Essentials

AutoCAD®
Map 3D 2021

November 2020

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Contents

Introduction

The *AutoCAD® Map 3D 2021: Essentials* learning guide is designed for use in Authorized Training Centers (ATC) locations, corporate training settings, and other classroom settings. Although this courseware is designed for instructor-led courses, you can also use it for self-paced learning.

This introduction covers the following topics:

- Course Objectives
- Prerequisites
- Using This Learning Guide
- Downloading and Installing the Exercise Files
- Feedback
- Free Autodesk Software for Students and Educators

This learning guide is complementary to the software documentation. For detailed explanations of features and functionality, refer to the Help in the software.

Course Objectives

After completing this course, you will be able to:

- Understand the AutoCAD Map 3D user interface.
- Create and edit mapping geometry.
- Link and manage drawing-based attribute data.
- Use object classification.
- Connect to geospatial features.
- Edit geospatial features.
- Import and export drawing-based data.
- Work with raster images.
- Work with source drawings.
- Use source drawing queries.
- Stylize drawings and geospatial features.
- Create Map Books and plot maps.
- Use Survey Data with AutoCAD Map 3D's Survey Data Stores.
- Work with AutoCAD Map 3D's Industry Models.

Prerequisites

- Note: This guide is designed for the Windows version of AutoCAD® 2021. It may not be compatible with the Mac version of AutoCAD 2021.
- Access to the AutoCAD Map 3D 2021 Windows version of the software. The exercises and files included with this guide might not be compatible with prior versions.
- Experience with AutoCAD or AutoCAD-based products and a sound understanding and knowledge of Mapping and GIS terminology.
- Working knowledge of Microsoft® Windows® software.

Using this Learning Guide

The lessons are independent of each other. However, it is recommended that you complete these lessons in the order that they are presented unless you are familiar with the concepts and functionality described in those lessons.

Each chapter contains:

- **Lessons -** Usually two or more lessons in each chapter.
- **Exercises -** Practical, real-world examples for you to practice using the functionality you have just learned. Each exercise contains step-by-step procedures and graphics to help you complete the exercise successfully.

Downloading and Installing the Exercise Files

The Exercise Files page in this learning guide contains a link and instructions to download and install all of the data required to complete the exercises.

Feedback

We always welcome feedback on the learning guides. After completing this course, if you have suggestions for improvements or want to report an error in the learning guide or with the exercise files, please send your comments to *feedback@ASCENTed.com*.

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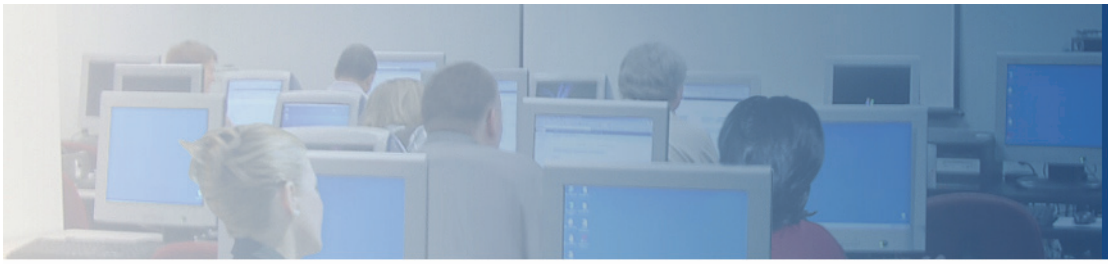


Chapter

1

Getting Started

The AutoCAD® Map 3D software is based on the AutoCAD® software and contains all of that software's functionality. It also contains its own powerful tools designed for mapping and geographic information systems (GIS) professionals.

Objectives

After completing this chapter, you will be able to:

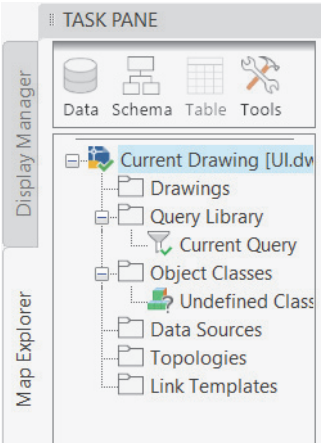
- Describe the elements of the AutoCAD Map 3D user interface.
- Explore the AutoCAD Map 3D user interface.

