

AutoCAD Map 3D 2009

Workflow Guide

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April 2008

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Contents

Chapter 1	Workflow Guide	1
	Workflow Table of Contents	1
	Set Up	1
	Set Up Your Work Environment	1
	Set Up Your DWG Data	3
	Create a Map Start to Finish	5
	Create a Map Using Feature Sources	5
	Create a Map from CAD Data	7
	Create a Utility Map	10
	Manage Data	12
	Copy SHP File Data to Microsoft SQL Server, MySQL, or Oracle	12
	Create ArcSDE Features from Unclassified Drawings	13
	Copy Features from an FDO Feature Source to a DGN File	14
	Prepare an Existing Oracle Database for Use with Map 3D	17
	Add a Property to an SDF Schema	18
	Add a New Feature Class to an FDO Data Source	19
	Import Vector Data from Another File Format	20
	Digitize a Scanned Paper Map	22
	Work with Coordinate Systems	23
	Transform a Geospatial Feature to a Different Coordinate System	23
	Transform a DWG File to a Different Coordinate System	24
	Combine Data with Different Coordinate Systems	25

Create and Edit Data	27
Find and Edit Objects in Attached Drawings	27
Edit Features in a Geospatial Feature Source	28
Add DWG Data to an Existing Feature Source	31
Add Features to an Existing ArcSDE Feature Class	33
Join Attribute Data to a Geospatial Feature	35
Add Attribute Data Based on Constraints	36
Attach Attribute Data to Drawing Objects	37
Work Offline from Enterprise Database	39
Split a Feature	41
Merge Features	43
Create Themed Maps and Analyze Data	45
Create a Theme to Reveal Patterns in Your Data	45
Use Surfaces, Rasters, and Contour Lines	47
Find and Select Features Within a Buffer Zone	49
Find and Select Features By Attribute and Location	50
Style and Label a Linear Feature	51
Exchange CAD and Geospatial Data	53
Send GIS Data to AutoCAD	53
Move CAD Data to GIS	54
Print and Publish Data	56
Publish to the Web	56
Publish to a Georeferenced DWF	58
Publish to a Map Book	60
Index	61

Workflow Guide



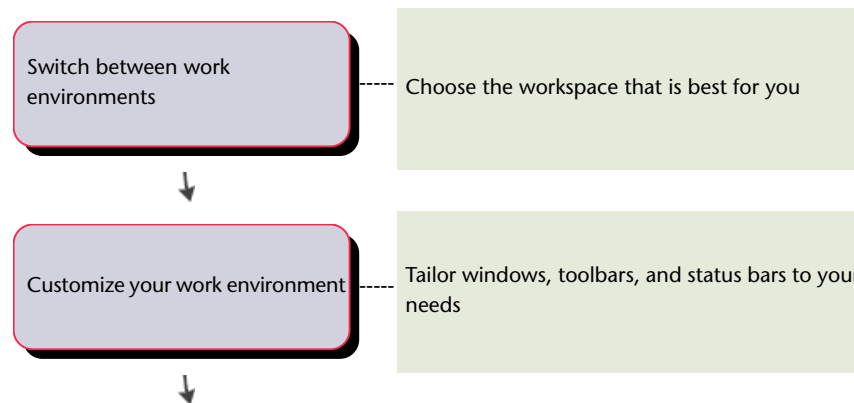
Workflow Table of Contents

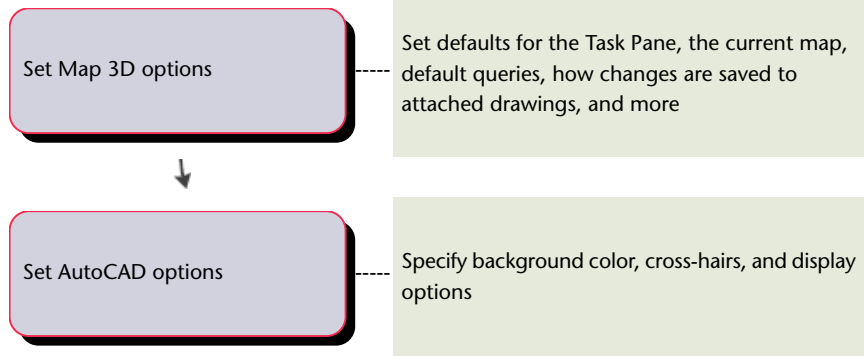
These workflows provide an overview of the steps to perform common GIS tasks.

Set Up

Set Up Your Work Environment

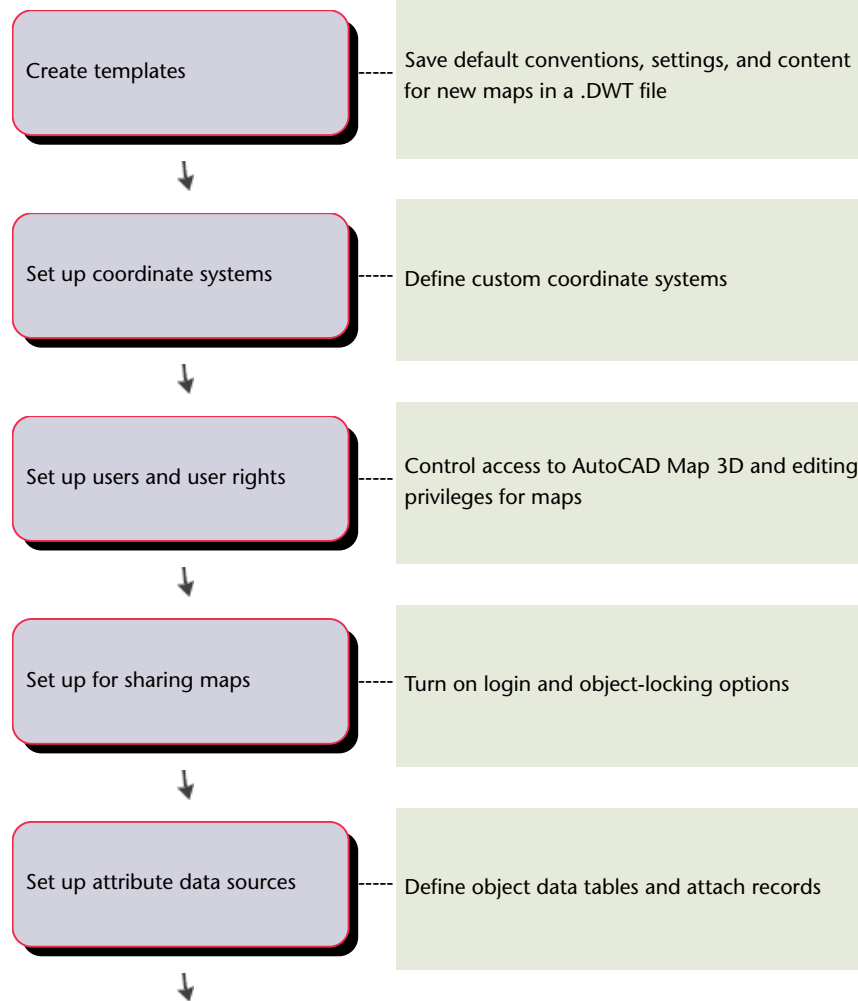
Customize the windows, menus, toolbars, and default settings for AutoCAD Map 3D to suit your work needs.





Set Up Your DWG Data

Use templates to set the defaults for all new maps; create any custom coordinate systems you need; specify user rights and credentials and set up AutoCAD Map 3D for multi-user editing of drawing objects; define classification systems and attribute data sources for your drawing objects.



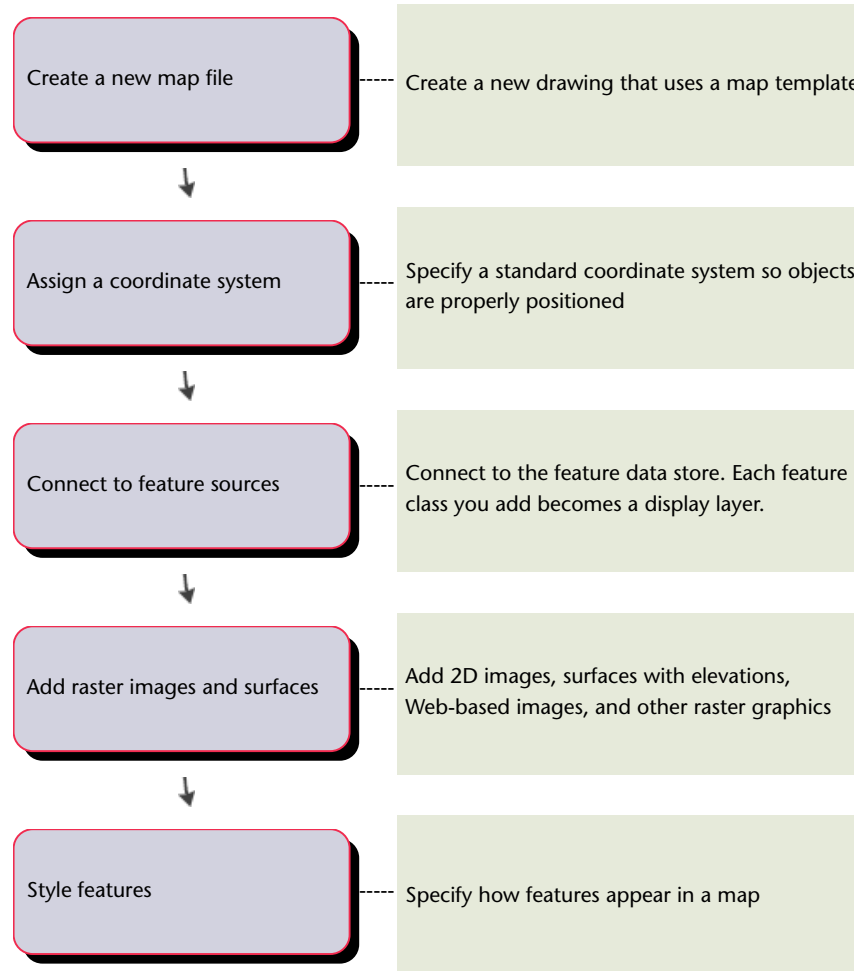
Set up object classification

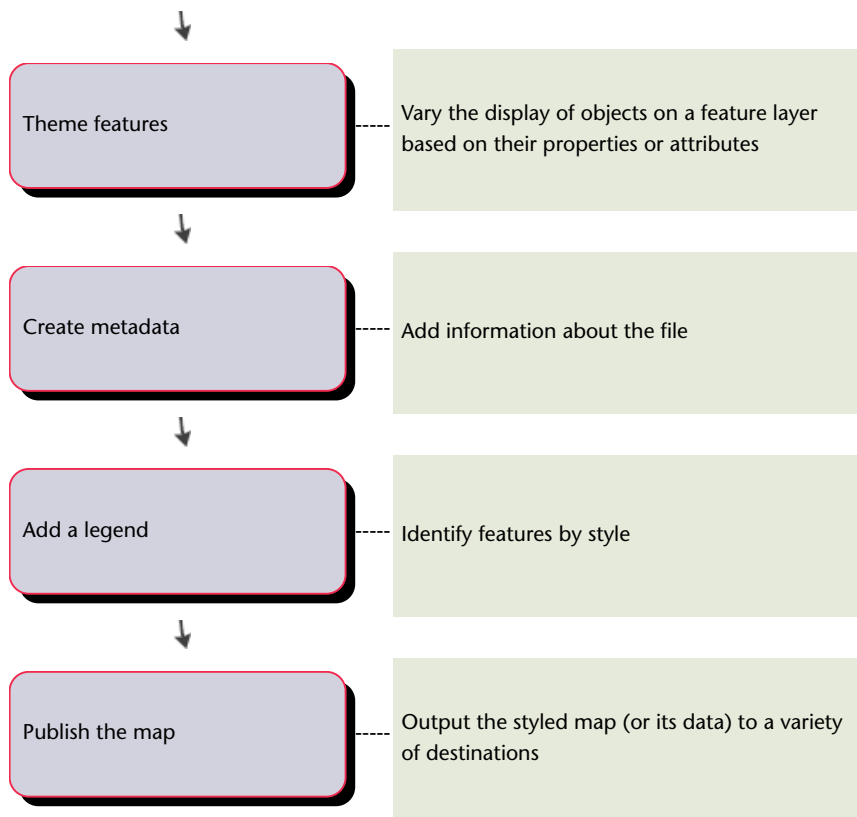
Classify objects by their properties and allowable settings

Create a Map Start to Finish

Create a Map Using Feature Sources

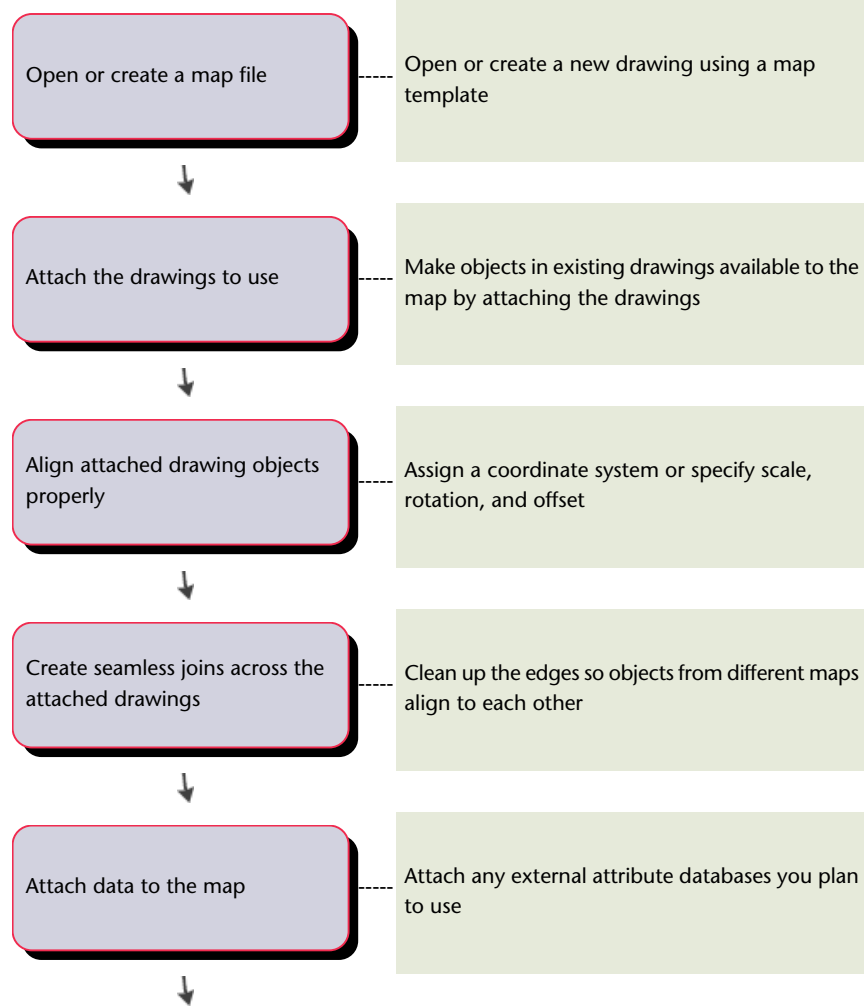
Connect to a geospatial data store, add feature class layers to your map, and style the layers. Create metadata and add a legend to your map.

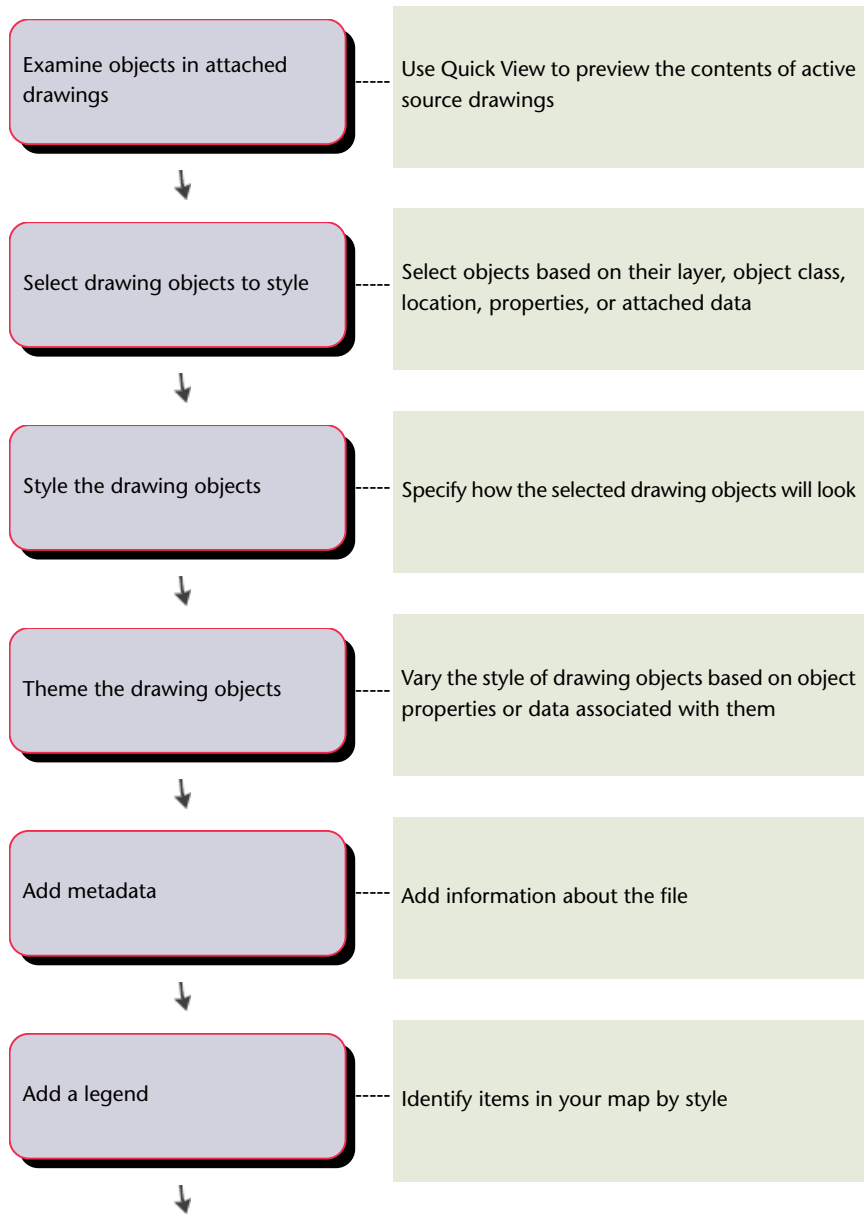




Create a Map from CAD Data

Attach AutoCAD drawings, align them properly, attach attribute data, style the drawing objects, create metadata, and add a legend to your map.



