technical Editor on AutoCAD related books and articles
  - AutoCAD and AutoCAD LT Bible Series
  - Autodesk White papers, and AUGI HotNews and AUGIWorld

Session Rules

A few rules for this session:

- Silent your mobile phone and any other device
- If you have to leave at anytime, please do so quietly
- Questions will be allowed during the session unless we start getting behind

Thanks for Your Cooperation

What You will Need

You will need the following APIs to utilize the sample code in this session:

- AcCoreMgd – Access to the editor, publishing and plotting, and defining commands
- AcDbMgd – Access objects stored in a drawing file
- AcMgd – Work with the application and user interface
- AcSmComponents19 – Sheet Set Object

Classes

The classes you will see throughout this session are:

- DBDictionary – Container for named object dictionaries in the drawing database.
- DBDictionaryEntry Structure – Limited class that represents a named object dictionary.
- LayoutManager – Interface that allows you to work with the Layout objects in the current drawing.

Classes

- Layout – Stores information and settings used to output model or paper space. Stored as entries in the Layout dictionary.
- Viewport – Stores the properties of a viewport on a named layout.
- DBVisualStyle – Container for the settings in which define a visual style that can be applied to a viewport or plot settings.
- MentalRayRenderSettings – Container for the settings related to the Mental Ray render engine.

Classes

- PlotSettingsValidator – Validates the data in a PlotSettings object.
- PlotSettings Structure – Defines which area of a layout should be and how it should be plotted or published.
- PlotInfoValidator – Validates the data in a PlotInfo object.
- PlotInfo – Utility object used to apply device and override settings.

Classes

- PlotEngine – Interface to plot or preview one layout, and collect information for a background plot.
- PlotProgressDialog – Implements a plot progress dialog box.
- DsdEntryCollection – Container of DsdEntry objects.
- DsdEntry – Stores information about a sheet/layout for publishing.

Classes

- DsdData – Saves and loads DSD files for publishing.
- Publisher – Sets up event handlers for publishing events and publishes DSD files or selected layouts.
- PlotConfig – Utility object that used to represent a PC3 file and methods for accessing information about a device.
- PlotConfigInfo – Limited class that represents a device.

Classes

- PlotConfigManager – Access to available plot configurations and plot styles.

Namespaces

The namespaces you will see throughout this session are:

- Autodesk.AutoCAD.DatabaseServices – Classes and structures that represent the objects stored in a drawing file.
- Autodesk.AutoCAD.PlottingServices – Classes that represent the objects used to work with plotter configuration, plot styles, and the plot engine.
- Autodesk.AutoCAD.Publishing – Classes that represent the objects used to publish layouts.

Named Layouts

Named layouts are used when outputting a design and represent a physical sheet of paper in a digital drafting environment.

Class(es):

- DBDictionary
- DBDictionaryEntry Structure
- LayoutManager
- Layout

Namespace:

- Autodesk.AutoCAD.DatabaseServices

Named Layouts

You can use the LayoutManager to work with layouts in the current/active document.

The LayoutManager provides methods to:

- Create a new or duplicate a layout
- Delete a layout
- Rename a layout

When you want to work with layouts that are not in the active document, or are, you must work with the Layout dictionary.

Named Layouts

Example(s):

- LayoutList – Lists all the layouts in the current document
- LayoutCreate – Creates a new layout using the LayoutManager
- LayoutImport – Imports a layout from an external drawing

Floating Viewports

Floating viewports are created in a paper space block reference, and are used to display and scale Model space geometry for output.

Do not confuse floating viewports on layouts with tiled Model space viewports, they are different.

Class(es):

- Viewport

Namespace:

- Autodesk.AutoCAD.DatabaseServices

Floating Viewports

Example(s) covered:

- ViewportsCreateFloating – Creates a nonrectangular and rectangular viewports, and then modifies some of its properties

Example uses the acedSetCurrentVPort method, which is:

- Exposed as part of acCore.dll
- Part of the ObjectARX SDK

Visual Styles and Render Presets

Visual styles and render presets are used to control the way objects appear on screen and during output.

Class(es):

- DBDictionary
- DBDictionaryEntry Structure
- DBVisualStyle
- MentalRayRenderSettings

Namespace:

- Autodesk.AutoCAD.DatabaseServices

Visual Styles

Visual styles are stored and accessed from the VisualStyle dictionary.

You can:

- List which visual styles are in a drawing
- Create a new or duplicate a visual style
- Modify, delete, or rename a visual style
- Set a visual style current

You apply a visual style to:

- A viewport
- Plot settings (of a layout or page setup)

Render Presets

Two types of render presets are supported: standard and custom

Standard render presets cannot be modified (these are Low, Medium, …), and **are not** stored in a drawing but rather the application.