Lesson: AutoCAD Map 3D User Interface

Overview

The AutoCAD Map 3D software provides a robust environment with several ways of viewing its many ribbons and workspaces. You view the various ways of customizing the interface according to the type of work you are planning to perform.

Map Explorer is a key element of the user interface, as shown in the following illustration.



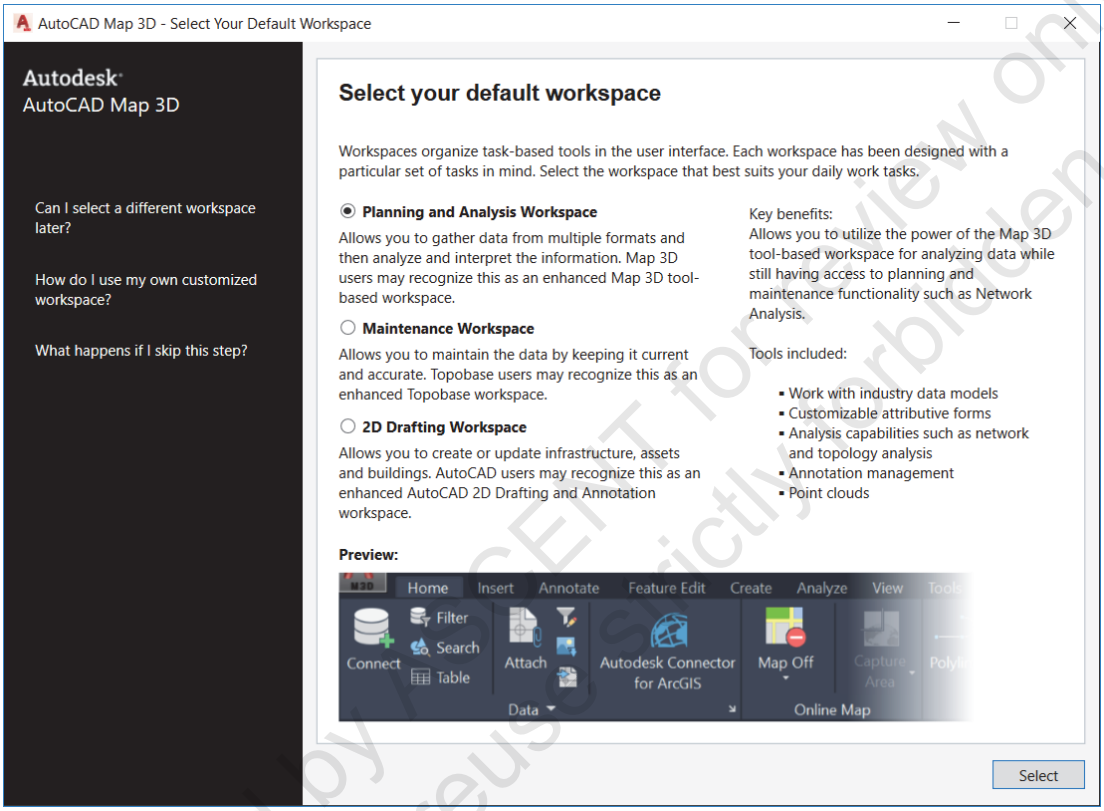
Objectives

After completing this lesson, you will be able to:

- Describe the elements of the AutoCAD Map 3D user interface.
- Explore the AutoCAD Map 3D user interface.

About the AutoCAD Map 3D User Interface

This first time you open the AutoCAD Map 3D software, you are prompted to select your default workspace. The software provides three workspace options, as shown in the following illustration.



The Planning and Analysis Workspace has replaced the tool based workspace containing tools from the AutoCAD Map 3D software. It enables the gathering of data from multiple formats and the analyzing of that data. It also has maintenance and planning functionality. This workspace is used throughout this learning guide, with the exception of the last chapter covering Industry Models.