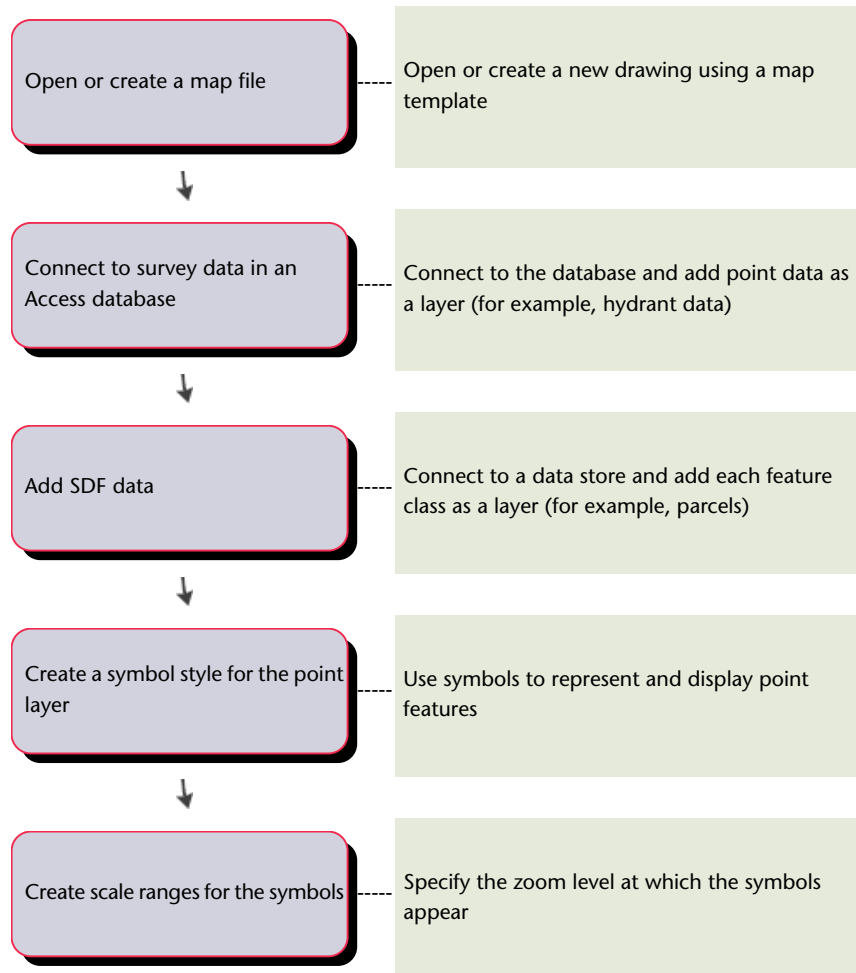


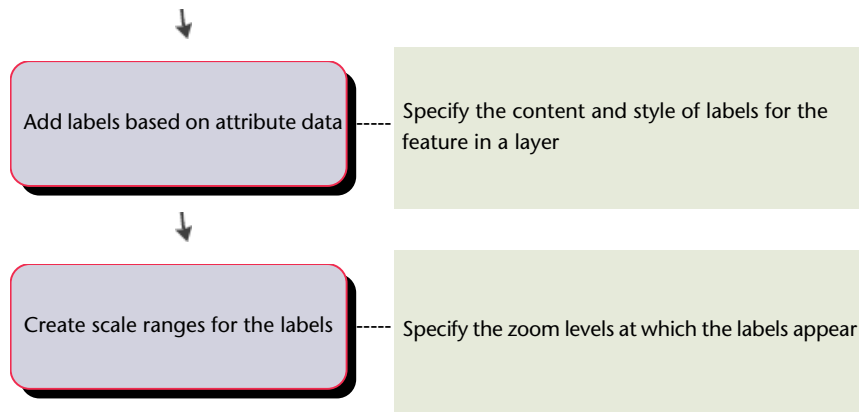
Publish the map

Output the styled map (or its data) to a variety of destinations

Create a Utility Map

Add survey data to a map and overlay it on a feature—for example, show hydrants and parcels. Style the hydrants using symbols, and assign scale ranges so the symbols appear only at certain zoom levels. Style the parcels to include labels based on their attribute data, and assign scale ranges so the labels appear only at certain zoom levels.



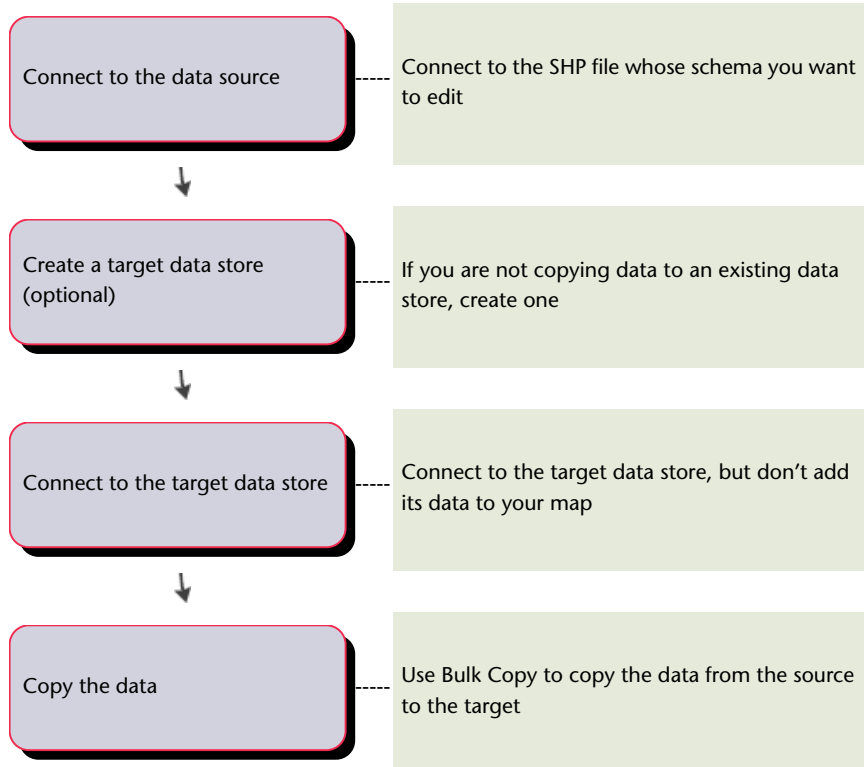


Manage Data

Copy SHP File Data to Microsoft SQL Server, MySQL, or Oracle

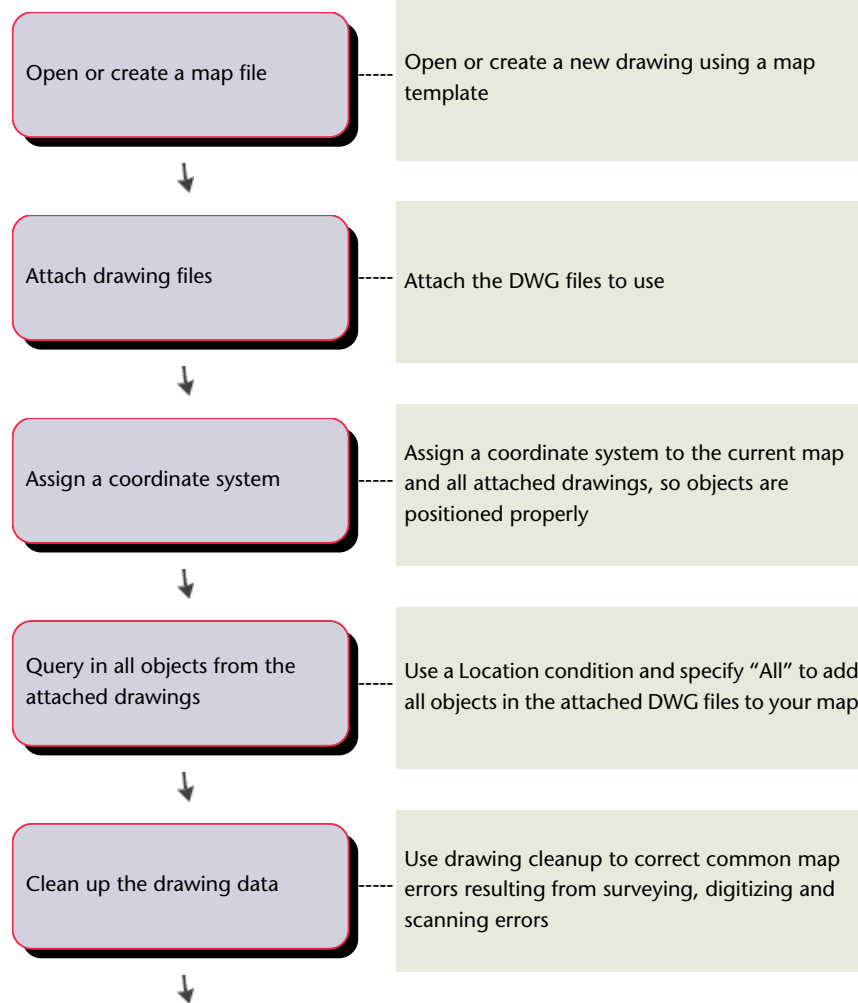
Copy data from one geospatial format to another.

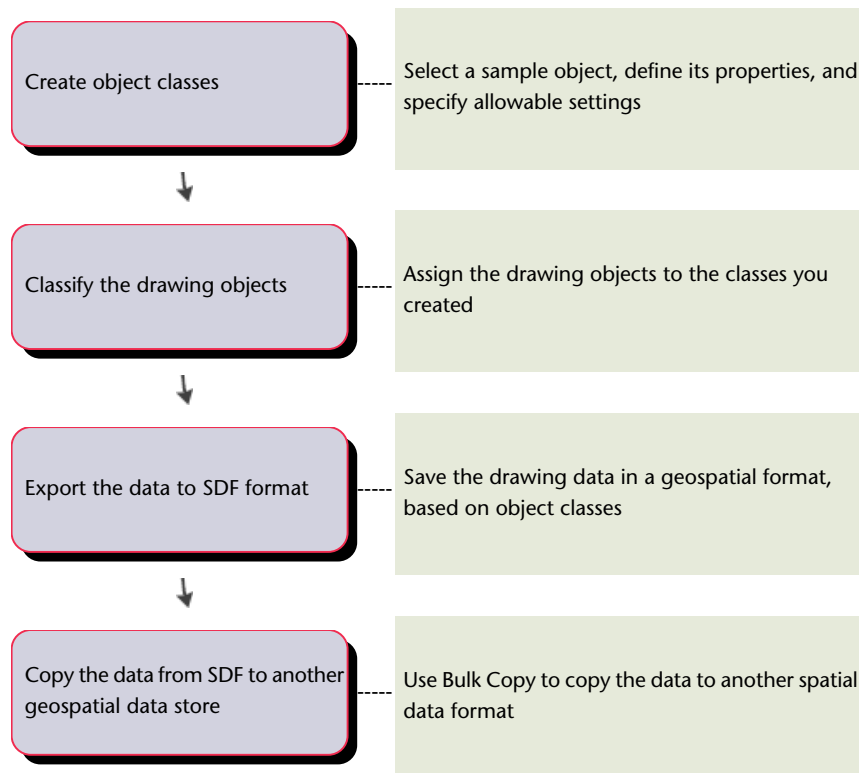
NOTE If you are copying data to SHP format, create a folder as the target data store, rather than a file.



Create ArcSDE Features from Unclassified Drawings

Bring in an unstructured DWG file that needs to be cleaned up and georeferenced. Repair and classify the data, and export it to a geospatial file format (SDF). Then copy the resulting geospatial data to a central GIS repository (ArcSDE).

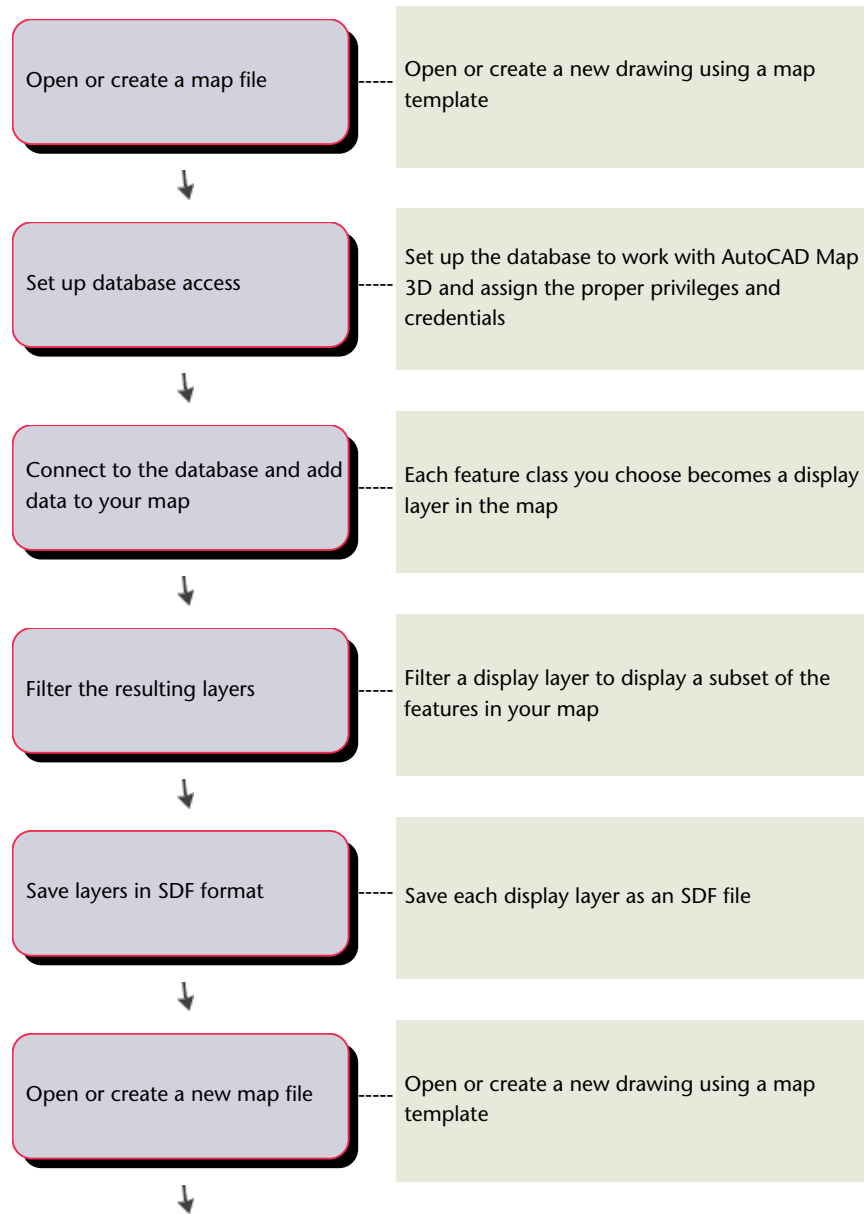


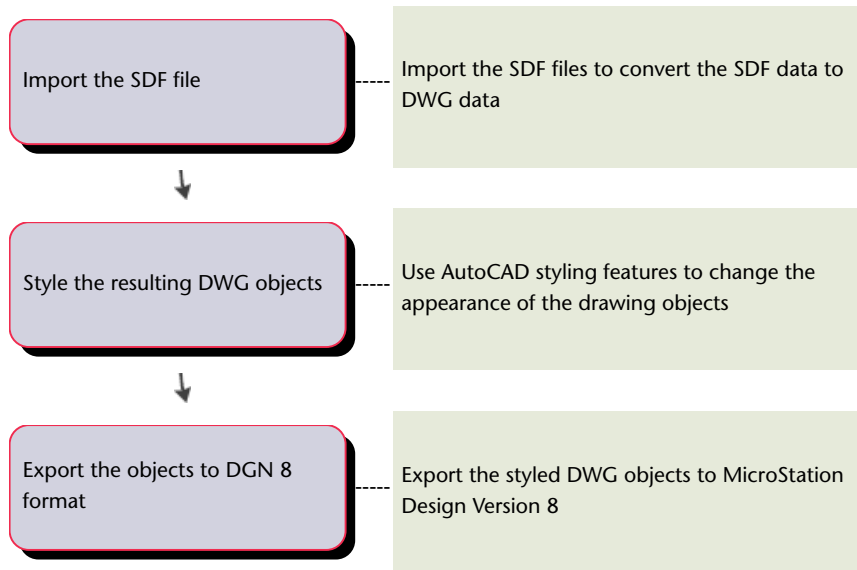


Copy Features from an FDO Feature Source to a DGN File

Get features and related attributes from a database and export them to DGN 8 format.

