

# SuperMap iObjects .NET Spatial Data Management (3)

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# Course Objectives

- Understand the main purposes of the workspace, datasource, dataset objects, and relationships of them in the Data module
- Master the creation, opening methods of the dataset
- Learn about other common objects and methods for spatial data management
  
- Sample Data: SuperMap iObjects .NET 9D Installation  
Directory\SampleData\World\World.smwu, World.udb,udd

# Application of Dataset

- Review of the Concept of Dataset
- Main Objects of Dataset
- Use of Dataset
- Code Samples for Dataset

# Review of the Concept of Dataset

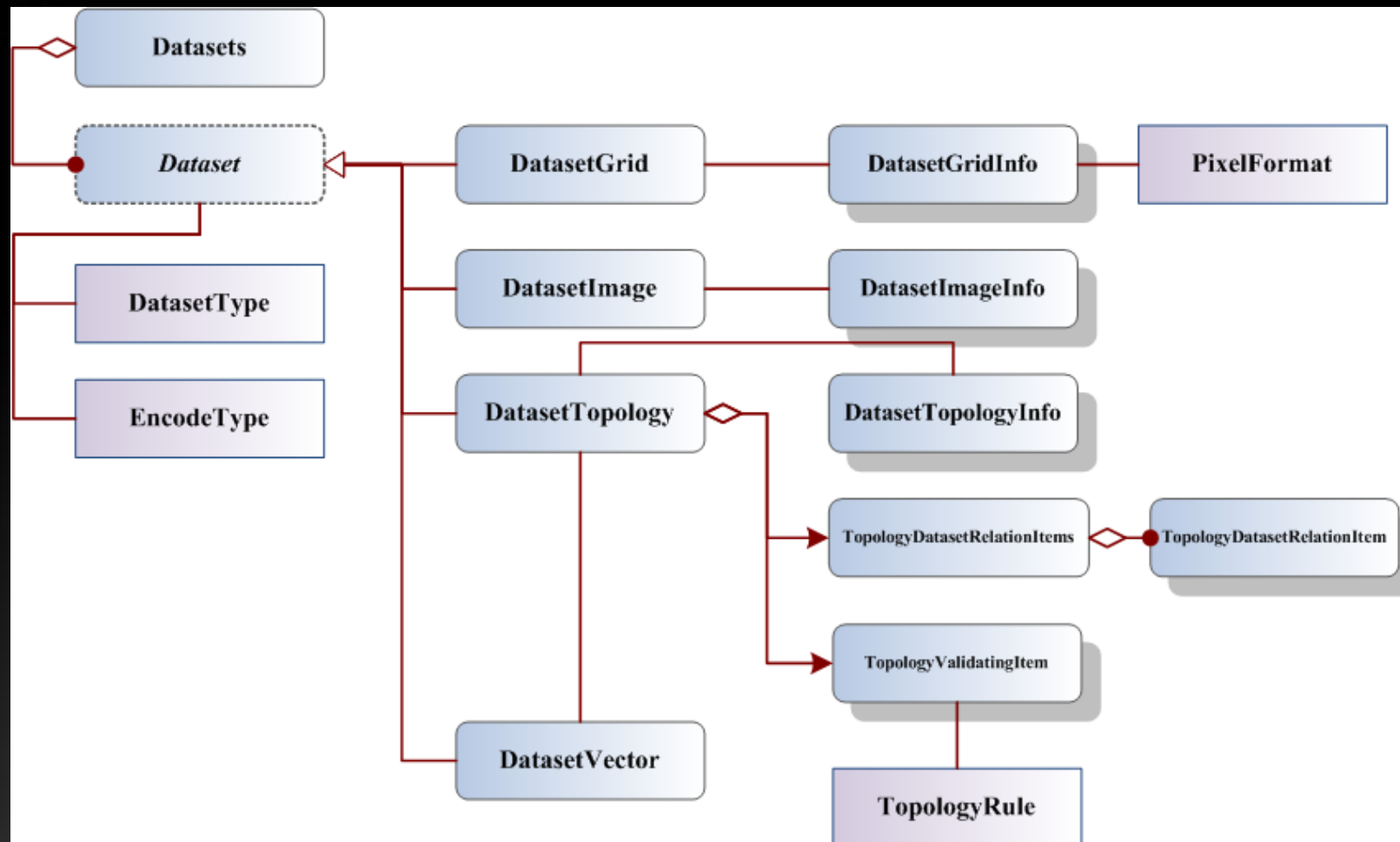
- Dataset: A data collection consists data of the same type, that is, a collection of data objects.
- According to different storage structures, datasets can be divided into vector datasets and raster datasets.
- In SuperMap software, there are point datasets, line datasets, region datasets, text datasets, CAD datasets, network datasets and so on.
- A dataset does not have a corresponding physical storage file. Datasets are physically stored in the corresponding datasource.