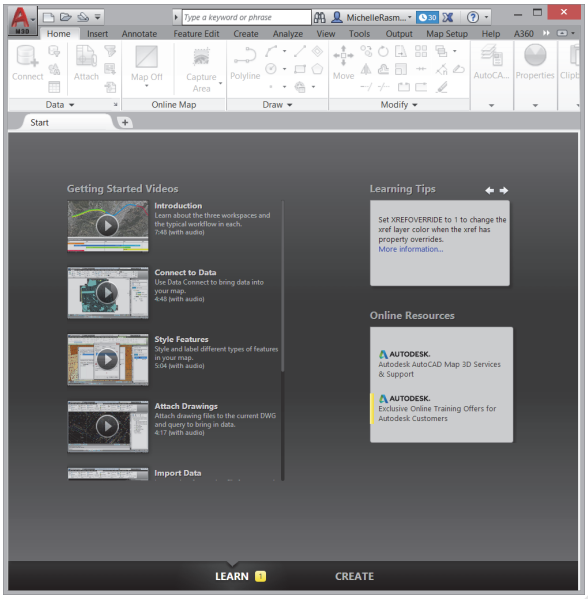
The Maintenance Workspace is an enhanced Topobase workspace that enables you to work with and maintain different data models from a range of formats all in one workspace. This will be used in the last chapter covering Industry Models.

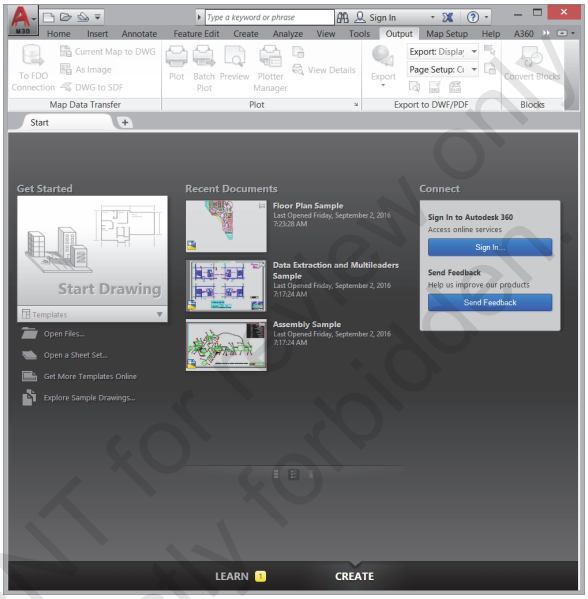
The 2D Drafting Workspace provides the familiar 2D Drafting and Annotation workspace from the AutoCAD software, while adding the Map 3D functionality. It includes the creation and editing tools, annotation management, and clean up tools from the AutoCAD software while still providing Data Connect functionality for planning and maintenance.

A fourth workspace is available, which will be familiar to legacy AutoCAD Map 3D users, called Map Classic. This workspace provides menus and floating toolbars to access tools rather than the ribbon interface that will be used throughout this learning guide.

The AutoCAD Map 3D software contains a wide array of tools to help you interact with the application. Your familiarity with these tools helps you decide how to access the various available functions.

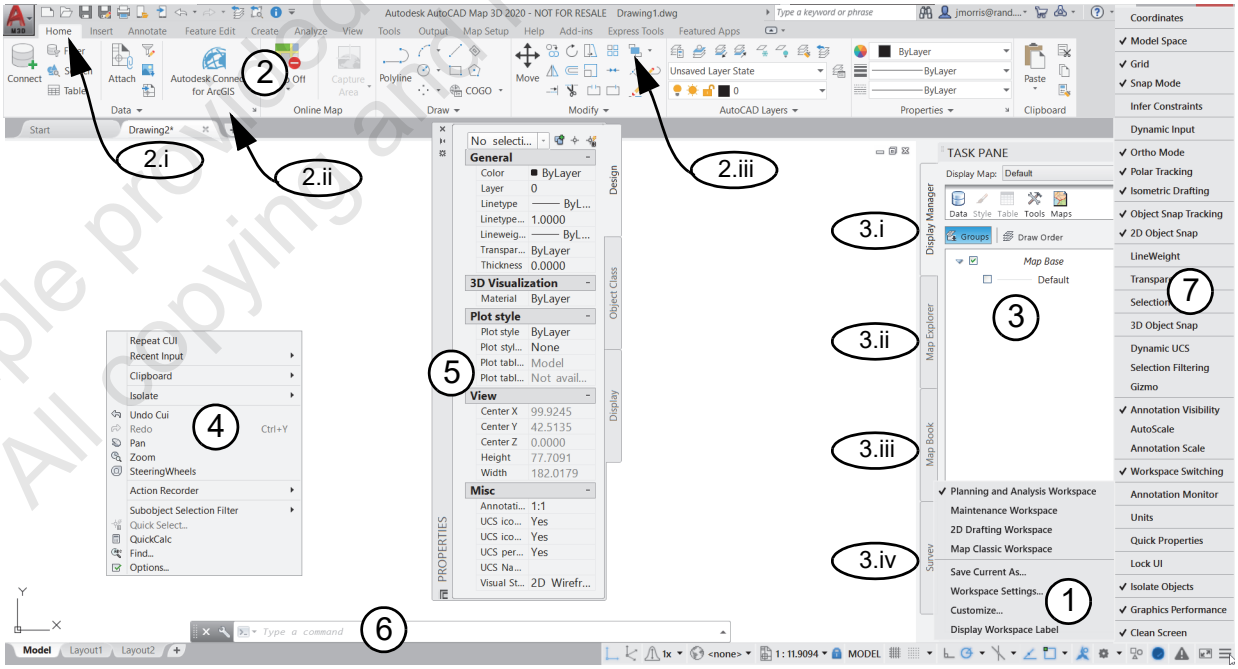
When a drawing is not open, or if you click (New Tab) in the File Tabs area, the Start tab displays in the model window. It contains two content frames: Learn and Create, as shown below.