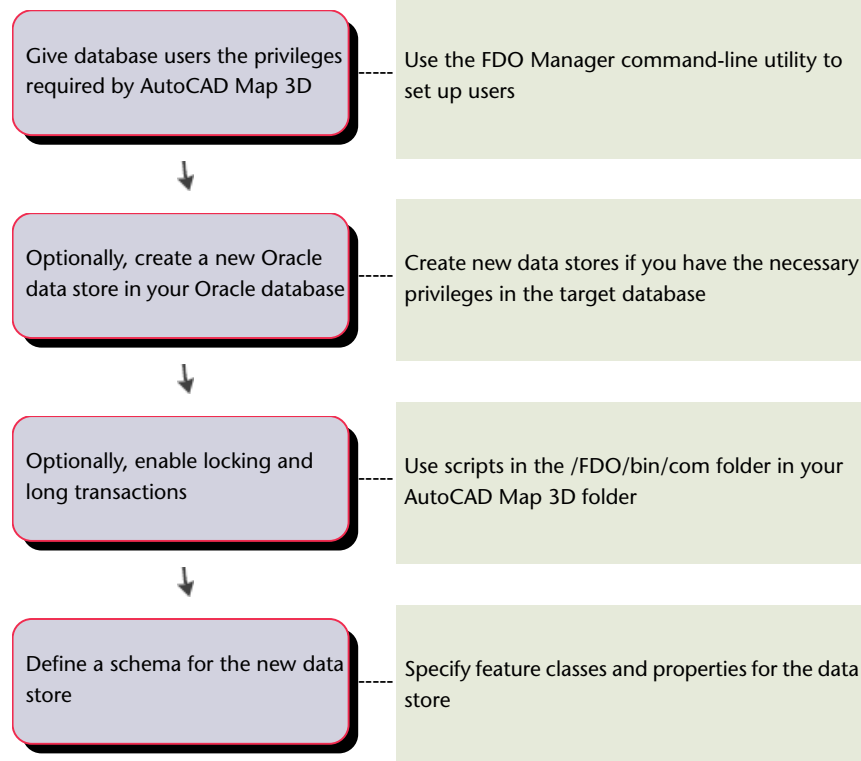
NOTE The coordinate system for the map will automatically match your database. You don't need to assign a coordinate system to the map itself, unless you want to transform the data to a different coordinate system. Generally, you should edit in the same coordinate system as your database. If the data is in different coordinate systems, edit one layer at a time so you are always editing in a coordinate system that matches your data.





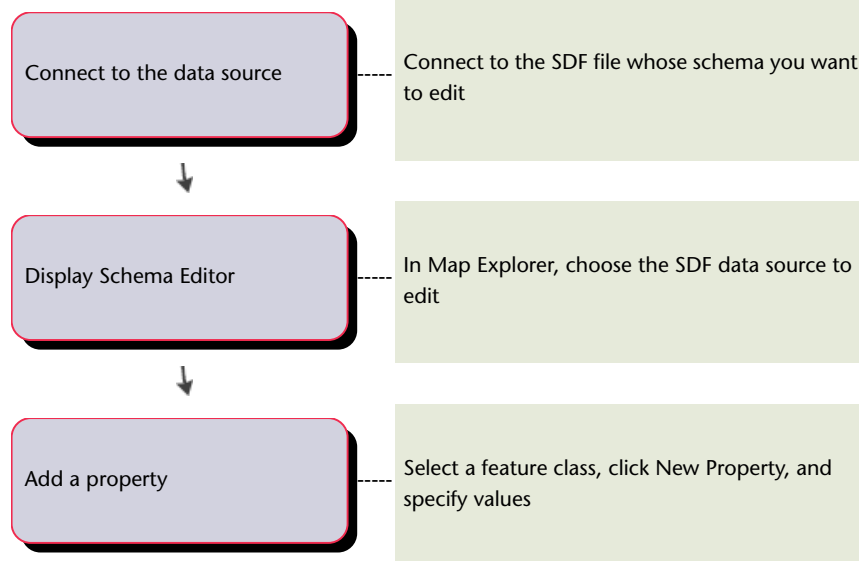
Prepare an Existing Oracle Database for Use with Map 3D

Set up user access and run scripts to enable functionality. Create schemas for use with your data.



Add a Property to an SDF Schema

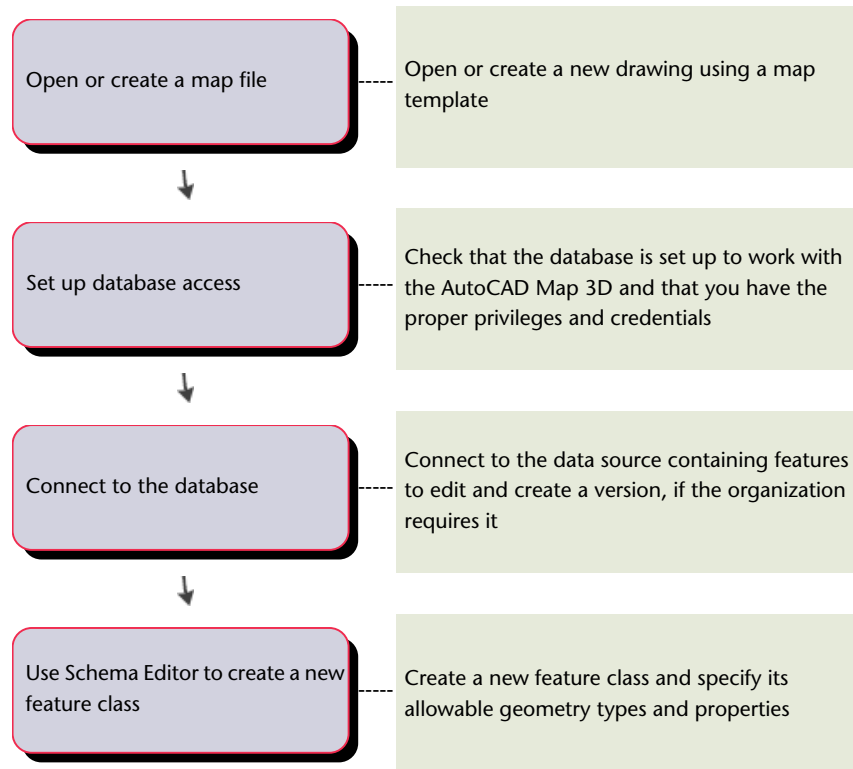
The set of feature classes and their properties is called a schema. Properties are characteristics of all objects in the feature class. For example, a property of a Roads feature class might specify the number of lanes it has, or its speed limit. You can add a property to an SDF schema.



Add a New Feature Class to an FDO Data Source

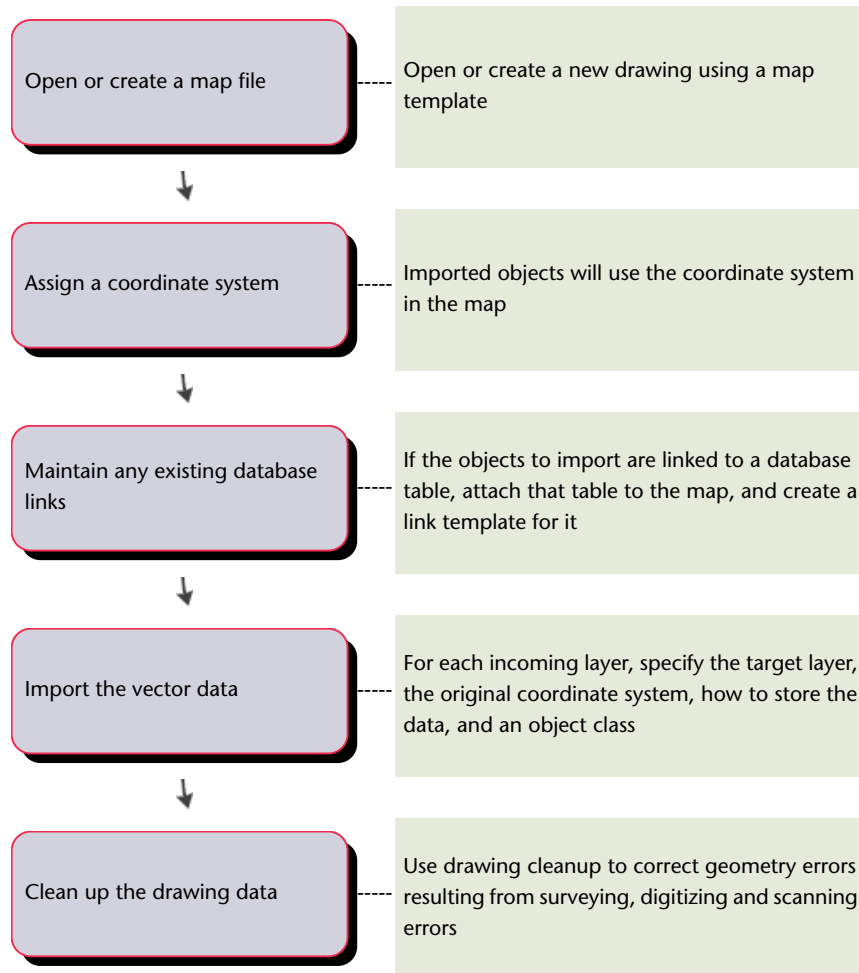
Use Schema Editor to create a new feature class and define its properties.

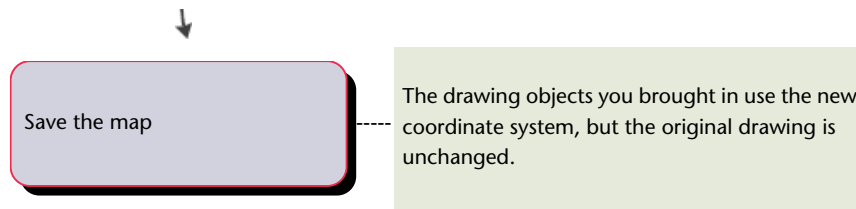
NOTE The coordinate system for the map will automatically match your database. You don't need to assign a coordinate system to the map itself, unless you want to transform the data to a different coordinate system. Generally, you should edit in the same coordinate system as your database. If the data is in different coordinate systems, edit one layer at a time so you are always editing in a coordinate system that matches your data.



Import Vector Data from Another File Format

If you have map data that is not in DWG format, you can import it into AutoCAD Map 3D. Importing converts data to drawing objects, while maintaining coordinate system information and links to data. You can limit the import to a specific area in the map or assign incoming data to existing AutoCAD Map 3D object classes.

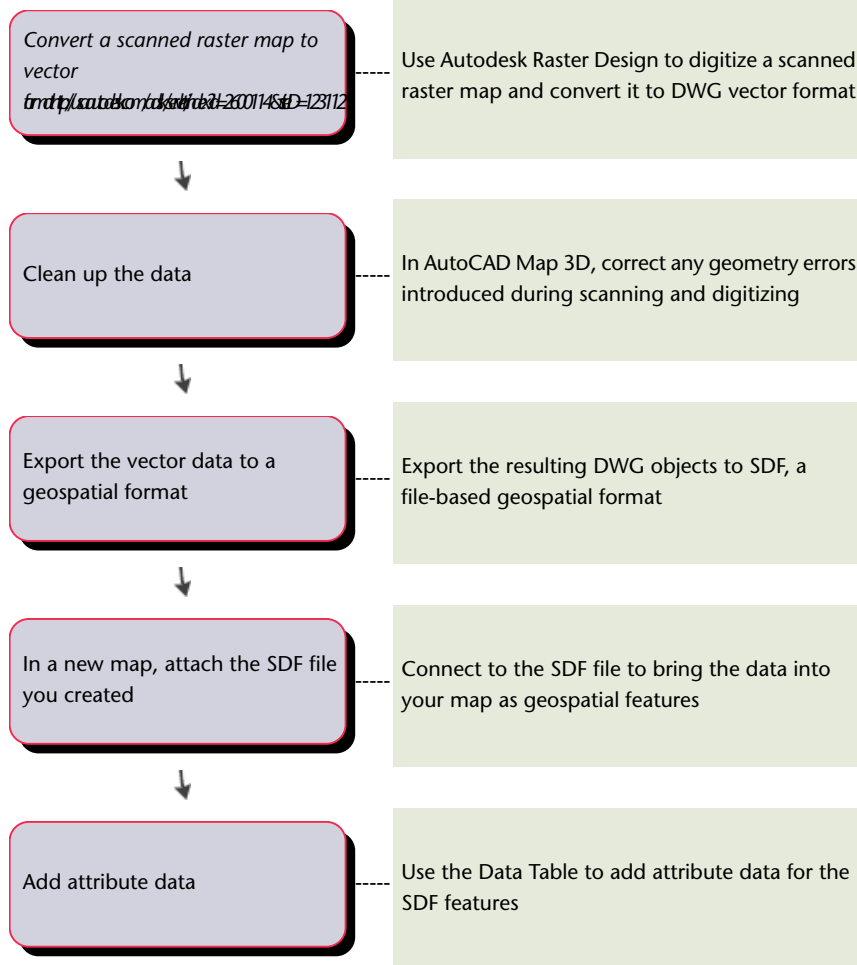




NOTE Changes you make to imported objects do not affect the original map. To edit features and update the original source with your changes, connect to the data rather than import it. See Bringing in GIS Features in the AutoCAD Map 3D Help.

Digitize a Scanned Paper Map

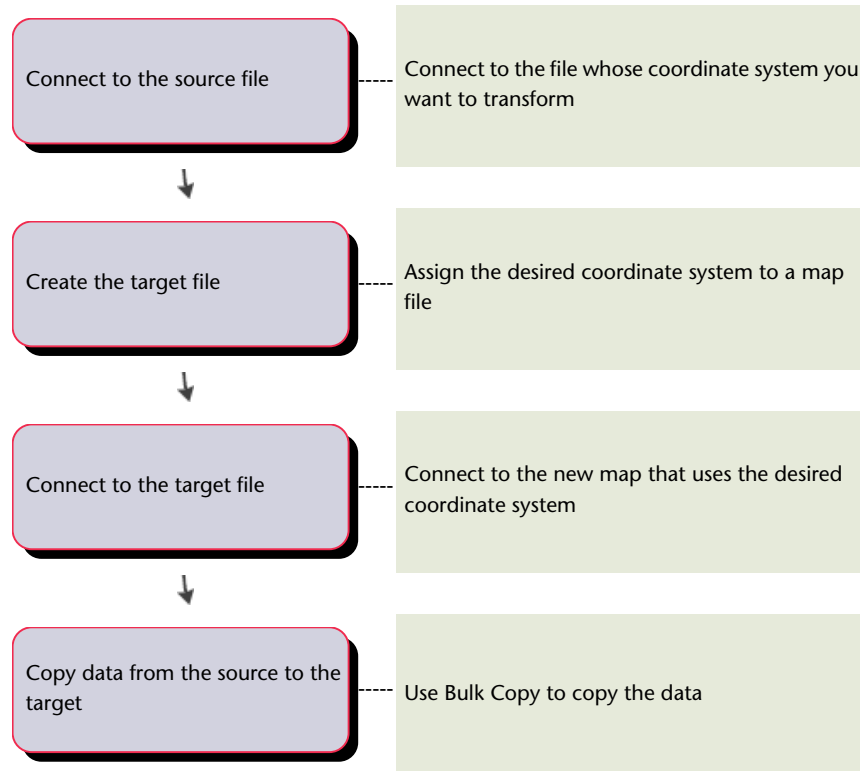
Use Autodesk Raster Design to convert a scanned raster map to vector (DWG) format, and then use AutoCAD Map 3D to clean up any geometry errors and export the data in a geospatial format. Once you connect to the new geospatial data store, you can add attribute data.



Work with Coordinate Systems

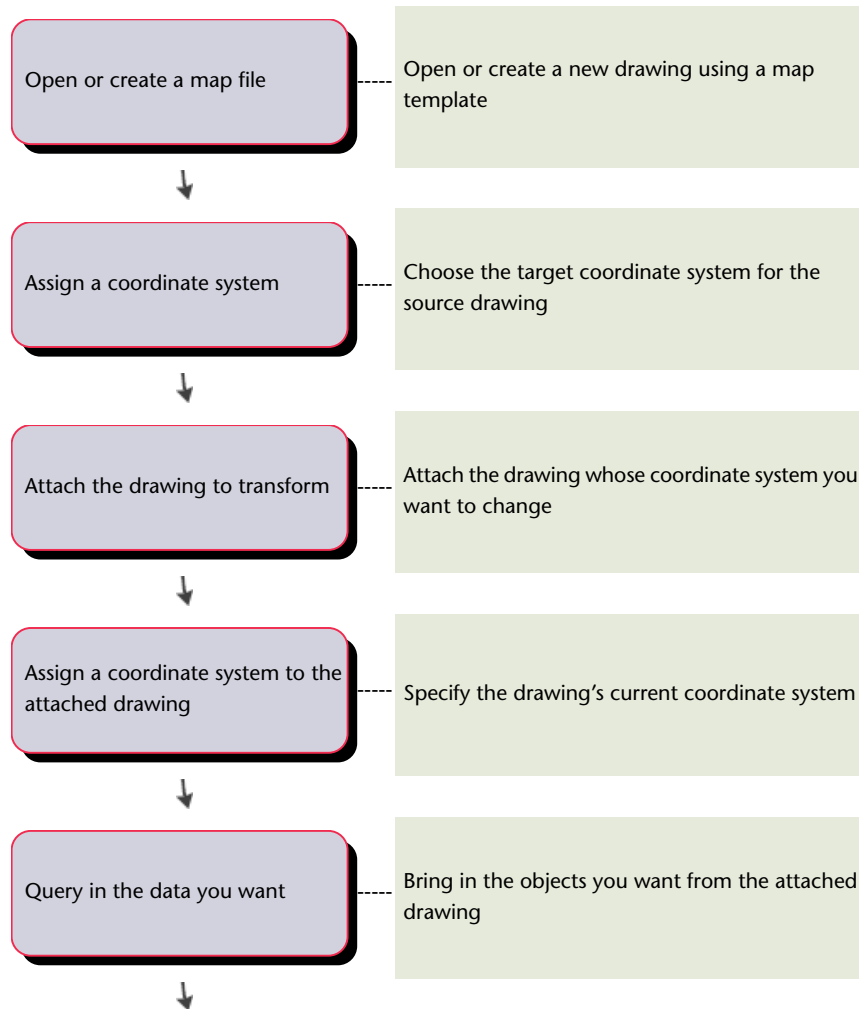
Transform a Geospatial Feature to a Different Coordinate System

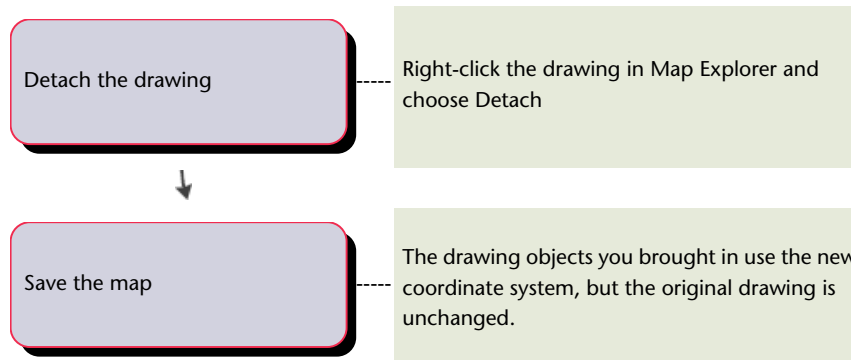
Bulk Copy provides an easy way to transform the coordinate system of a feature source from any provider. This example transforms a SHP file's coordinate system.