Custom render presets are stored in the ACAD_RENDER_SETTINGS dictionary.

To assign a render preset to a viewport or plot setting, a copy of the render preset must be created in the ACAD_RENDER_PLOT_SETTINGS dictionary and then assigned to the viewport or plot setting.

Render Presets

You can:

- List which custom render presets are in a drawing
- List which render presets are assigned to a viewport or plot setting
- Create a new or duplicate a custom render preset
- Modify, delete, or rename a custom render preset
- Set a render preset current

You apply a render preset to:

- A viewport
- Plot settings (of a layout or page setup)

Visual Styles and Render Presets

Example(s) covered:

- VisualStyleList – Lists the visual styles in the current document
- VisualStyleCreate – Creates and modifies a visual style
- RenderPresetsList – Lists the render presets in the current drawing
- RenderPresetsCreate – Creates and modifies a render preset, and then sets the new render preset current

Plot Configurations and Plot Styles

Plot configurations are used to define the properties of an output device that represents a physical or virtual device.

Plot styles control the appearance of objects on screen and during output, and they come in two different types: color-dependent and named styles.

Class(es):

- PlotSettingsValidator
- PlotSettings Structure

Namespace:

- Autodesk.AutoCAD.DatabaseServices

Plot Configurations and Plot Styles

The PlotSettingsValidator allows you to determine which plot configurations and plot styles are available.

Use the **PlotStyleMode** property of the Database to determine which type of plot style (CTB or STB) is currently being used in a drawing.

- PlotStyleMode = 0, STB plot styles are being used
- PlotStyleMode = 1, CTB plot styles are being used

Plot Configurations and Plot Styles

Example(s) covered:

- PlotterList – Lists the available plotter configuration (PC3) files
- PlotterMediaList – Lists the available media sizes for a specified PC3 file
- PlotStyleList – Lists the available plot style files

Page Setups

Page setups are named objects that store plot settings used to control the display of objects on a layout and during the output of a drawing.

Class(es):

- DBDictionary
- DBDictionaryEntry Structure
- PlotSettingsValidator
- PlotSetting
- LayoutManager
- Layout

Page Setups

Namespace:

- Autodesk.AutoCAD.DatabaseServices

You can:

- List the available page setups in the drawing
- Create a new or duplicate a page setup
- Modify, delete, or rename a page setup
- Assign a page setup to a layout

Page Setups

Example(s) covered:

- PageSetupList – Lists the available page setups in a drawing
- PageSetupCreateEdit – Creates and edits a page setup
- PageSetupAssignToLayout – Assigns a page setup to a layout
- LayoutChangePlotSettings – Changes the plot settings of a layout

Plot a Layout

Plotting a layout allows it to be shared with individuals that do not have AutoCAD in a hardcopy or electronic format.

Class(es):

- PlotSettingsValidator
- PlotSettings
- PlotInfoValidator
- PlotInfo
- LayoutManager
- Layout
- PlotEngine
- PlotProgressDialog

Plot a Layout

Namespaces:

- Autodesk.AutoCAD.DatabaseServices
- Autodesk.AutoCAD.PlottingServices

Example(s) covered:

- PlotLayout – Plots the current layout to a DWF file

Publish Multiple Layouts or a Sheet Set

Publishing allows you to output multiple layouts in a single operation, without having to open each drawing first.

Class(es):

- DsdEntryCollection
- DsdEntry
- DsdData
- PlotProgressDialog
- Publisher
- PlotConfig
- PlotConfigInfo
- PlotConfigManager

Publish Multiple Layouts or a Sheet Set

Namespaces:

- Autodesk.AutoCAD.DatabaseServices
- Autodesk.AutoCAD.PlottingServices
- Autodesk.AutoCAD.Publishing

Example(s) covered:

- PublishSheetSet – Publishes each layout in a sheet set to a DWF file
- PublishPDF – Publishes two layouts to a PDF file

Extras (Examples)

Other layout examples:

- LayoutCreateFrom – Clones/duplicates another layout
- LayoutRemove – Removes a layout
- LayoutRename – Renames a layout
- LayoutReorder – Reorders the layouts in a drawing

Final Questions… ???

Going Once…

Going Twice…

Closing Remarks

Thanks for choosing this session and hope you got something out of it.

Do not forget to complete the evaluation online.

If you have any further questions today, tomorrow, next week, or even a year from not, feel free to contact me using via:

email: lee.ambrosius@autodesk.com

twitter: http://twitter.com/leeambrosius

Enjoy the rest of the conference.