# Dataset Types

Dataset type	Detailed description
Tabular dataset	Depicts attribute information.
Point dataset	Depicts point shape feature data.
Line dataset	Depicts line shape feature data.
Region dataset	Depicts region shape feature data.
Text dataset	Depicts label data.
CAD dataset	Depicts composite dataset composed of different types of data
LineM dataset	Depicts route data.
Network dataset	Depicts network data constructed after topology processing. Based on network datasets, network analyses can be performed.
Topology dataset	Depicts data after topology processing.
Image dataset	Depicts image data, such as image data of formats BMP, TIFF, etc.
Grid dataset	Depicts grid data in formats such as Grid and DEM.

# Main Objects of Dataset

## Object Structure Diagram of Main Objects of Dataset
















# Use of Dataset

- Basic dataset operations such as creating, deleting, renaming dataset, and so on.
  - Datasets

	Name	Description
⇒	<a href="#">Contains</a>	Checks whether to contain the dataset of the specified name in this datasource.
⇒	<a href="#">Create</a>	Overloaded.
⇒	<a href="#">CreateFromTemplate</a>	Creates a new dataset used in the datasource file with the specified template dataset.
⇒	<a href="#">CreateGridCollection</a>	Overloaded.
⇒	<a href="#">CreateImageCollection</a>	Overloaded.
⇒	<a href="#">CreateMosaic</a>	Overloaded.
⇒	<a href="#">Delete</a>	Overloaded.
⇒	<a href="#">DeleteAll</a>	Deletes all the datasets.
⇒	<a href="#">GetAvailableDatasetName</a>	Overloaded.
⇒	<a href="#">GetEnumerator</a>	Gets the enumerator of the Datasets.
⇒	<a href="#">IndexOf</a>	Returns the index of dataset in the dataset collection according to its name.
⇒	<a href="#">IsAvailableDatasetName</a>	Overloaded.
⇒	<a href="#">Rename</a>	Renames the dataset.
⇒	<a href="#">SetExpTable</a>	Sets external table.

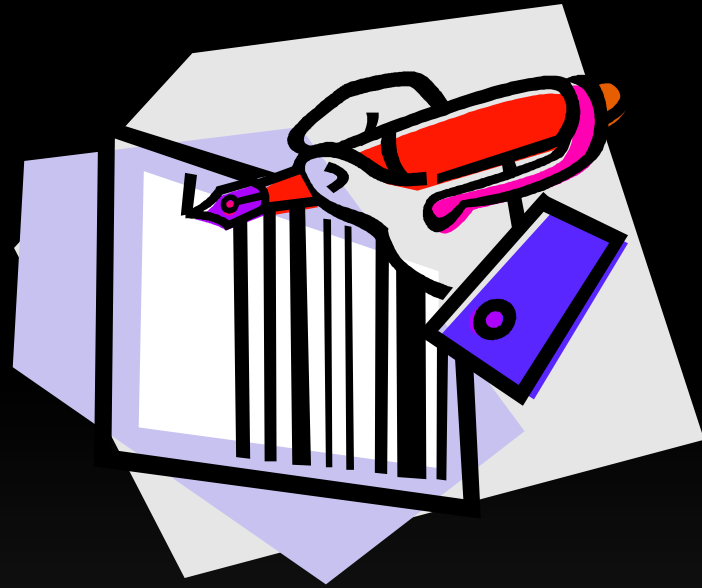
# Use of Dataset

- Get the basic information of the dataset, including dataset name, projection information, dataset type, and so on.
  - Dataset

	Name	Description
	<a href="#">Bounds</a>	Gets or sets the boundary rectangle that contains all geometric objects in this dataset.
	<a href="#">Datasource</a>	Returns the datasource object that contains this dataset.
	<a href="#">Description</a>	Gets or sets the description about this dataset added by the user.
	<a href="#">EncodeType</a>	Gets the encoding type of this dataset.
	<a href="#">ExtInfo</a>	The additional information added for the dataset.
	<a href="#">HasPrjCoordSys</a>	Determines whether the dataset has its own projection. True will be returned if the dataset has its own projection; otherwise, false will be returned.
	<a href="#">HasVersion</a>	Gets the value indicating whether the dataset has the version or not. True, if the dataset has the version; Otherwise, false.
	<a href="#">IsOpen</a>	Determines whether this dataset has been opened.
	<a href="#">IsReadOnly</a>	Returns or sets whether this dataset is read-only.
	<a href="#">Name</a>	Returns the name of this dataset. The name is the unique identifier of the dataset. The identifier is not case-sensitive.
	<a href="#">PrjCoordSys</a>	Gets or sets the projection information of the dataset.
	<a href="#">TableName</a>	For database datasource, this method returns the name of the data table in the database; For file datasource, this method returns the name of the table that stores attributes of features .
	<a href="#">Type</a>	Gets the type of the source vector dataset.