Transform a DWG File to a Different Coordinate System

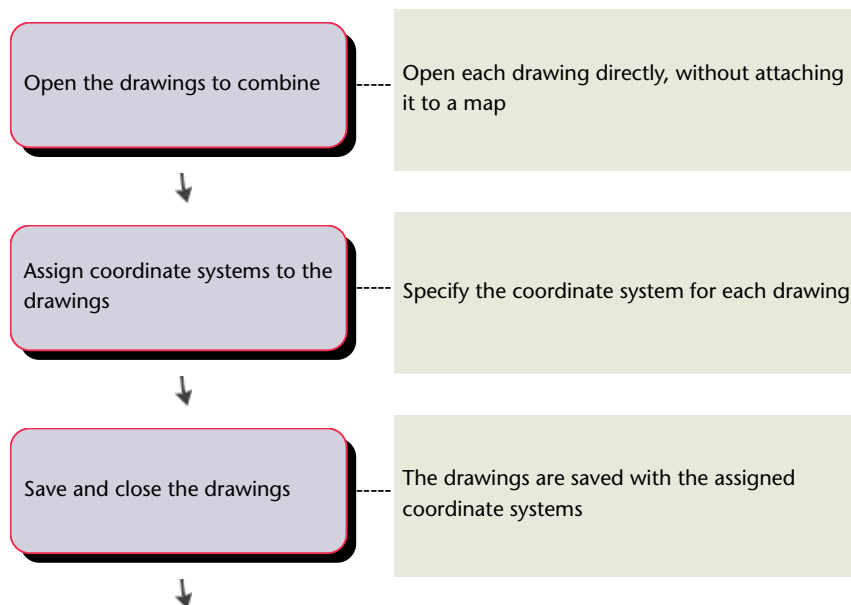
You can transform the coordinate system for drawing objects by adding them to a map that uses a different coordinate system.

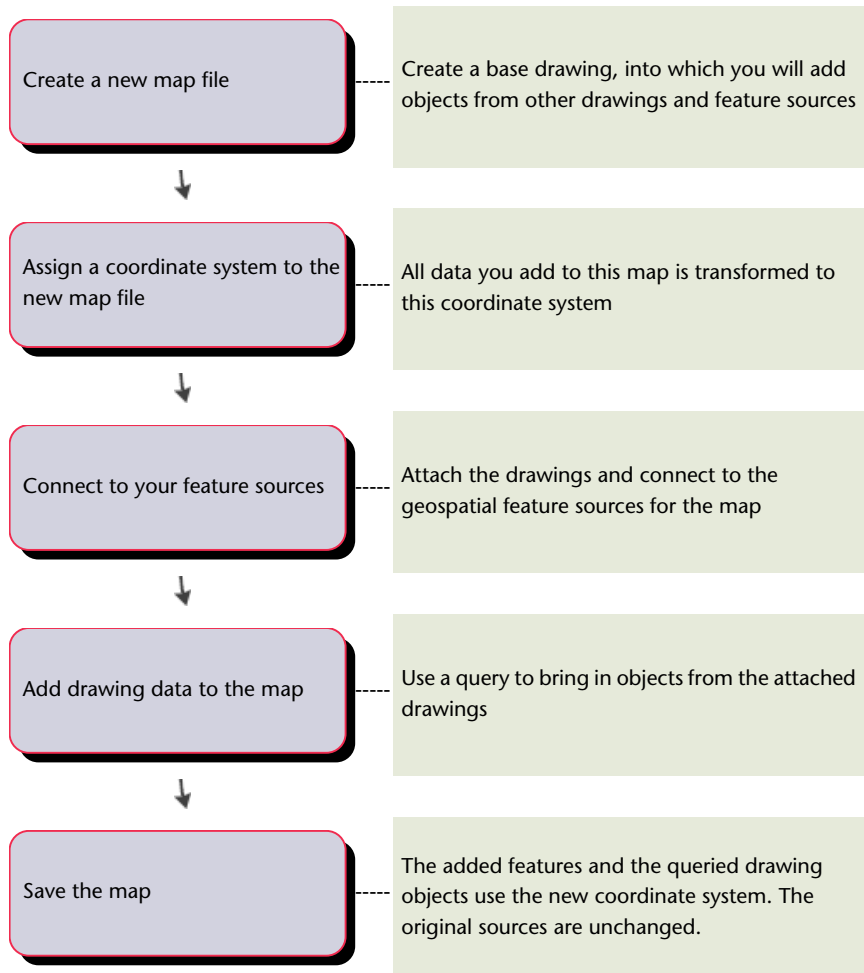




Combine Data with Different Coordinate Systems

Map files and feature sources you use may be created with different coordinate systems. When you bring objects into a map from other sources, AutoCAD Map 3D automatically transforms those objects to the coordinate system of the current drawing.

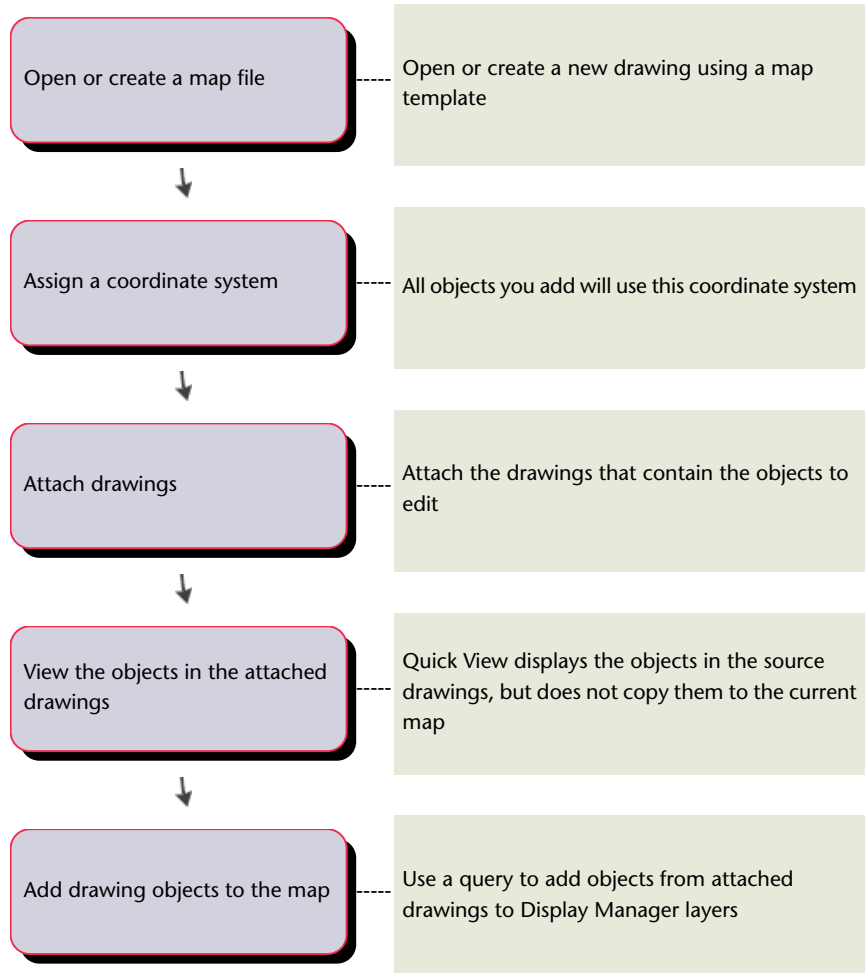


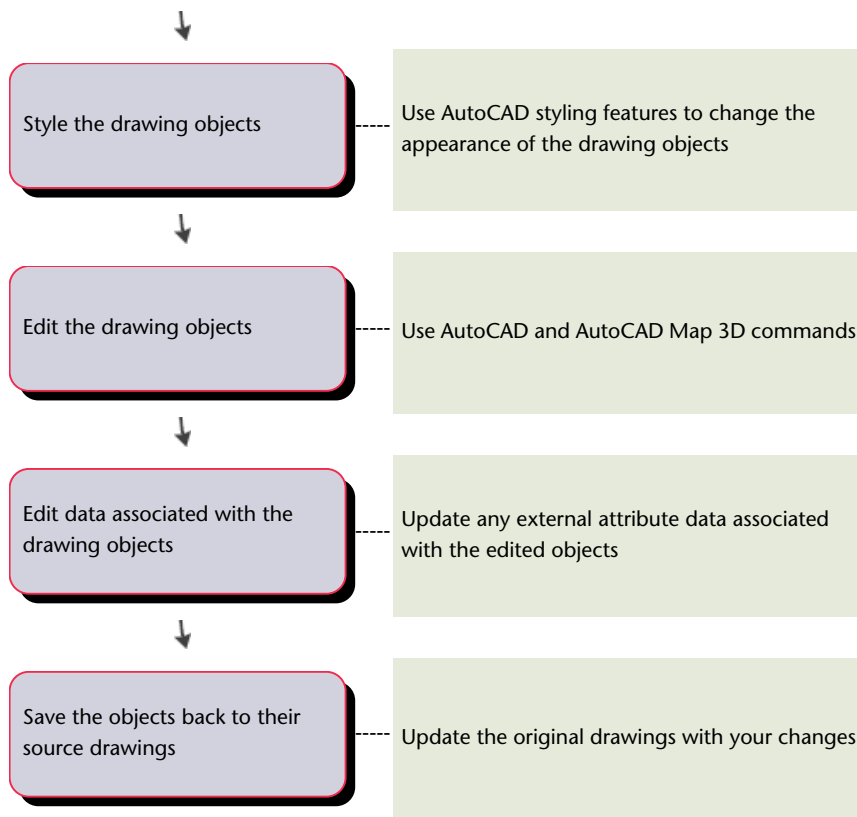


Create and Edit Data

Find and Edit Objects in Attached Drawings

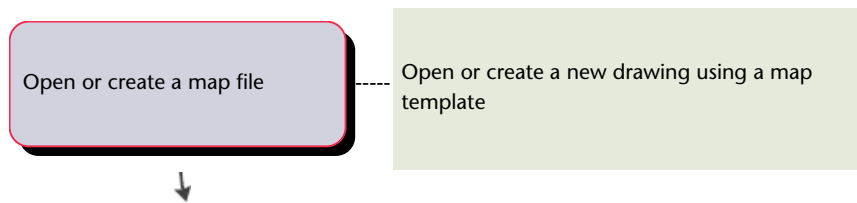
You can edit objects in related drawing by attaching those drawings to the current map and querying in the objects you want.

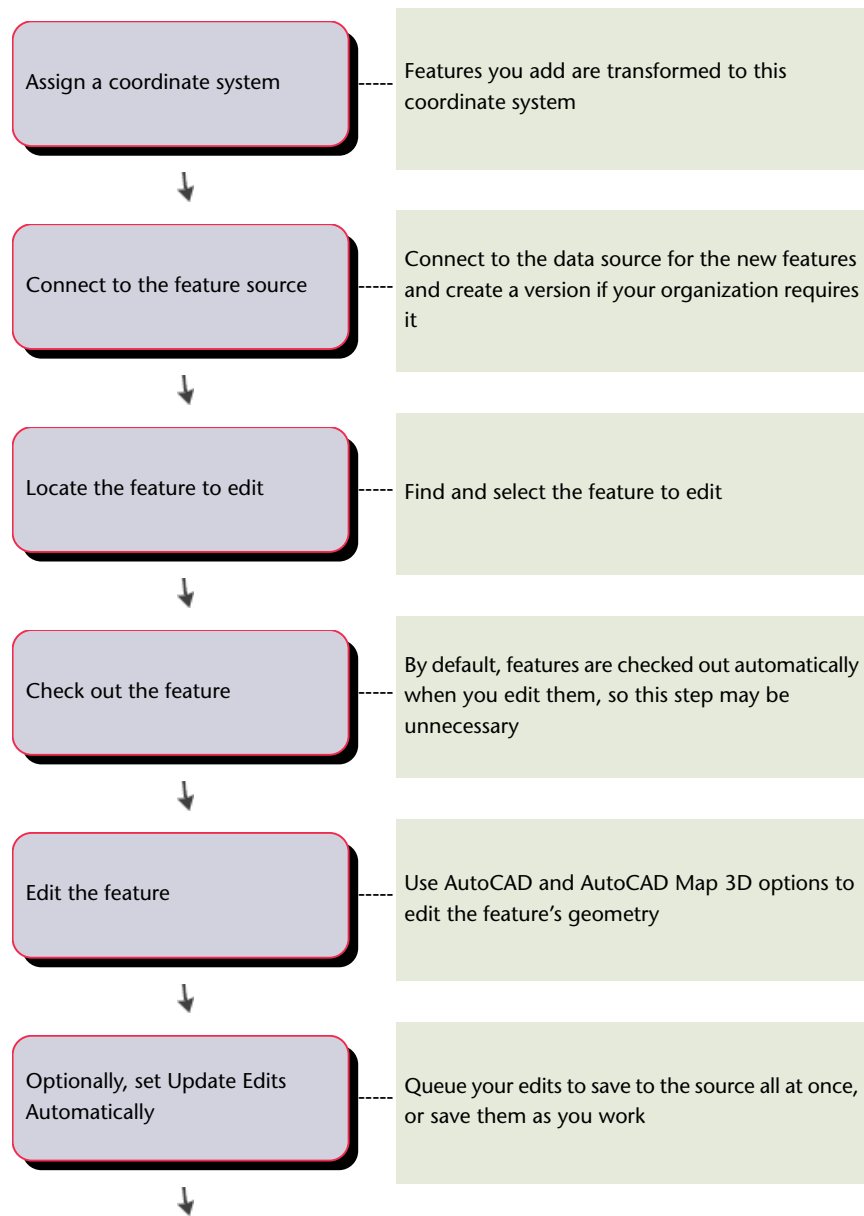


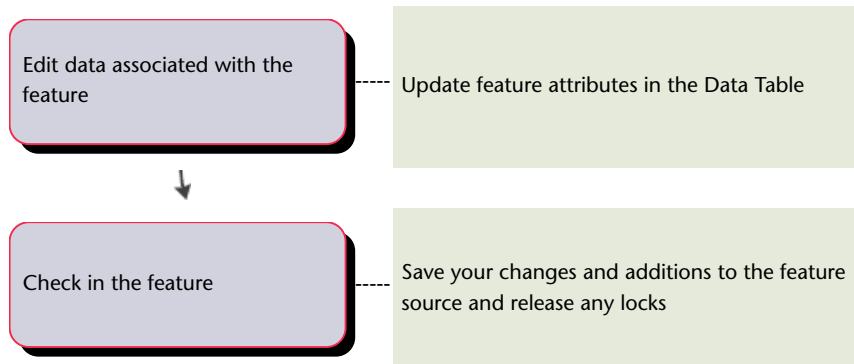


Edit Features in a Geospatial Feature Source

Connect to geospatial feature sources to display the features in your map. You can then check out a feature, edit its geometry and data, and check it back in to update the feature source with your changes.





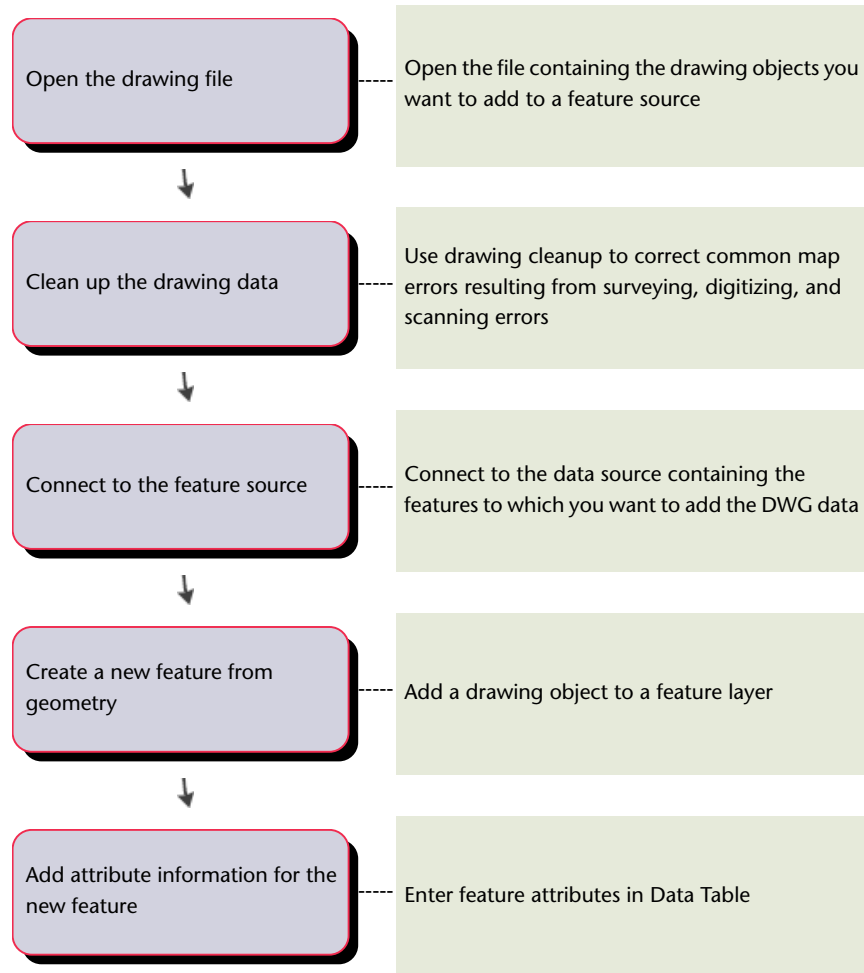


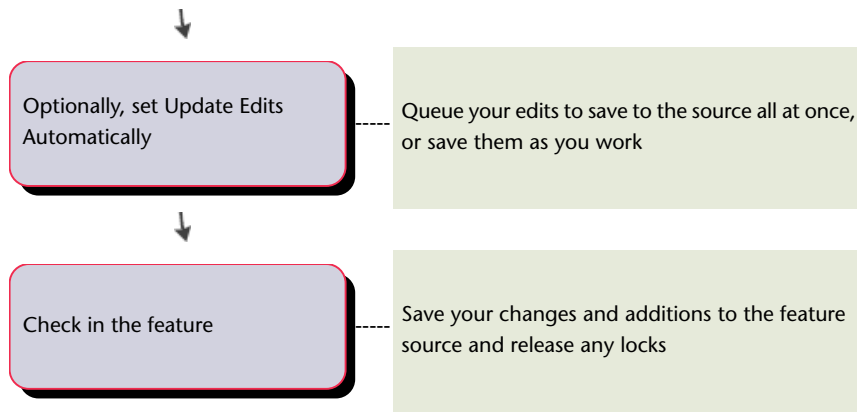
NOTE The coordinate system for the map will automatically match your database. You don't need to assign a coordinate system to the map itself, unless you want to transform the data to a different coordinate system. Generally, you should edit in the same coordinate system as your database. If the data is in different coordinate systems, edit one layer at a time so you are always editing in a coordinate system that matches your data.