- **Learn**: Contains Getting Started Videos and Online Resources to help you quickly get up to speed with the AutoCAD Map 3D software.
- **Create**: Provides options on starting a new drawing from a template, or opening an existing drawing or sheet set. It also enables you to connect with other users online via the Autodesk 360 service and send feedback to Autodesk to help improve the product.

The following illustration shows the user interface in the AutoCAD Map 3D software. The key parts are called out below.



Key Parts of the User Interface

The following is a summary of the various user interface tools in the AutoCAD Map 3D software:

1. Four primary workspaces are available: Planning and Analysis, Maintenance, 2D Drafting, and Map Classic.

2. The Planning and Analysis Workspace continues to use the collection of ribbons, some combining tools that work with Geospatial Features or AutoCAD Objects in the AutoCAD Map 3D software. It is divided logically into specific areas of functionality:

    i. Ribbon (or Tab)
    ii. Panel
    iii. Tool

3. The Task pane includes tabs to access:

    i. **Map Explorer -** Provides the main access to critical functions in the AutoCAD Map 3D software. The tree structure includes branches for Drawings, Query Library, Feature Sources, Feature Classes, Data Sources, Topologies, and Link Templates. Shortcut buttons at the top of Map Explorer (Data, Schema, Table, Tools, and Remove) offer quick access to common tasks.
    ii. **Display Manager -** Used to create stylized versions of maps.
    iii. **Map Book Tasks -** Used to create plot sets.
    iv. **Survey -** Used to create and store point data.

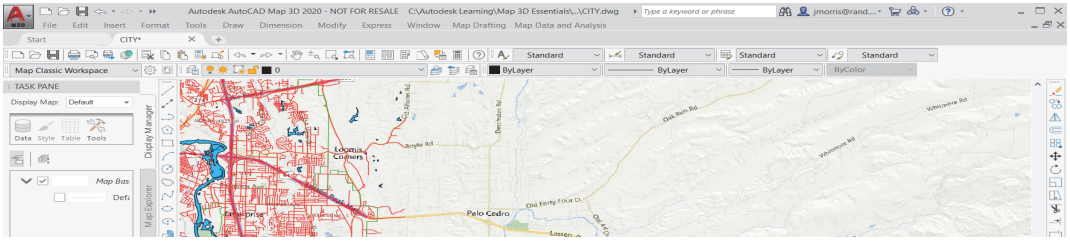
4. Right-clicking on most items in the user interface provides you with instant access to a wide array of commands and functions.

5. The Properties dialog box in the AutoCAD software plays a critical role in the AutoCAD Map 3D user interface. Double-clicking on an object opens the Properties palette, which displays the object's properties from the AutoCAD software and AutoCAD Map 3D software.

6. Press <Ctrl>+<9> and click **Yes** in the *Command Line - Close Window* dialog box to confirm to toggle the command line at the bottom of the window in the AutoCAD Map 3D software.

7. Customize which commands display in the Status Bar by clicking (Customization) on the Status Bar and selecting items from the list.