# Code Samples of Dataset








**Create Vector Dataset**

**Create Grid Dataset**

# Create Vector Dataset

- Main interfaces
  - Datasets.Create(DatasetVectorInfo)
  - DatasetVectorInfo

DatasetVectorInfo class members		
	Name	Description
	<a href="#">BlobTablespaceName</a>	Gets or sets the table space SmGeometry is in.
	<a href="#">EncodeType</a>	Gets or sets the encode type of the vector dataset.
	<a href="#">IsFileCache</a>	Gets or sets whether using the file cache or not. The file cache is only available for the tile spatial index.
	<a href="#">Name</a>	Gets or sets the name of the vector dataset.
	<a href="#">Type</a>	Gets or sets the type of the vector dataset.

# Create Vector Dataset

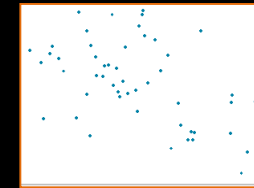
- Implementation ideas and steps

**Step1: Construct DatasetVectorInfo class**

**Step2: Set properties of the DatasetVectorInfo class**











Name	Gets or sets the name of the vector dataset.
Type	Gets or sets the type of the vector dataset.
EncodeType	Gets or sets the encoding type of the dataset.
IsFileCache	Gets or sets whether to use file cache. File cache is only applicable for library index.

**Step3: Call Datasets. Create(DatasetVectorInfo)**



# Create Grid Dataset

- Main interfaces
  - Datasets.Create(DatasetGridInfo)
  - DatasetGridInfo

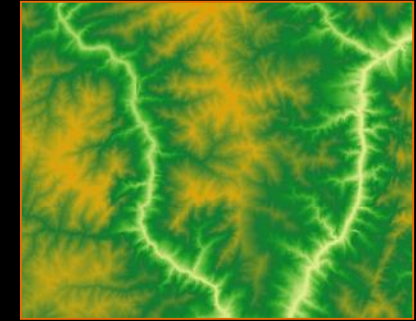
DatasetGridInfo class members		
	Name	Description
	<a href="#">BlockSizeOption</a>	Gets or sets the block size of the grid dataset. The default value is 256*256 pixels, that is BlockSizeOption.BS_256.
	<a href="#">Bounds</a>	Sets the bounds of the grid dataset.
	<a href="#">EncodeType</a>	Gets or sets the encoding type of this dataset.
	<a href="#">Height</a>	Gets or sets the height of the grid in grid dataset and the unit is pixel. The unit is pixels.
	<a href="#">MaxValue</a>	Gets or sets the maximum value of the grid matrix in grid dataset.
	<a href="#">MinValue</a>	Gets or sets the minimum value of the grid matrix in grid dataset.
	<a href="#">Name</a>	Gets or sets the name of the DatasetGridInfo.
	<a href="#">NoValue</a>	Gets or sets the empty value of the grid dataset. When the empty value exists in the grid dataset, user can use -9999 to express the empty value.
	<a href="#">PixelFormat</a>	Gets or sets the pixel format of the grid dataset. The pixel can be expressed with the byte, bit is the unit. For more information, please refer to the <a href="#">PixelFormat</a> enumeration.
	<a href="#">Width</a>	Gets or sets the width of the grid in grid dataset and the unit is pixel. The unit is pixels.

# Create Grid Dataset

- Implementation ideas and steps

**Step1: Construct DatasetGridInfo class**

**Step2: Set properties of the DatasetGridInfo class**



Name	Gets or sets the name of the DatasetGridInfo class.
Bounds	Sets the geographic bounds of the grid dataset.
EncodeType	Gets or sets the encoding type of data storage for the grid dataset.
Height	Gets or sets the height of the raster data for the raster dataset in pixels.
Width	Gets or sets the width of the raster data for the raster dataset in pixels.
BlockSize	Gets or sets the size of pixel block storage for the raster dataset in pixels. The default value is 128 pixels.

**Step3: Call Datasets. Create(DatasetGridInfo)**

# Introduction of Other Interfaces

	Name	Description
Workspace	ChangePassword	Modify the password of the open workspace.
	Close	Close the workspace.
Datasources	ModifyAlias	This method is used to modify the data source alias.
Datasource	CopyDataset	Copy datasets among datasources of the same or different engines. Copy a dataset to the current datasource.
	FieldToPointDataset	Create a point dataset from an X, Y coordinate fields in the associated attribute table of a vector dataset. The x,y coordinate fields in the attribute table of the vector dataset will be used as the x,y coordinates of the dataset to create the point dataset.
	LabelToTextDataset	Generate a text dataset from the attribute field of the dataset.
	RecordsetToDataset	Generate a vector dataset of the corresponding type from the content of a recordset. The vector dataset can be a point dataset, an attribute dataset, and so on.
Datasets	DeleteAll	Delete all datasets.
	CreateFromTemplate	Create new data based on the specified template dataset.
	...	...

# Summary

- Open workspace

**Workspace.Open()**

- Create datasource

**Datasources.Create()**

- Open datasource

**Datasources.Open()**

- Create dataset

**Datasets.Create()**

# Summary

- Workspace connection info class **WorkspaceConnectionInfo**
- Datasource connection info class **DatasourceConnectionInfo**
- Vector dataset info class **DatasetVectorInfo**
- Grid dataset info class **DatasetGridInfo**



*SuperMap* 北京超图

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# Thanks!