Add DWG Data to an Existing Feature Source

You can add drawing objects to a geospatial feature source.

NOTE Use this workflow to add a few objects. To add many objects, use the workflow for exporting to SDF and then bulk copying to SDE, or export drawing data directly to Oracle.

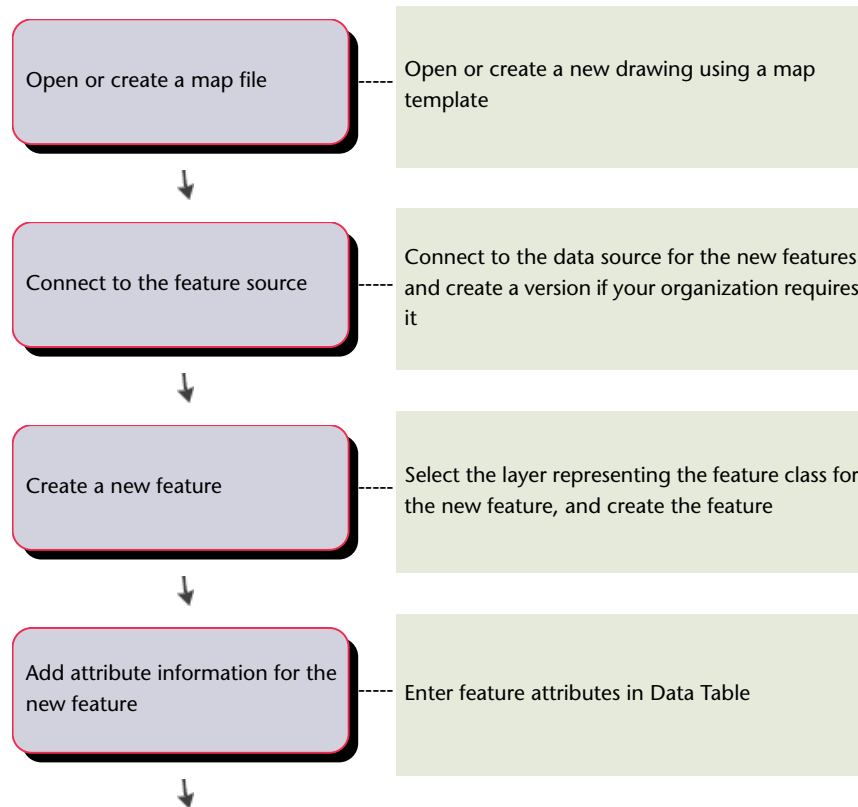




Add Features to an Existing ArcSDE Feature Class

You can add a new feature to an existing feature class in an ArcSDE database.

NOTE The coordinate system for the map will automatically match your database. You don't need to assign a coordinate system to the map itself, unless you want to transform the data to a different coordinate system. Generally, you should edit in the same coordinate system as your database. If the data is in different coordinate systems, edit one layer at a time so you are always editing in a coordinate system that matches your data.



Optionally, set Update Edits Automatically

Queue your edits to save to the source all at once, or save them as you work

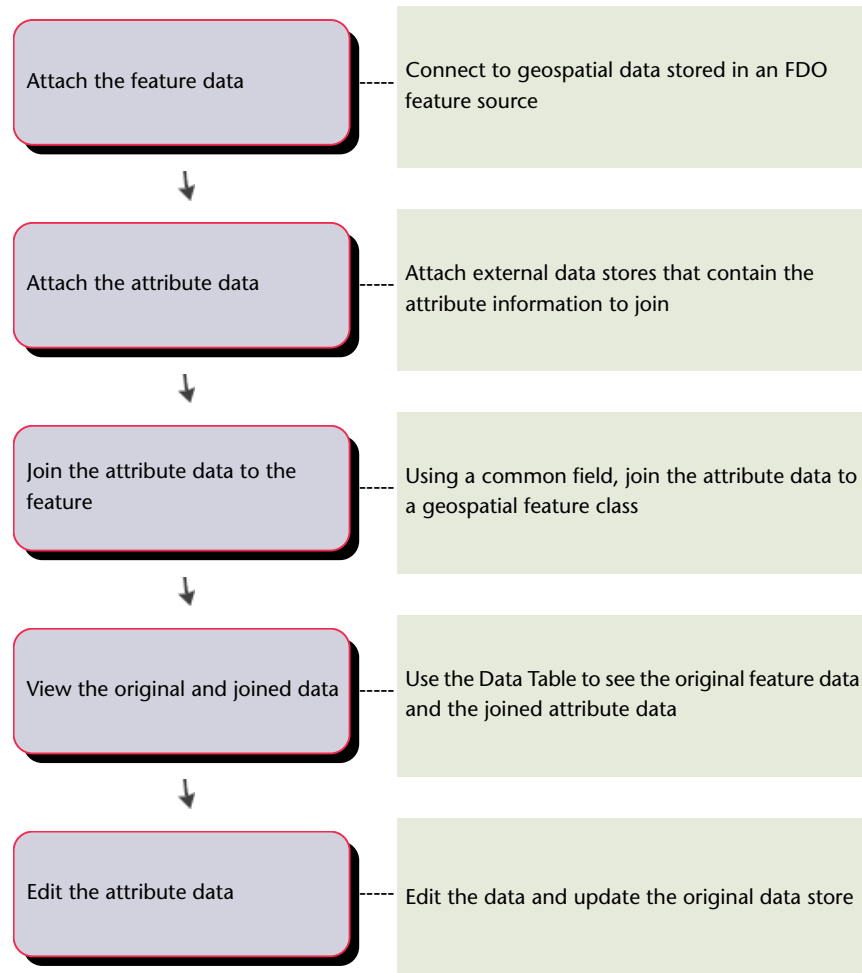


Check in the feature

Save your changes and additions to the feature source and release any locks

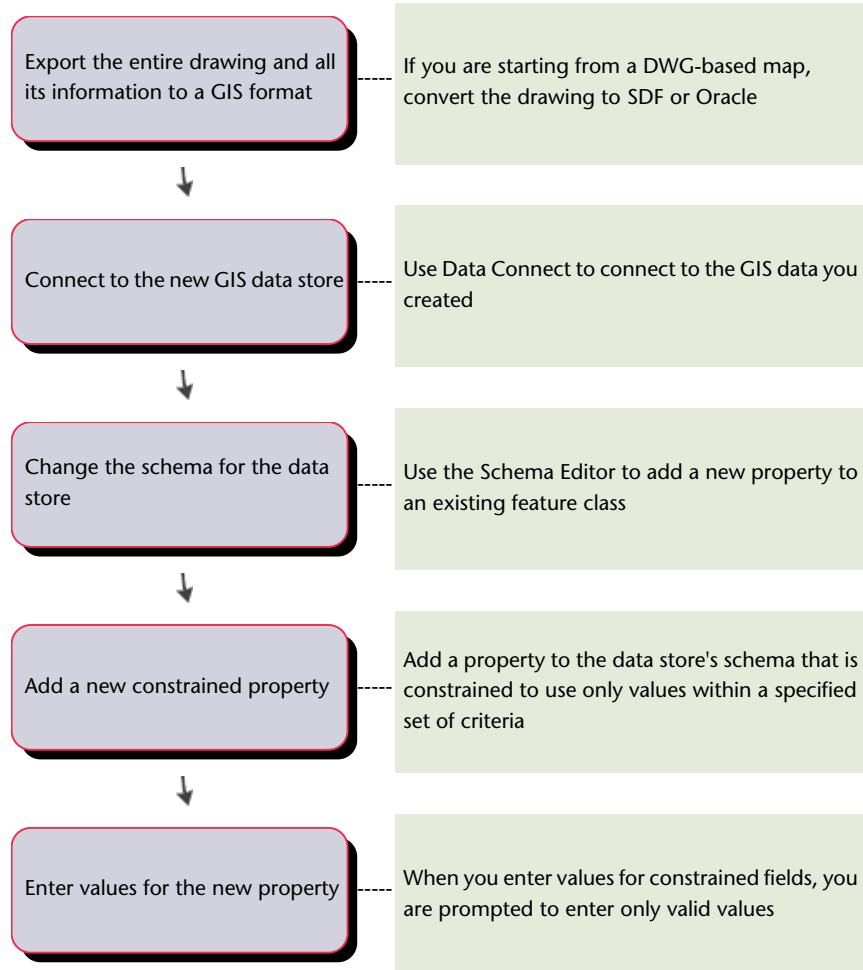
Join Attribute Data to a Geospatial Feature

You can temporarily attach external data to a feature class in your map by specifying a field that the two data sources have in common. For example, you can add assessment data to a parcel layer, using the APN as the common field. You can view and edit the original feature data and the joined attribute data in the Data Table.



Add Attribute Data Based on Constraints

For a GIS data store, add a property that has a limited set of values. For example, add a zoning property whose possible values are limited to a set you specify, or add a numeric property whose value must be within a range you specify.

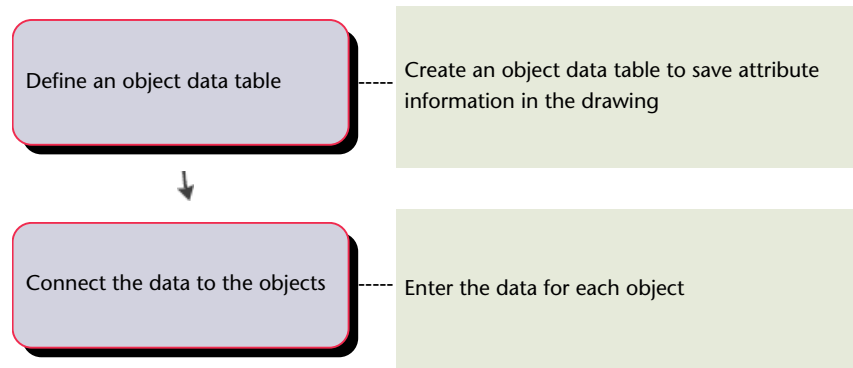


Attach Attribute Data to Drawing Objects

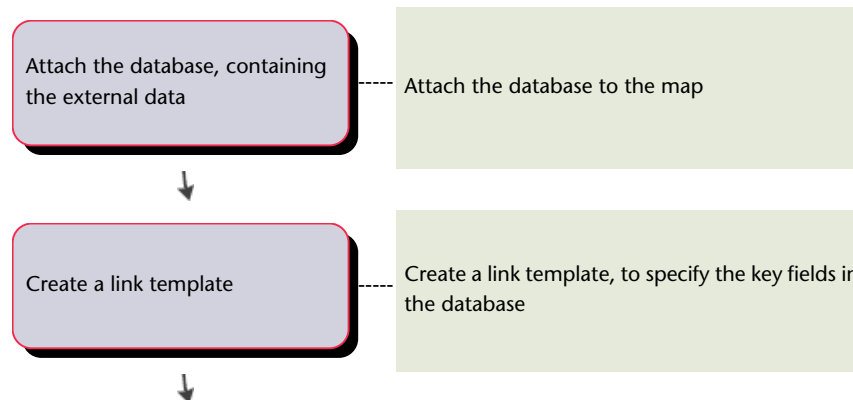
You can attach data to objects in your drawings. The data can be stored in the map itself (which makes it easier to send the map and its data to another user), or in an external database like Microsoft Access or Excel (which makes it easier to share an existing data store with other maps and other users).

NOTE This procedure applies only to drawing objects. It does not apply to geospatial features.

For object data:



For external data:

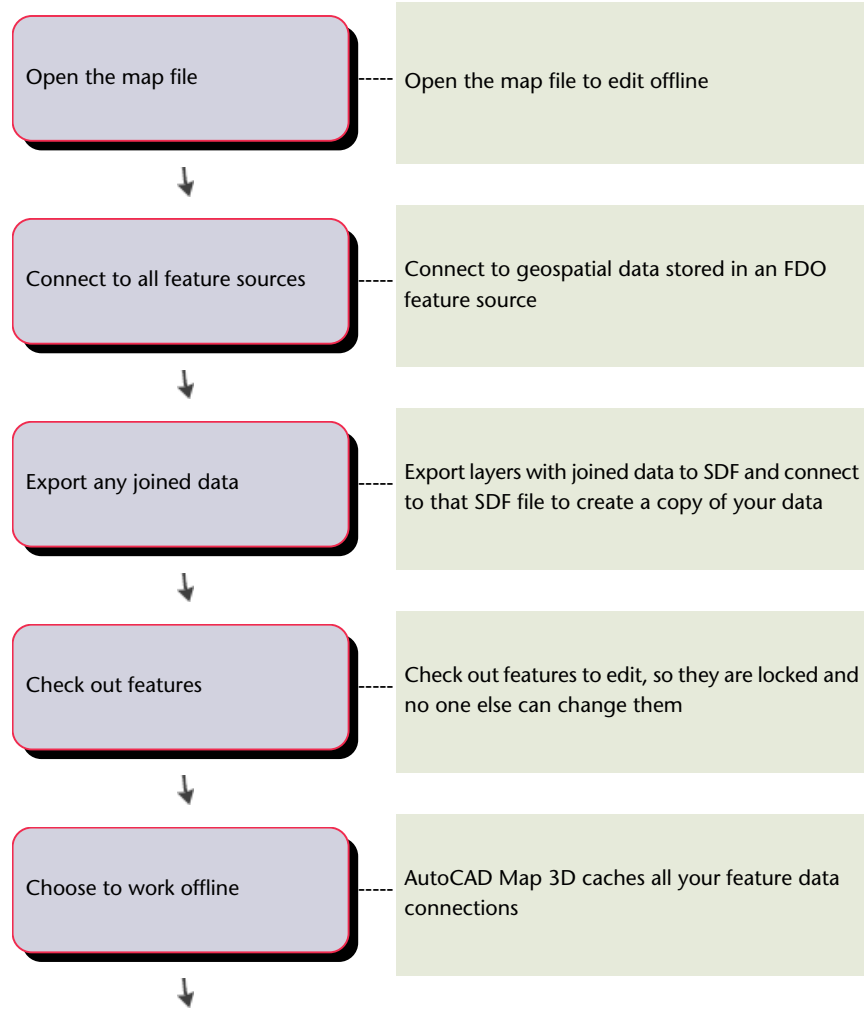


Link the data to the objects

Link a record from the database to the object

Work Offline from Enterprise Database

If you need to disconnect from the data sources in your map (for example, to work off-site), you can set up your map for offline editing.