8. A legacy Map menu is available by loading the Map Classic Workspace, as shown in the following illustration.



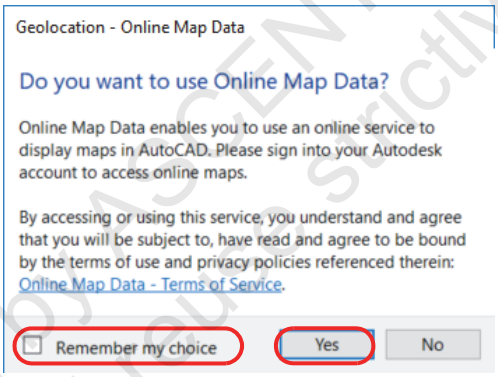
Online Map Services

Coordinate zones play an important role in Map 3D and help to unify a variety of different drawings and GIS information. Coordinate zones are discussed in detail in a later chapter. Once a coordinate zone is assigned to a drawing, the Online Map service becomes available (but an Autodesk account is required for access).

The online maps are geolocated. They have the following characteristics:

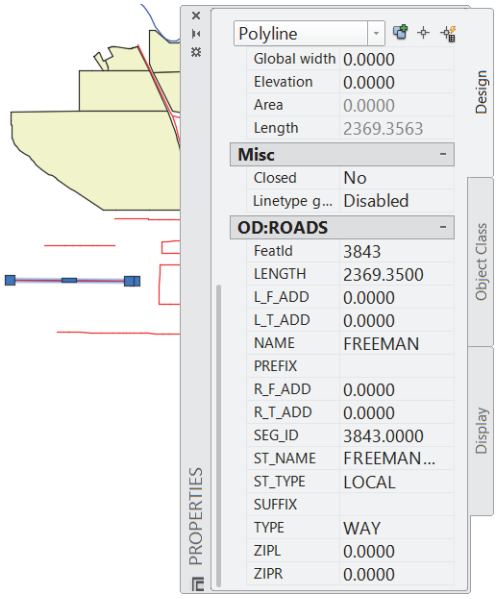
- The map is temporary (below we will examine options to "capture" a map).
- The map displays behind all other objects in the drawing, thus no need for changing display orders.
- The map covers a large area: the extents of the coordinate zone assigned to the drawing.
- As the map is temporary, you cannot plot the map unless you have previously captured it.

The first time you access the Online Map service, you are greeted with a splash screen outlining the "fine print" along with a link to the **Terms of Service**. You need to accept these by clicking **Yes** in order to use this service, as shown in the following illustration.



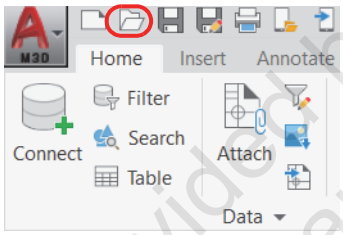
You can select the **Remember my choice** checkbox to avoid seeing this splash screen in the future. If you have checked the box previously but want to restore the splash screen, you can go through the Systems tab in the Options dialog box to change the Hidden Messages setting.

Exercise: Exploring the AutoCAD Map 3D User Interface

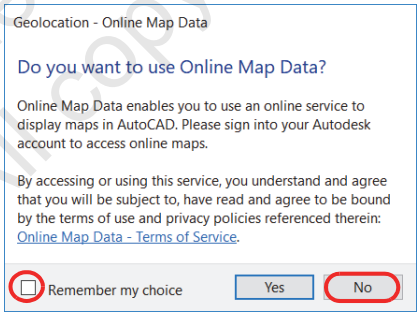


Map object data displayed in the AutoCAD Properties palette.

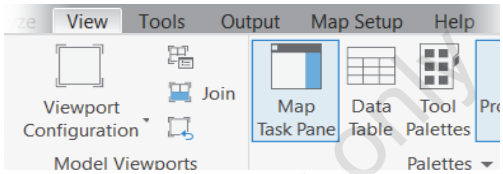
1. Open ...*1-Getting Started\UI.dwg*, as shown in the following illustration.