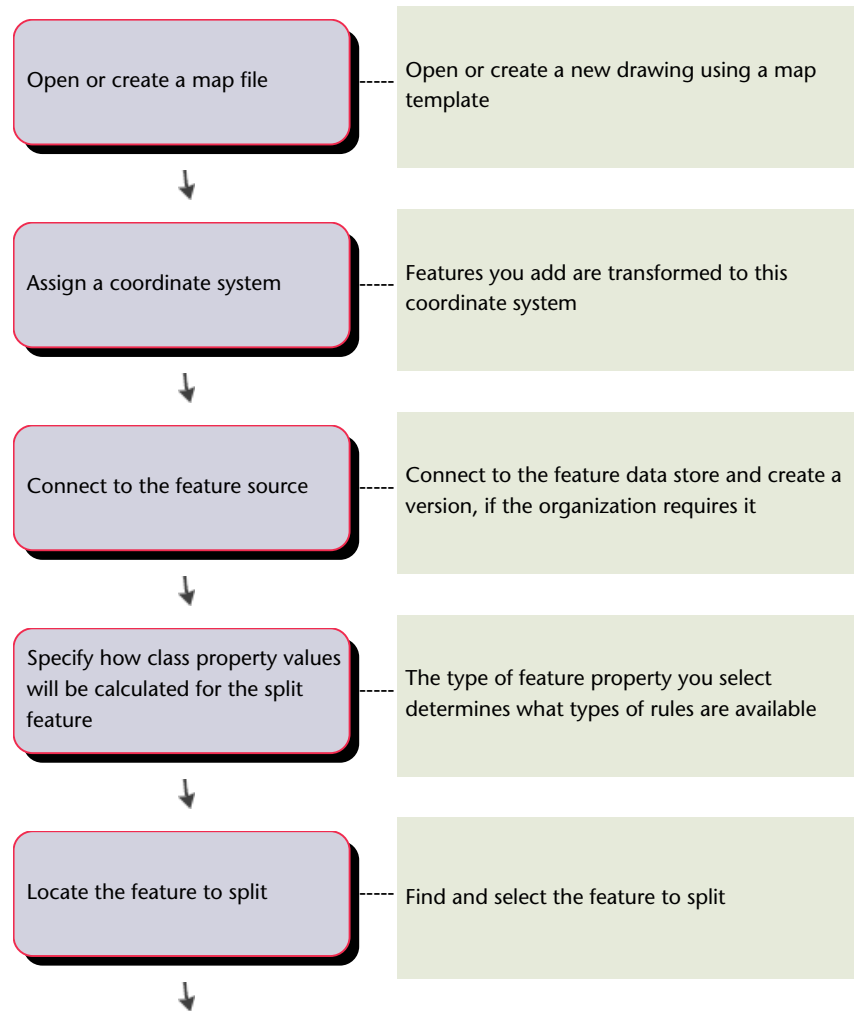


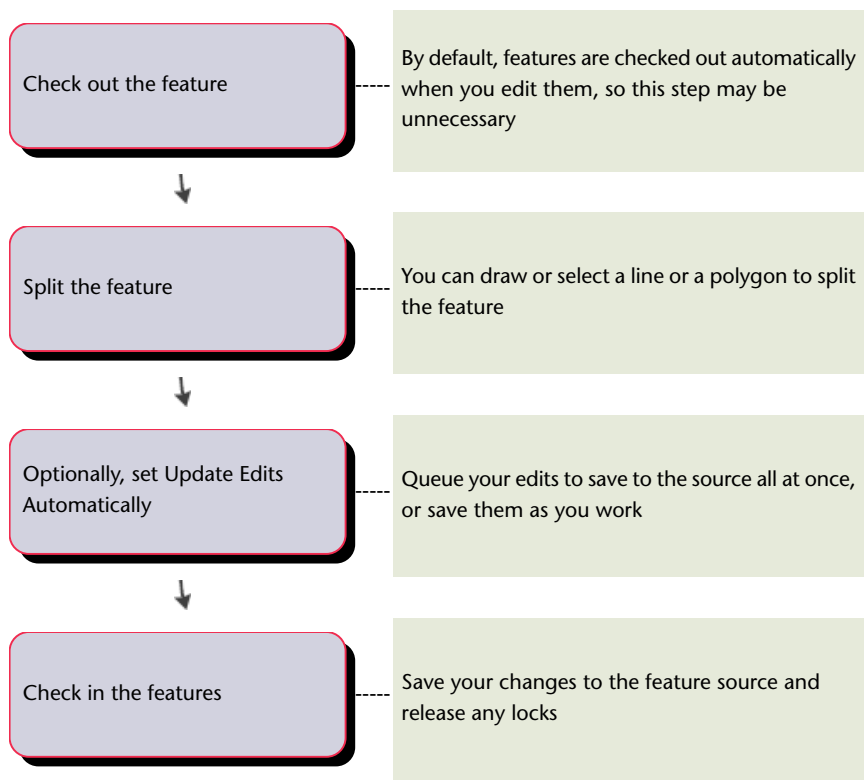
Check in your edited features

When you are back online, save your changes to the feature source and release any locks

Split a Feature

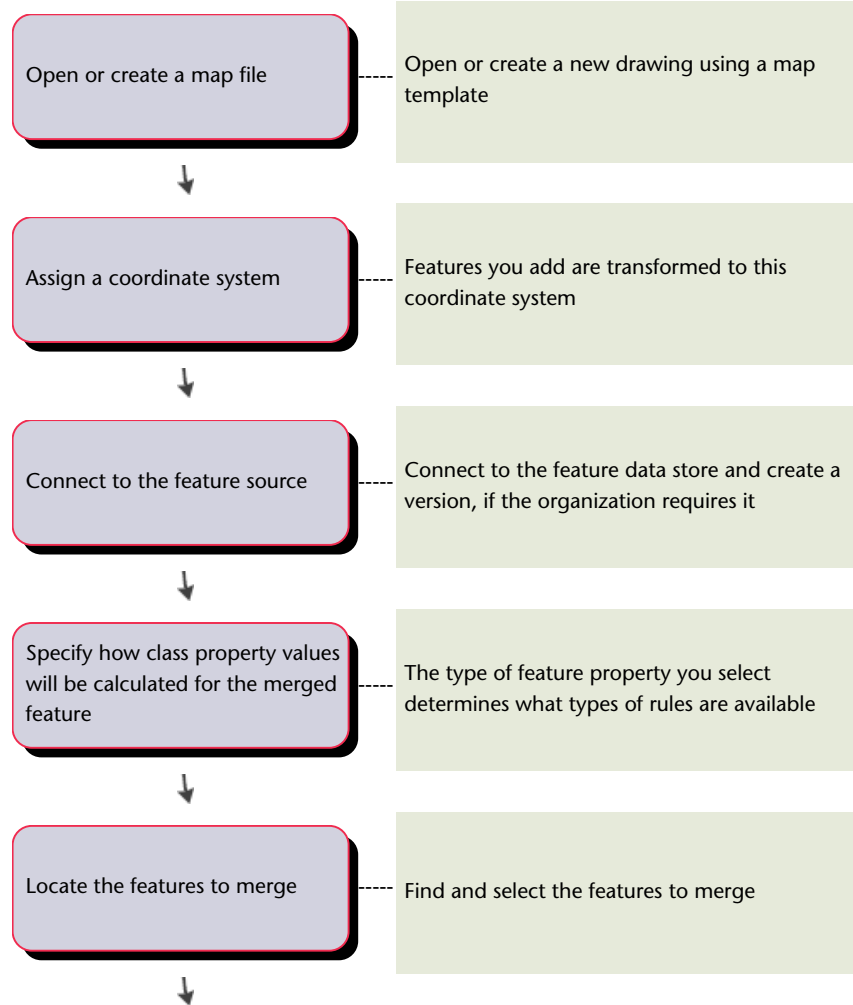
When you split a feature, you can draw or select line or polygon to split the feature geometry. The resulting feature property values are determined by rules you specify in the Split and Merge Rules dialog box.

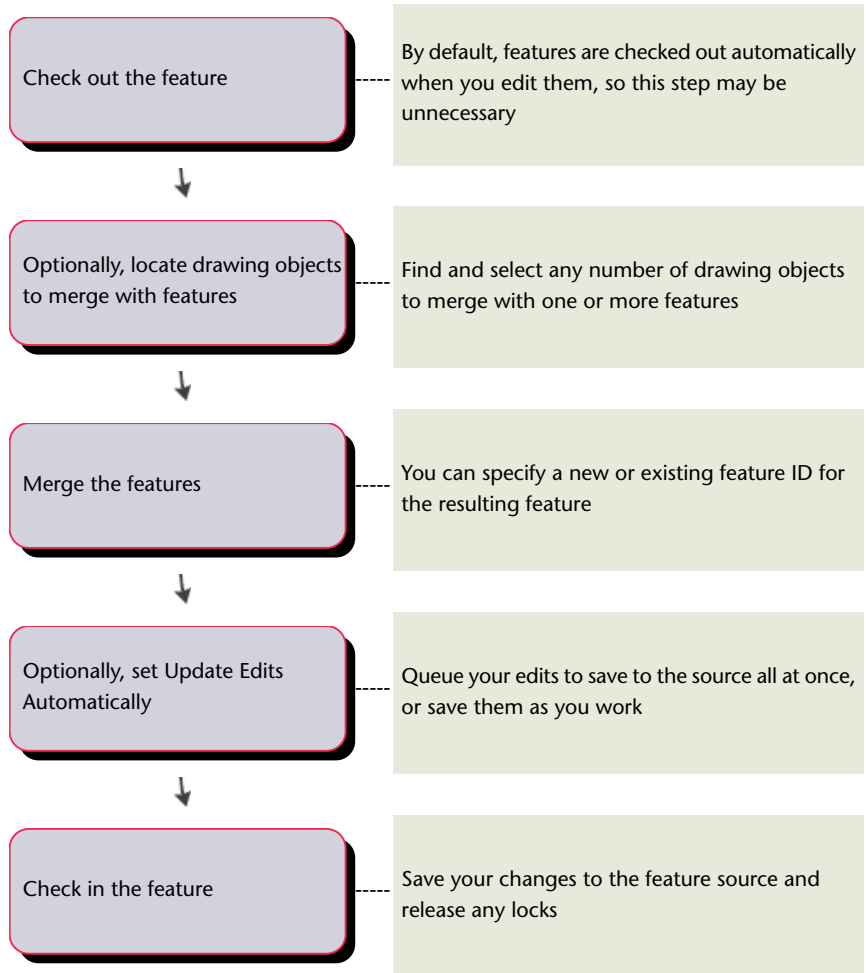




Merge Features

You can merge two or more features of the same class into one feature. You can also merge features with drawing objects. The resulting feature property values are determined by rules you specify in the Split and Merge Rules dialog box.

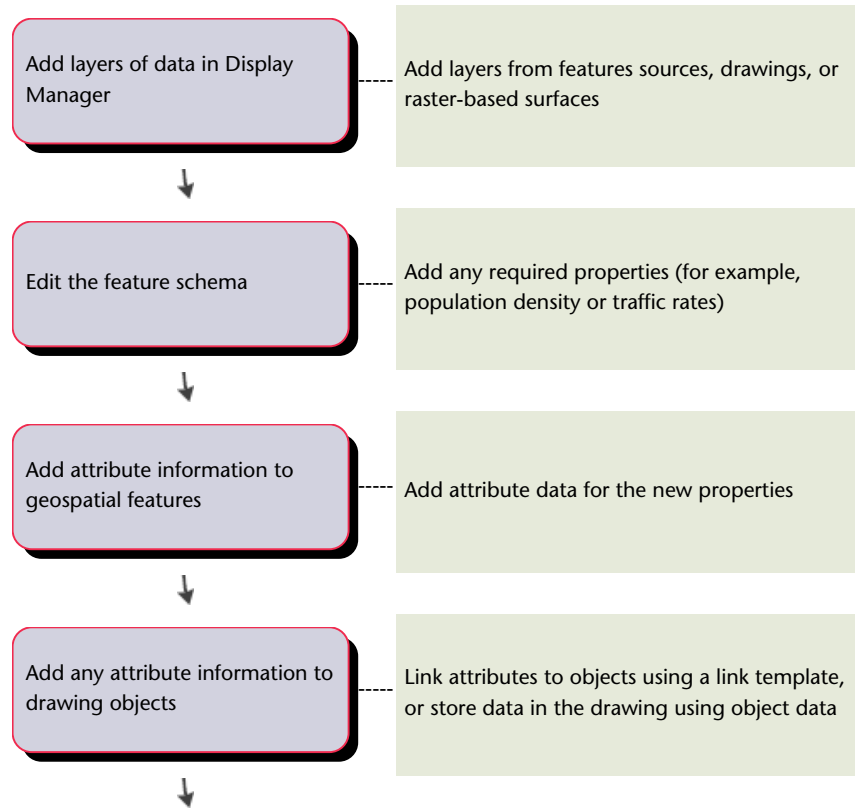


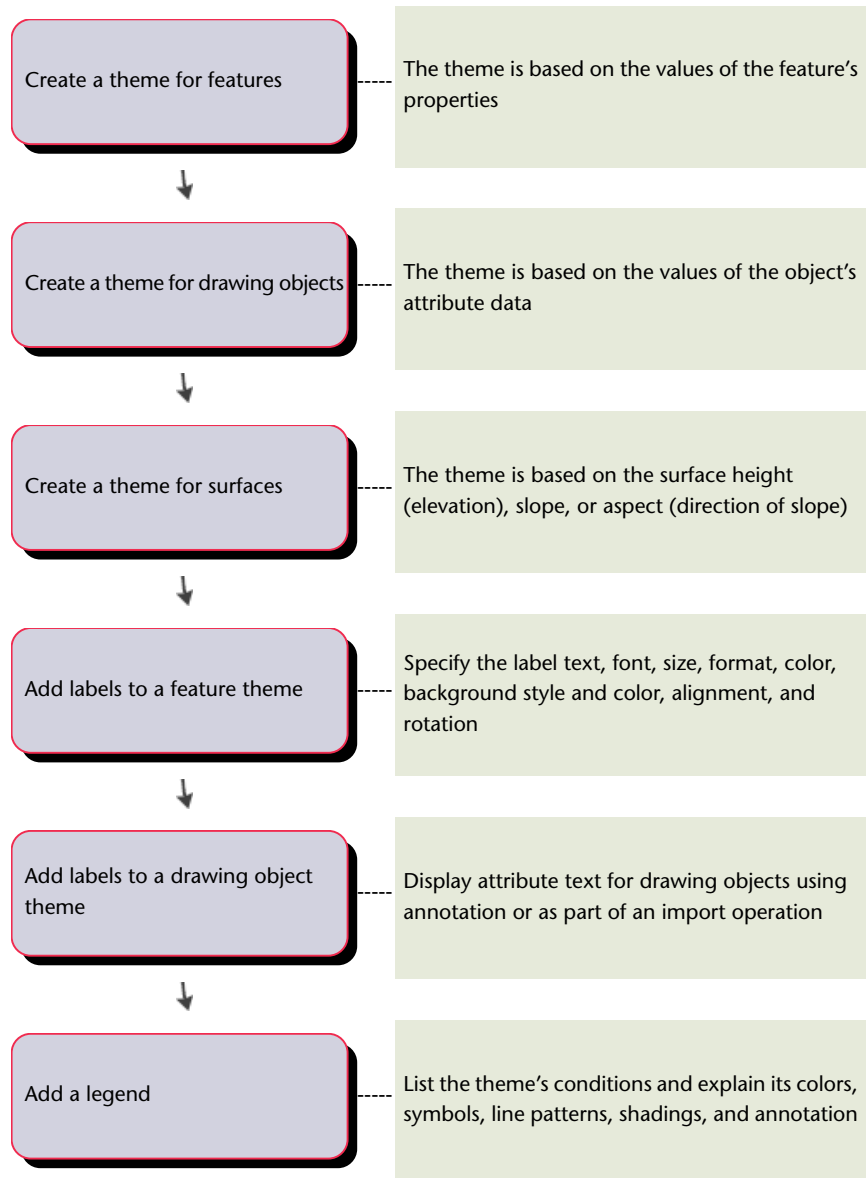


Create Themed Maps and Analyze Data

Create a Theme to Reveal Patterns in Your Data

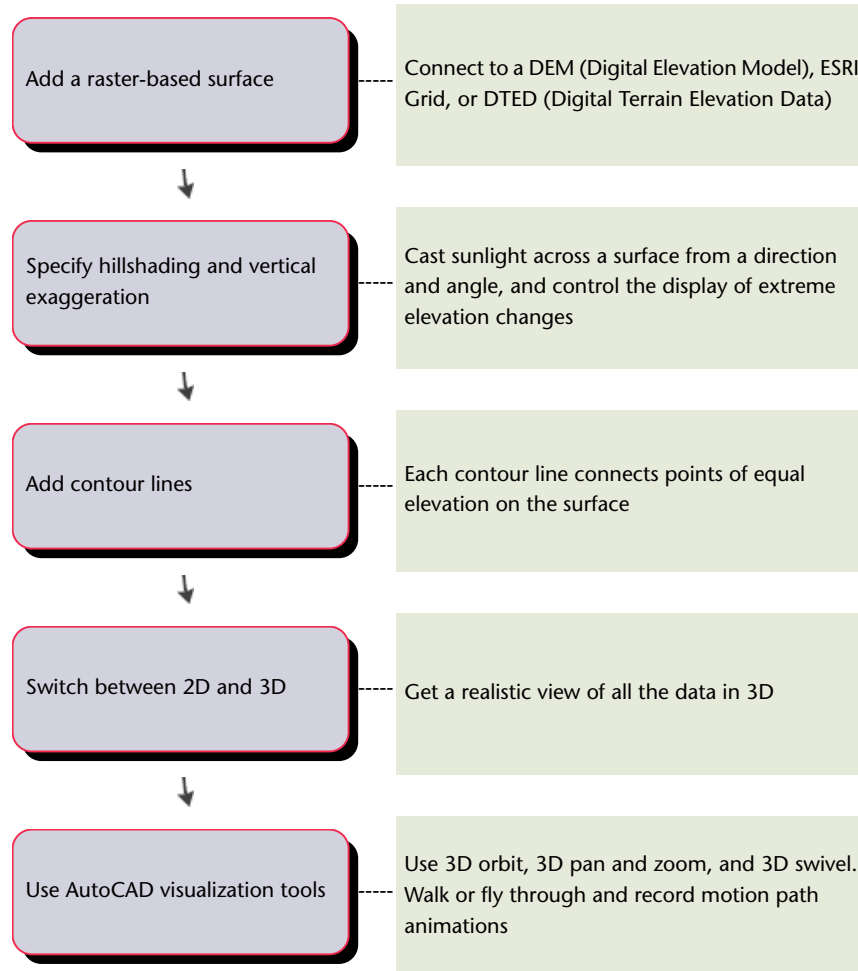
A theme can help you analyze map data and reveal patterns or trends in the data. Themes vary the display of your data based on properties or attributes of the data. For example, you can use different colors for different soil conditions or bigger dots for larger cities. The procedure varies, depending on whether you are theming features, drawing objects, or surfaces.

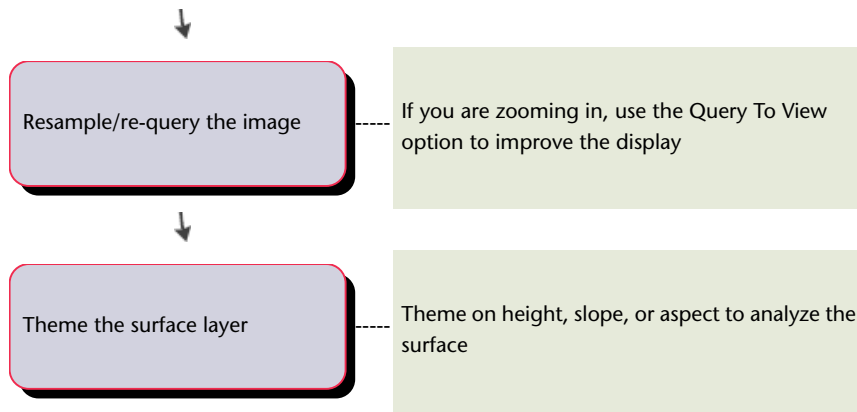




Use Surfaces, Rasters, and Contour Lines

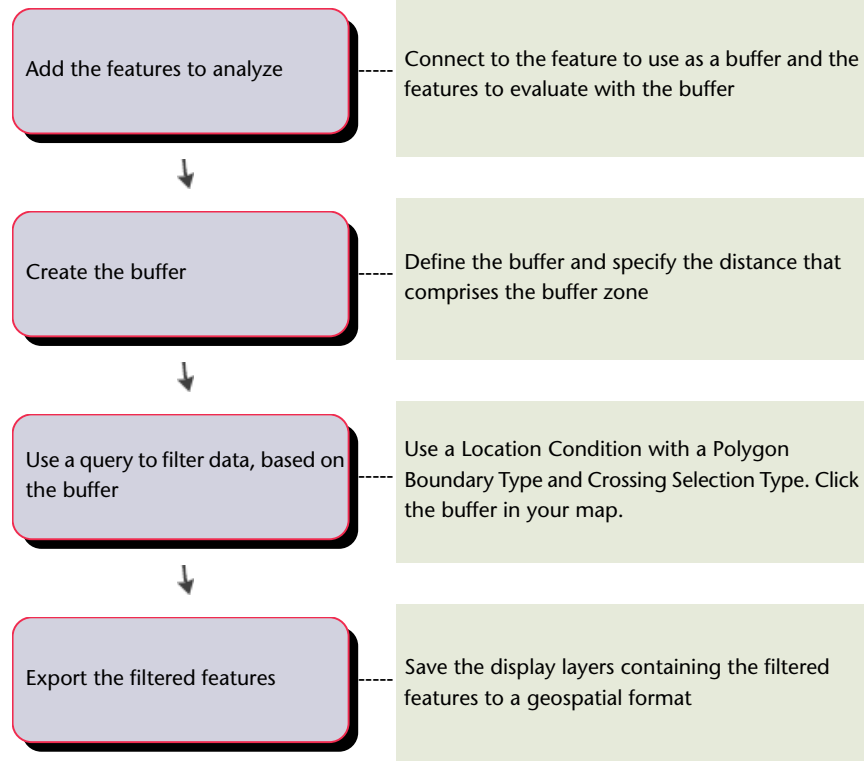
Style a raster-based surface using hillshading, vertical exaggeration, and contour lines to show elevation. View the map in 3D, which realistically drapes any 2D data on the surface. Use AutoCAD visualization tools to display different views in 3D, so you can analyze the surface from different perspectives. Theme on height, slope, or aspect.





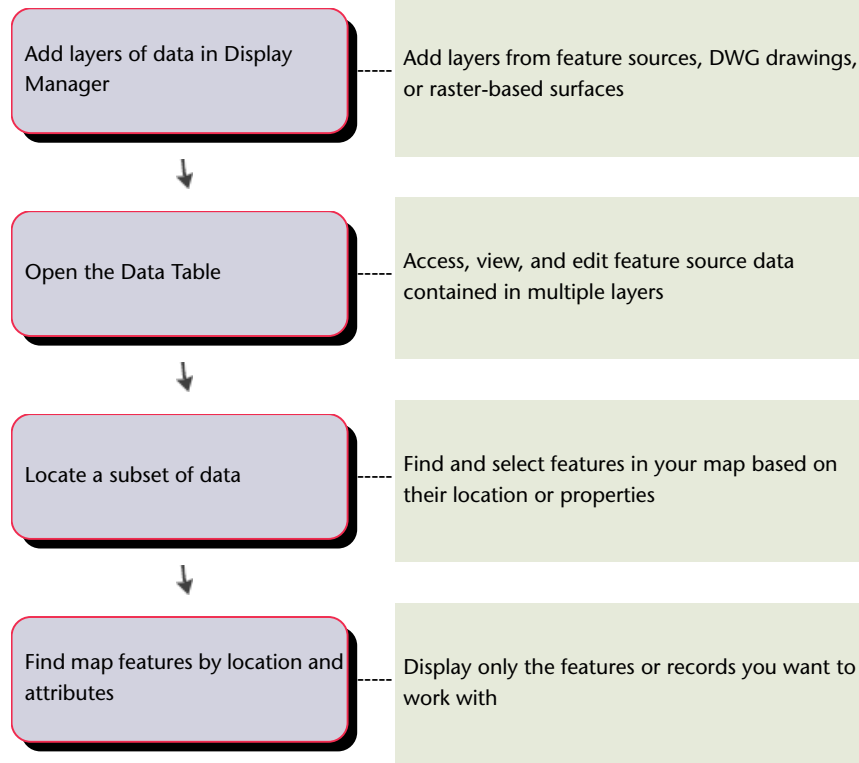
Find and Select Features Within a Buffer Zone

Create a buffer that defines an area within a certain distance of a feature in your map. Then use a query to select the features on a particular layer that lie within that buffer zone.



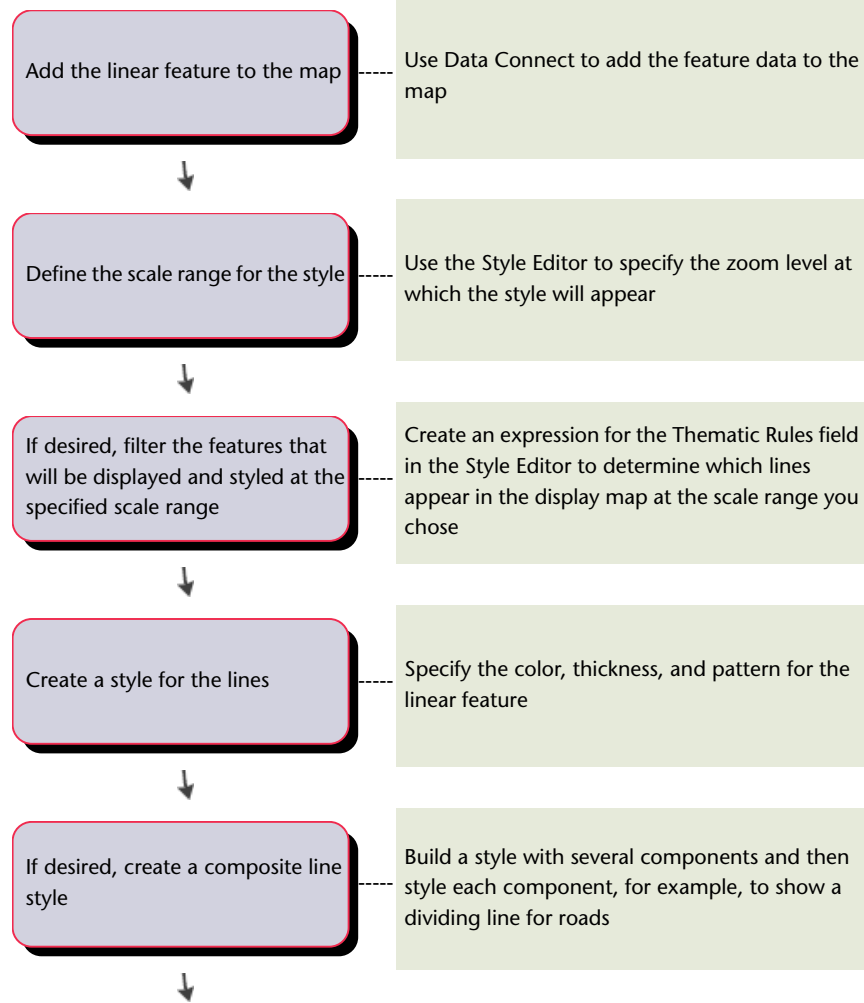
Find and Select Features By Attribute and Location

You can find, filter, and select a specific subset of features using the Data Table.



Style and Label a Linear Feature

Specify the visual appearance of lines in a map. You can include composite lines to show a solid background with a dashed or solid midline. You can add intelligently placed labels that follow the linear path, or you can use multi-line labels that appear next to the lines.



If desired, add labels to the lines that follow the line path

Use the Advanced Placement option to add labels that follow the line's path, stitch together line segment labels, and shrinks to fit the line size. Note: You must choose either Advanced Placement or Multi-line Labeling.



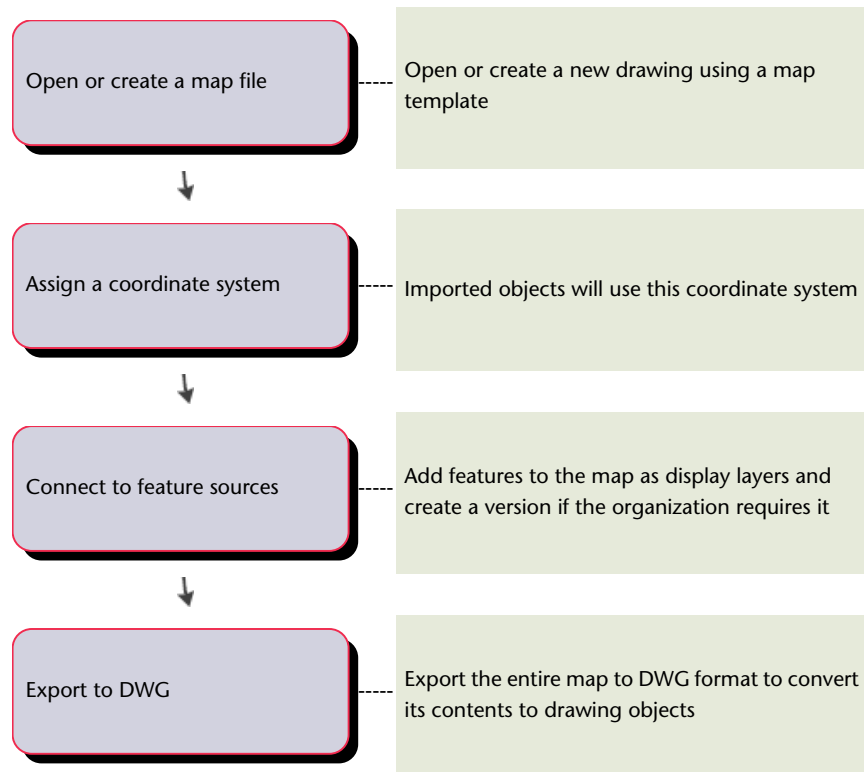
If desired, add multi-line labels to the lines

Use the Multi-Line Labeling option to add labels that place text on multiple lines. Note: You must choose either Advanced Placement or Multi-line Labeling.

Exchange CAD and Geospatial Data

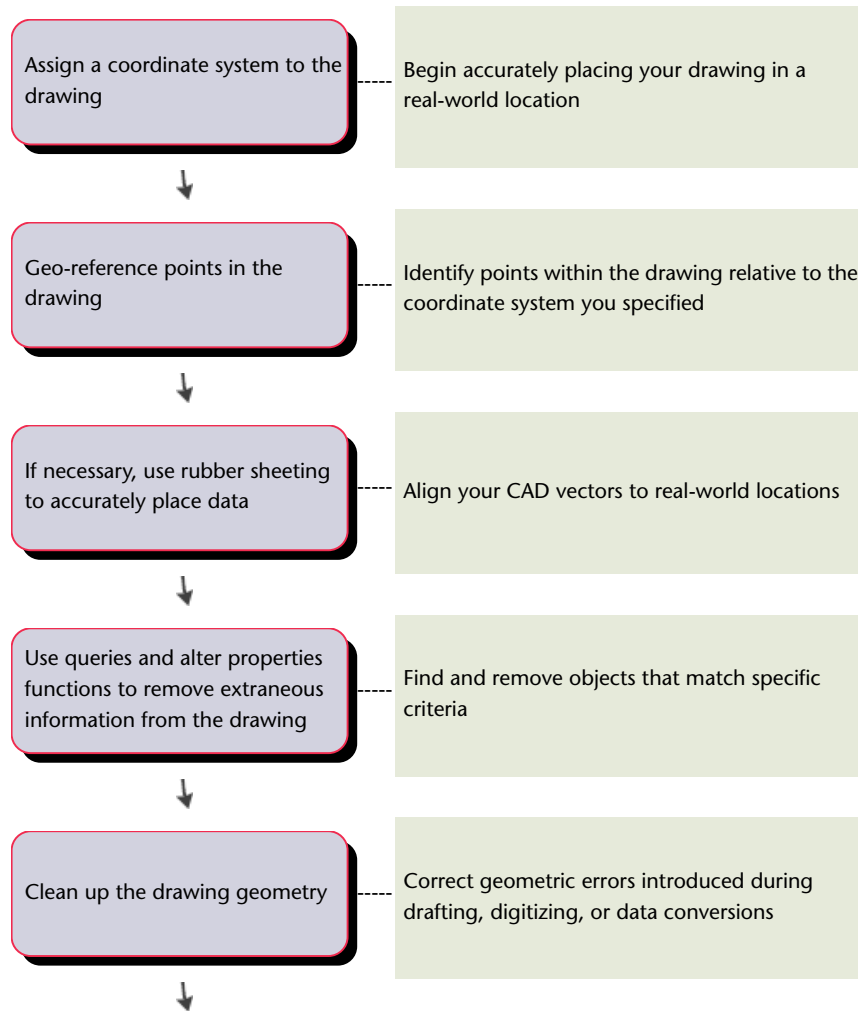
Send GIS Data to AutoCAD

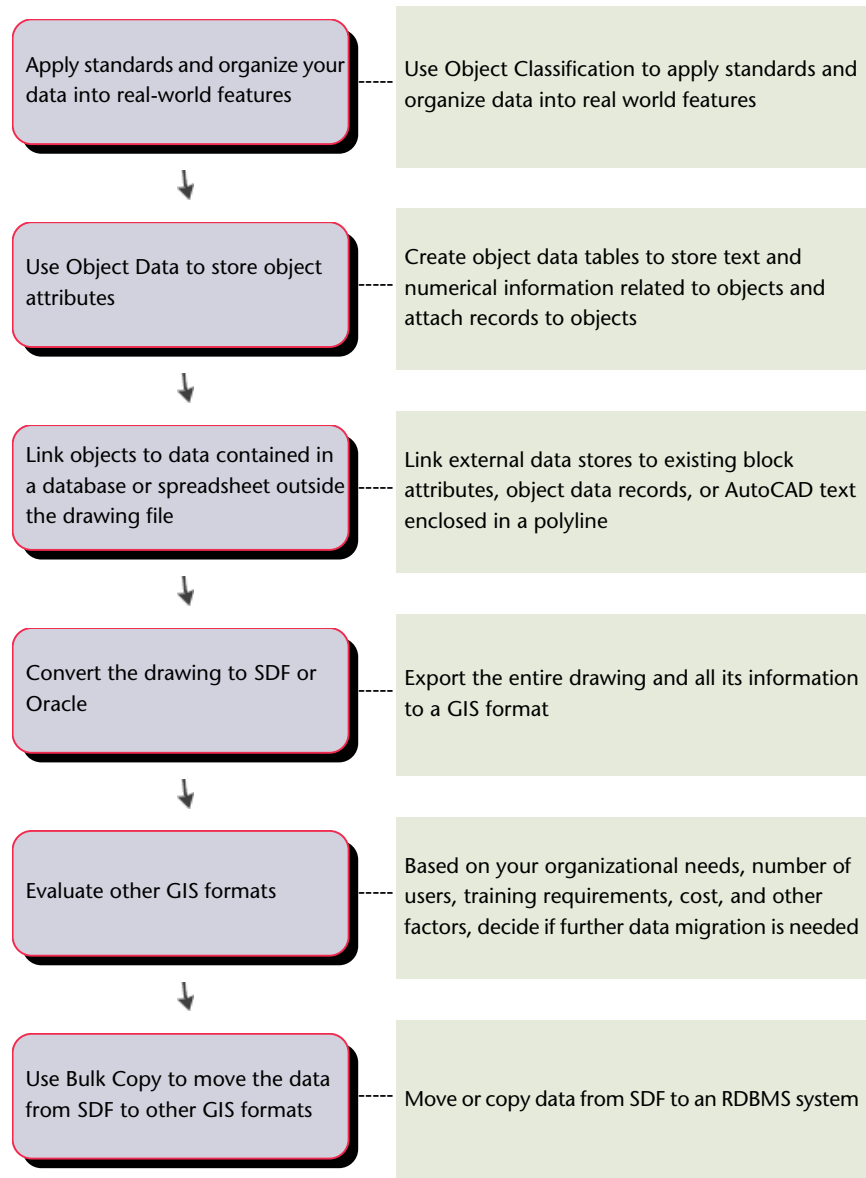
You can convert feature data to drawing objects by attaching the feature sources to your map, adding the features you want, and then exporting the map to DWG format.



Move CAD Data to GIS

Migrate data from a file-based DWG data store to a relational database management system, locating the data in real space and organizing objects into real-world categories.