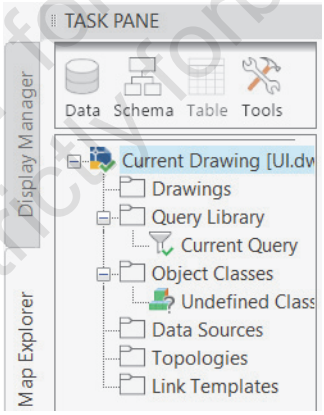
2. If a splash screen appears asking if you want to use the Online Map Data, click **No**. Do not click the **Remember my choice** checkbox.



3. Click the View ribbon. Under Palettes, click Map Task Pane, as shown in the following illustration. The Task Pane is toggled on or off by default on the right side of the screen.

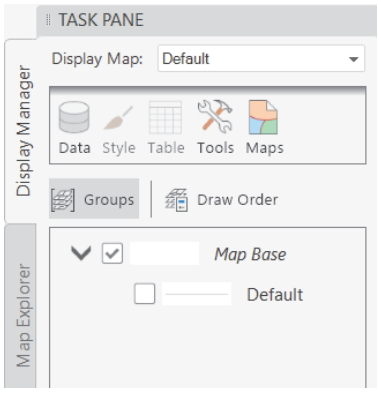


4. Look through the items in Map Explorer tab. Click Data, Schema, and Tools at the top, as shown in the following illustration. Note the tree structures for critical Map items and functions.

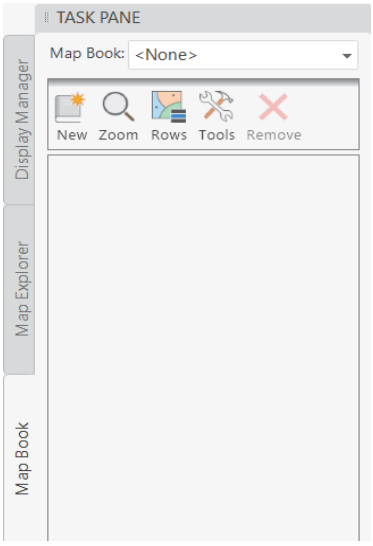


5. Select the Display Manager tab.

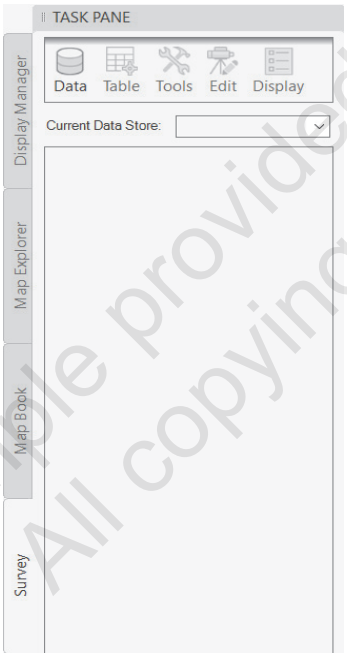
- Look through the Display Manager. This is where you compose special display configurations.
- Click Data, Tools, and Maps at the top, as shown in the following illustration, to see the items that you can access through them.



6. Select the Map Book tab, as shown in the following illustration, in which you will compose special Map plot configurations called Map Books.



7. Select the Survey tab, as shown in the following illustration, in which you can create Survey Data Stores with imported point information.

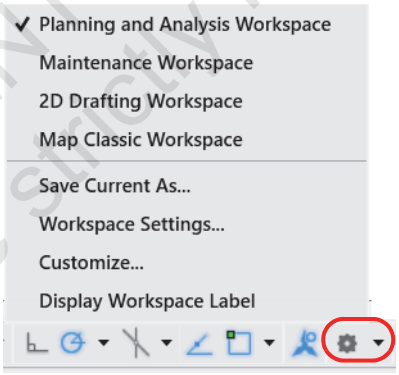


8. Click through the following tabs across the top:

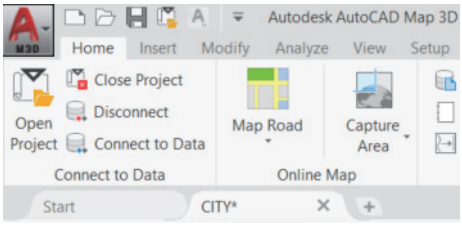
- Home
- Annotate (Map Annotation panel)
- Feature Edit
- Create
- Analyze
- Tools (Map Edit panel)
- Map Setup

Look through each to see what functions can be accessed through them.