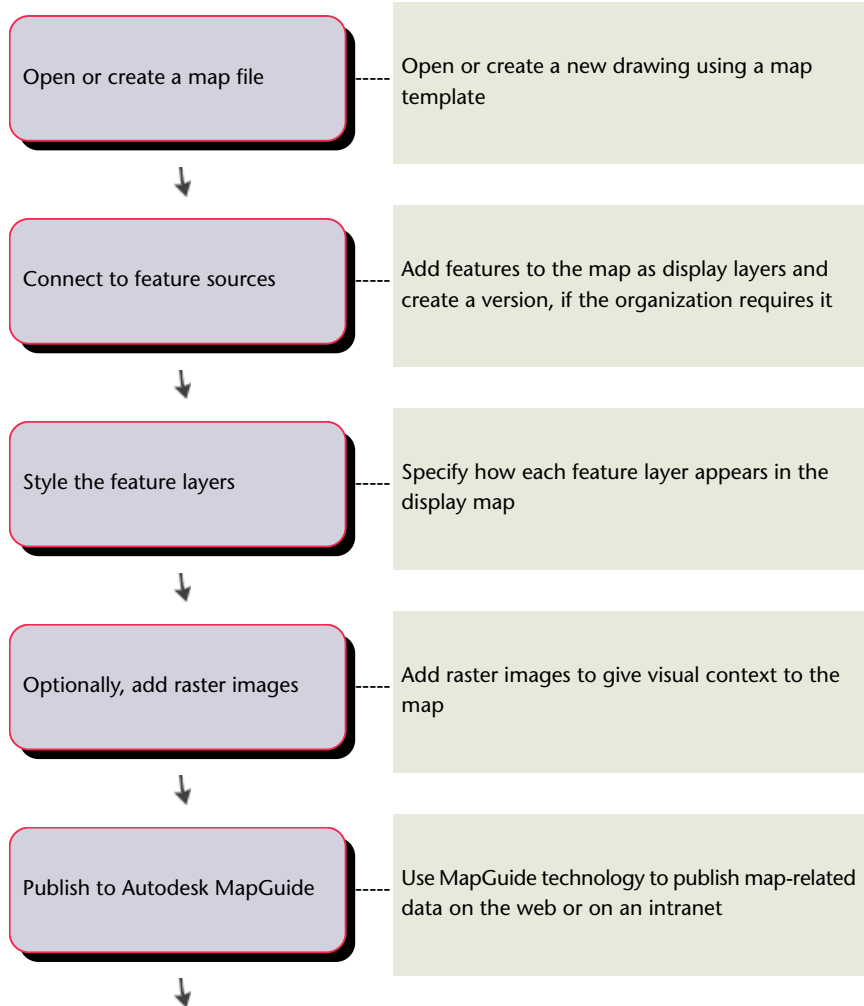




Print and Publish Data

Publish to the Web

You can publish your styled map to MapGuide for display on a Website.



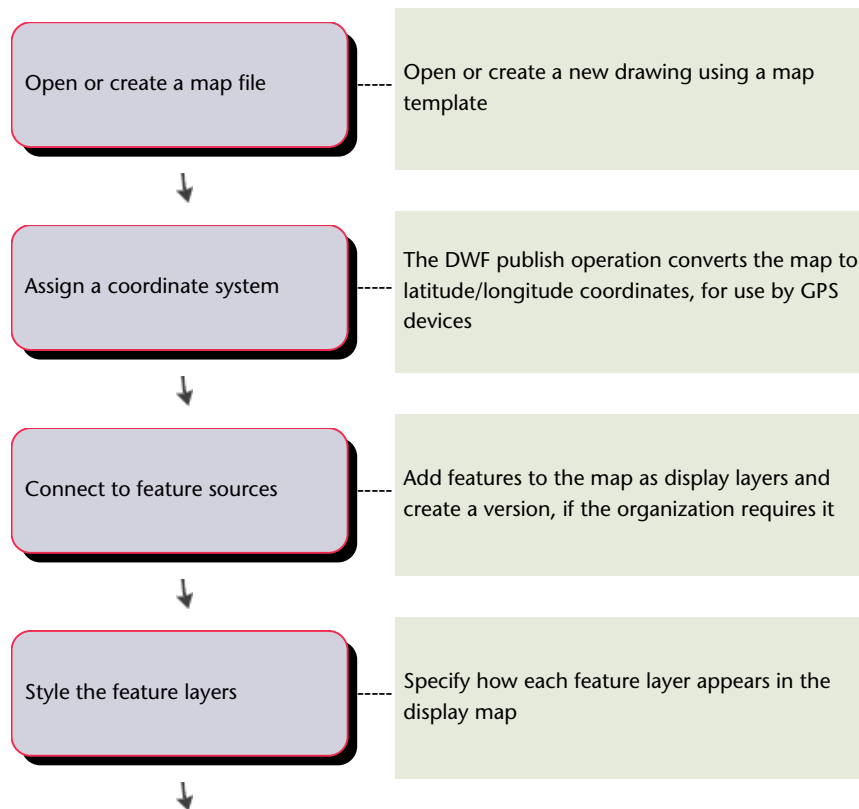
Use MapGuide to present information on the Web

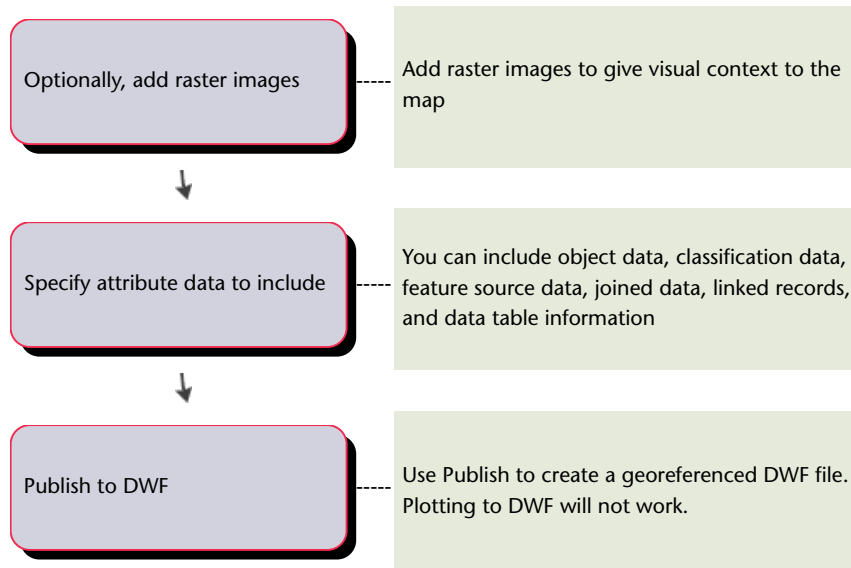
See the MapGuide documentation

Publish to a Georeferenced DWF

DWF (Design Web Format™) is an open, secure file format developed by Autodesk for sharing engineering design data.

When you publish to DWF, you create an electronic version of the map that can be displayed using Autodesk® Design Review, which you can download from the Autodesk Website. The DWF format can include attribute data and graphical elements, including any draped raster files. All layers and styles are published, with no loss of information.

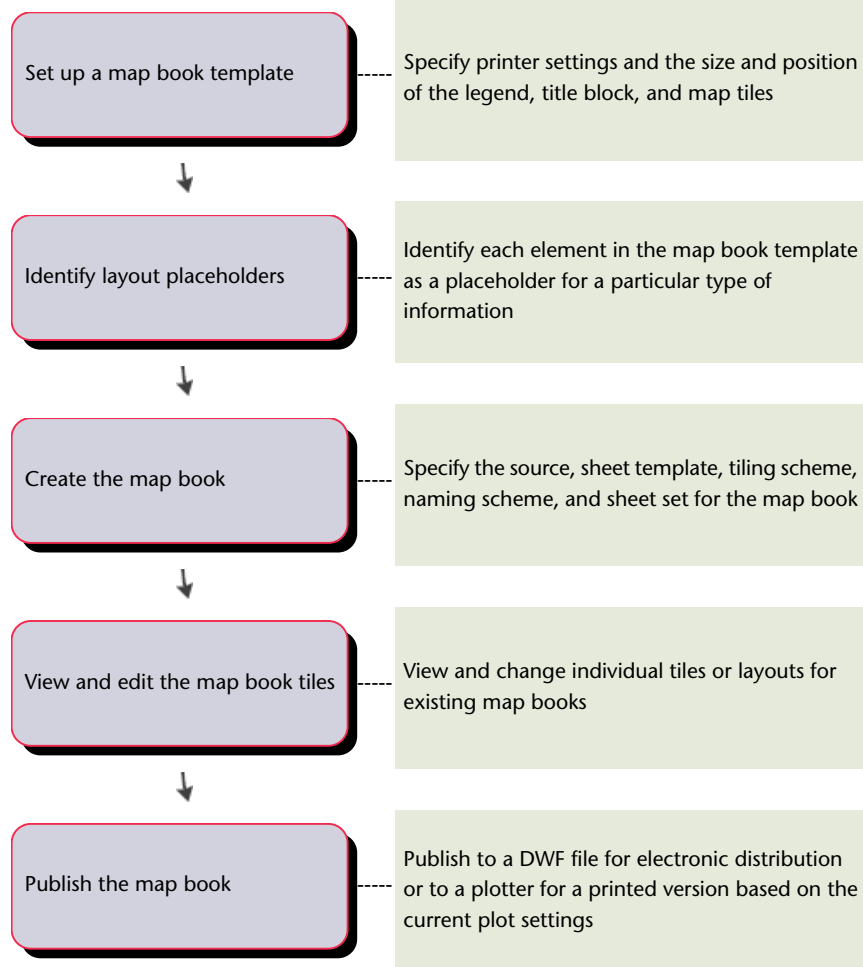




As long as you have assigned a coordinate system to all the maps in your DWF file, the publishing operation will automatically convert the coordinate information to latitude/longitude coordinates. GPS devices that use the NMEA 0183 protocol and the Autodesk DWF Viewer can use the georeferencing information, for example, to pan and center maps dynamically.

Publish to a Map Book

A map book divides your map into multiple "tiles" and displays each tile on a separate page. Picture a grid overlaying your map. Each section of the grid represents a tile. Once you create a map book, you can publish it to a plotter or to DWF.



Index

3D orbit 47

A

Access 37
 attaching data to drawing objects 37
Access data 10
 connecting to 10
adding 7, 13
 drawing data 7
 drawing data to maps 13
Adding 5
 features 5
adding for new features 33
ArcSDE 13, 33
 adding features 33
 creating features from DWG data 13
aspect 47
 theming 47
attaching database for 37
attribute data 3, 10, 27–28, 33, 36–37,
 45
 adding data based on constraints 36
 adding for geospatial features 45
 and labels 10
 attaching to drawing objects 37
 editing for drawing objects 27
 editing for geospatial features 28
 setting up sources for 3
attributes 50
 using to select features 50
AutoCAD Map 3D 17
 and Oracle databases 17
Autodesk Design Review 58
 publishing to 58
Autodesk MapGuide 56
 publishing to 56

B

background color 1
 changing default 1
buffers 49
 using to select features 49
Bulk Copy 12, 23
 using to transform coordinate
 systems 23

C

CAD data 54
 moving data to GIS 54
checking in 28, 39
 feature changes after working
 offline 39
 geospatial features 28
checking out 28
 geospatial features 28
classification 13, 20
 and non-AutoCAD drawing data 20
 for drawing data 13
classification systems 3
 for drawing objects 3
cleaning up 13
 drawing data 13
combining 25
 data with different coordinate
 systems 25
contour lines 47
coordinate systems 3, 13–14, 19–20, 23–
 25
 and database features 19
 assigning 20
 assigning to attached drawings 13
 combining data 25
 converting data from one to
 another 25

- converting drawing data from one to another 24
- converting features from one to another 23
- creating custom 3
- for data from different sources 14
- copying 12–14
 - data from one format to another 12
 - data from SDF to ArcSDE 13
 - geospatial data to DGN format 14
- customizing 1
 - AutoCAD Map 3D 1

D

- data 50
 - locating subset 50
- Data Connect 36
 - connect to GIS data store 36
- data migration 54
 - from a DWG data store 54
 - to a relational database management system 54
- data stores 12, 17
 - creating 12
 - creating for Oracle 17
- Data Table 33, 45, 50
 - using to find features 50
- database 37, 39
 - attaching for drawing object attribute data 37
 - working offline 39
- database links 20
 - maintaining 20
- defaults 1
 - customizing 1
- Design Review 58
 - publishing to 58
- Design Web Format 58
 - publishing to 58
- detaching 24
 - drawings 24
- DGN format 14
 - converting data to 14
- Display Manager layers 14
 - filtering 14

- saving as SDF 14
- display options 1
 - customizing 1
- draping 47
 - 2D data on 3D surfaces 47
- drawing data 7, 13–14, 20, 27, 31, 37, 45, 53
 - adding 7
 - adding to geospatial features 31
 - adding to maps 13
 - attaching object data to 37
 - classifying 13
 - cleaning up 13, 20
 - converting to ArcSDE 13
 - creating from feature data 53
 - creating from SDF 14
 - creating maps with 7
 - editing 27
 - exporting as SDF 13
 - linking external data to 37
 - non-AutoCAD 20
 - saving back to source drawings 27
 - source drawings 27
 - updating with edits 27
 - styling 7, 14, 27
 - theming 45
 - viewing without adding to a map 27
- drawing objects 27
 - finding in attached drawings 27
- drawings 24
 - detaching 24
- DWF 58
 - publishing to 58

E

- editing 18–19, 27
 - drawing data 27
 - schemas 18–19
- elevation 47
 - displaying with styles 47
- Excel 37
 - attaching data to drawing objects 37
- exporting 53
 - feature data to DWG format 53

- external attribute data 27, 37
 - editing for drawing objects 27
- external data 37
 - attaching to drawing objects 37

F

- FDO data 53
 - exporting to DWG format 53
- FDO features 23
 - transforming coordinate systems 23
- fdrawing data 7
 - theming 7
- feature classes 19, 35
 - adding to schemas 19
 - joining attribute data to 35
- feature data 45
 - theming 45
- features 5, 33, 39, 41, 43, 45, 49–50, 53
 - adding 5
 - adding attribute data 45
 - adding to ArcSDE feature source 33
 - creating maps with 5
 - exporting to DWG format 53
 - locating 50
 - merging 43
 - selecting using buffers 49
 - splitting 41
 - styling 5
 - theming 5
 - working offline 39
- flythrough 47
 - for surfaces 47

G

- geometry 31
 - creating new features from 31
- georeferenced DWGs 58
 - publishing to 58
- geospatial data 5, 28
 - creating maps with 5
 - saving back to sources 28
 - geospatial data sources 28
 - updating with edits 28

- geospatial features 12, 23, 28, 31, 33, 53
 - adding drawing data to 31
 - adding to ArcSDE data source 33
 - checking in 28
 - checking out 28
 - copying data between formats 12
 - creating from geometry 31
 - exporting to DWG format 53
 - finding 28
 - transforming coordinate systems 23
- GIS data 36
 - use Data Connect 36
- GIS data store 36
 - add properties 36
- global settings 1
 - customizing 1

H

- height 47
 - theming 47
- hillshading 47

I

- imported data 20
 - converting to DWG format 20

J

- joined data 39
 - and working offline 39
- joining 35
 - attribute data to a geospatial feature class 35

L

- labels 10, 45
 - and scale ranges 10
 - based on attribute data 10
 - for drawing themes 45
 - for feature themes 45
- legends 5, 7

- lines 51
 - labeling 51
 - styling 51
 - use multi-line labels 51
- linking 37
 - external data to drawing objects 37
- location 50
 - using to select features 50
- locking 17
 - enabling for Oracle 17
- login options 3
- long transactions 17
 - enabling for Oracle 17
- lworking offline 39

M

- map books 60
 - publishing to 60
- MapGuide 56
 - publishing to 56
- maps 5, 7, 10
 - creating with drawing data 7
 - creating with geospatial data 5
 - publishing 5, 7
 - start to finish 5, 7, 10
- merging 43
 - features 43
- motion path animation 47
 - for surfaces 47
- MS Access 37
 - attaching data to drawing objects 37
- MS Access data 10
 - connecting to 10
- MS Excel 37
 - attaching data to drawing objects 37
- multi-page maps 60
 - creating 60

N

- new maps 3
 - setting defaults 3

O

- object data tables 3
 - setting up sources for 3
- object-locking 3
- offline 39
 - working with features 39
- Oracle 17
 - and locking 17
 - and long transactions 17
- Oracle database 17
 - preparing for using with AutoCAD Map 3D 17

P

- points 10
 - styling 10
- privileges 3, 17
 - for Oracle databases 17
 - specifying for users 3
- properties 18–19, 50
 - adding to schemas 18
 - defining for a new feature class 19
 - using to select features 50
- publishing 5, 7, 56, 58, 60
 - maps 5, 7
 - to DWF 58
 - to map books 60
 - to MapGuide 56

Q

- queries 1, 13, 49
 - customizing 1
 - for drawing data 13
 - using buffers 49
- Query to View 47
- Quick View 27

R

- raster data 22
 - converting to vector data 22

- Raster Design 22
 - using to convert scanned data to vector data 22
- raster images 47
 - styling 47
- refreshing 47
 - surfaces 47

S

- scale ranges 10
 - and symbols 10
 - for labels 10
- scanned data 22
 - converting to vector data 22
- Schema Editor 18–19, 45
- schemas 17–19, 45
 - adding feature classes to 19
 - defining for Oracle 17
 - editing 45
 - editing for SDF 18
- SDF 13–14, 18
 - adding properties to a schema 18
 - converting drawing data to 13
 - converting to drawing data 14
- shared maps 3
 - setting up rights for 3
- SHP 12
 - copying data to another format 12
- slope 47
 - theming 47
- splitting 41
 - features 41
- styled maps 56, 58, 60
 - publishing 56, 58
 - publishing as map books 60
- styling 5, 7, 27
 - drawing data 7, 27
 - features 5
- surfaces 47
 - eliminating pixillation 47
 - panning and zooming 47
 - styling 47
- survey data 10
 - combining with features 10
 - connecting to 10

- symbols 10
 - and scale ranges 10
 - for points 10

T

- target data stores 12
 - creating 12
- Task Pane 1
 - customizing 1
- templates 3
 - creating 3
- themes 45
 - and data patterns 45
 - for drawing data 45
 - for feature data 45
- theming 5, 7, 47
 - aspect 47
 - drawing data 7
 - features 5
 - height 47
 - slope 47
 - surfaces 47
- tiled maps 60
 - creating 60
- transforming 23–25
 - coordinate systems for drawing data 24
 - coordinate systems for features 23
 - coordinate systems for objects in a map 25
 - data with different coordinate systems 25

U

- Update Edits Automatically 28
- user rights 3
 - specifying 3
- utility maps 10
 - creating 10

V

- vector data 20, 22
 - converting scanned raster data to 22
 - importing 20
- vertical exaggeration 47
- viewing 27
 - data in attached drawings 27
- visual appearance 51
 - of linear features 51

W

- walkthrough 47
 - for surfaces 47
- Web 56
 - publishing to 56
- work environment 1
 - customizing 1
- workspaces 1
 - switching between 1