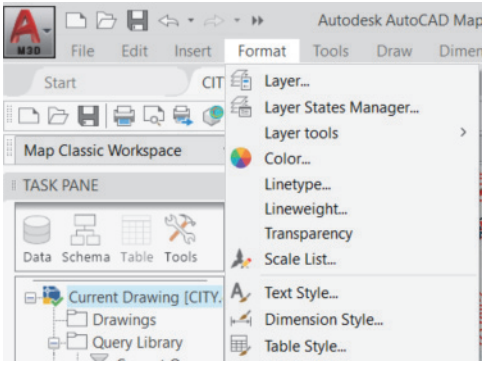
9. At the bottom of the Task Pane, as shown in the following illustration, click the workspace switching tool.



10. Select the Maintenance Workspace. Note that the ribbons change so that the tools are more familiar to Topobase users, as shown in the following illustration.



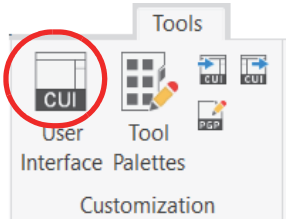
11. Select the Map Classic Workspace. Note the menus and floating toolbars that are available, as shown in the following illustration.



12. Select the Planning and Analysis Workspace.

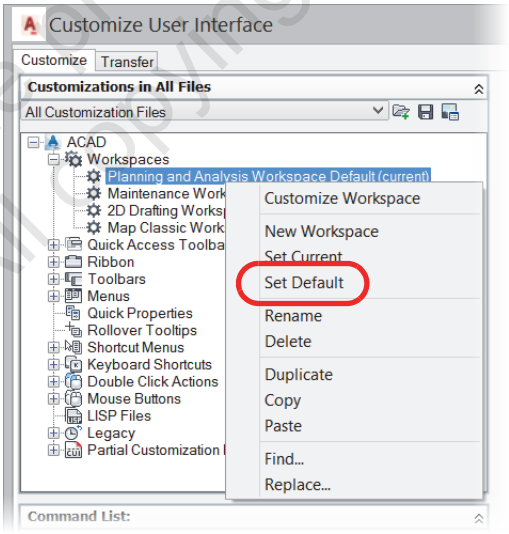
13. Click the Tools ribbon.

- Under Customization, click User Interface, as shown in the following illustration.

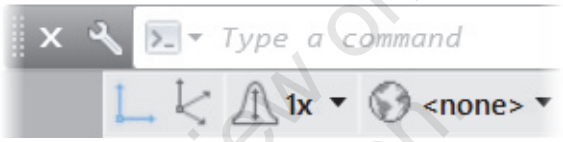


14. In the Customize User Interface dialog box:

- Under Workspaces, right-click on Planning and Analysis Workspace (current).
- Click Set Default, as shown in the following illustration.
- Click OK.

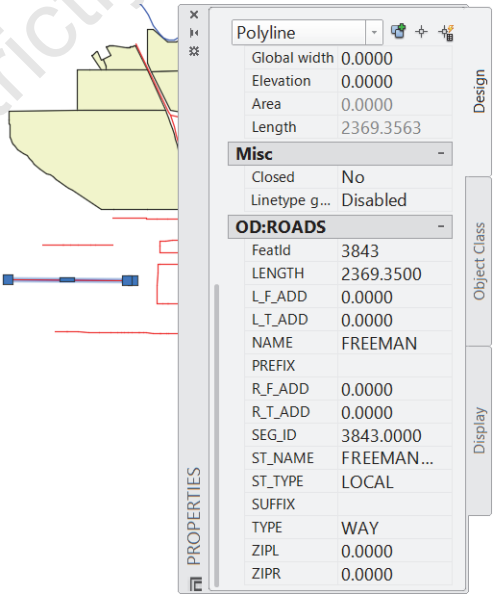


15. On the keyboard, press <Ctrl>+<9>. This will toggle the Command Line on and off. At the bottom of the screen, note the command line disappear and reappear. The Command line is shown in the following illustration.



16. In the drawing editor:

- Click on a red line in the model that represents a road centerline.
- Right-click and click Properties. Note the Map data displayed in the AutoCAD Properties palette, as shown in the following illustration.



17. Save and close the drawing.

Chapter Summary

Having completed this chapter, you can:

- Describe the elements of the AutoCAD Map 3D user interface.
- Explore the AutoCAD Map 3D user interface.