USING ERDAS IMAGINE EASYTRACE
eTRAINING

Introduction

This eTraining module demonstrates how to digitize polyline vector features from satellite imagery using ERDAS IMAGINE Easytrace.

Software

- ERDAS IMAGINE

Data

- QuickBird-2 image of Prescott, Nevada

Transcript

0:09

Thank you for watching this Hexagon Geospatial eTraining module: Using ERDAS IMAGINE Easytrace. In this module we will look at digitizing polyline vector features from satellite imagery using the Easytrace assisted digitizing tools.

0:23

Let's start today with a multispectral image loaded in the ERDAS IMAGINE Viewer. This image, QuickBird-2 image provided by DigitalGlobe, is displayed using a False Color Infrared band combination to emphasize the difference between tracks and surrounding sparse vegetation.

0:39

When performing heads-up feature capture from satellite imagery, it is best to maximize the display parameters so the feature of interest is easily discernable. This will help the operator in manually capturing the feature and also increase the ability of Easytrace to accurately follow the feature's path or outline.

0:56

You'll make a few changes to optimize the display.

Zooming to 1:1 shows the roads and tracks we're interested in capturing, but not in quite enough detail. Navigate to the **Home** tab and use the Scale menu in the **Extent** group to zoom in to 200%.

1:12

At this scale you can now see pixel edges. To smooth the image and make the display look nicer, let's change the resampling method. From the **View** group on the **Multispectral** tab, change the Resampling Method technique from **Nearest Neighbor** to **Bilinear Interpolation**.

1:27

Next you need to create a vector layer. You'll use this layer to insert the roads you're going to capture. We could use an existing road layer, enable editing, and use it to capture the roads. In this example, let's start with a new layer.

Create a new shapefile layer by right-clicking in the 2D View and selecting **New Vector Layer**. Let's give the layer a name, such as roads.shp, and click **OK**. In the dialog that opens, select **ArcShape** as the Shapefile type and again click **OK**.

Note in the **Contents** pane that there is a new vector layer over the QuickBird layer and that the Vector group of the contextual tabs is now available in the ribbon.

2:06

In the **Styles** group on the **Drawing** tab, select a red line color and use the **Line Style** pull down to set the line thickness to two points. This will set the default styling for any vector you add.

2:18

You'll adjust the view slightly to better see the roads you want to digitize.

2:23

Let's use Easytrace to assist in the rapid capture of the curving features you see here. To activate it, click the **EasyTrace** button on the **Insert Geometry** group on the **Drawing** tab. When you want the software to automatically add vertices along a feature, turn on the **Easy Tracing** option. We'll turn this on now.

2:41

There are several **Feature Type** options within the Easytrace tool.

- **Boundary** is used to follow edges in the imagery, such as the boundary between a lake and surrounding land.

- **Ribbon** is used to trace a feature that has two distinct parallel edges such as a wide road.

- **Centerline** is used to create a single line in the middle of a linear feature.

For the roads and tracks in this image, use **Centerline**.

3:05

The **Tracing Mode** is used while capturing a specific geometry.

- **Rubber Band** will lay down a continuously updated vector following the feature in the image between the last vertex and the position of the cursor.

- **Discrete** shows a straight vector between the last vertex and cursor, but will only follow the feature when you click the next vertex location.

- **Manual** temporarily suspends Easytrace mode so that vertices can be manually placed in a classic heads-up digitizing mode.

We'll see examples of these in a few minutes.

3:36

Note that there are keyboard shortcuts between the Tracing Modes so that you can easily switch while in the middle of capturing a geometry. For example, you can use A, D, Shift to switch between **Rubber Band**, **Discrete**, and **Manual** modes.

From the **Insert Geometry** group, select the Polyline tool.

3:56

The first action required to use Easytrace is to point the software to a section of the feature which provides a representative cross-sectional template of the feature. This trains the software to recognize the road and assist in the digitizing process.

Left-click at one edge of the road and then left-click again at the other edge across from the first. ERDAS IMAGINE now has a template to compare to the other locations.

Place your cursor on the feature to be captured where you want to start the polyline geometry and left-click. Then move the cursor further along the feature.

4:29

Because **Rubber Band** tracing mode is selected, a line is continuously placed where the software thinks the feature is located between the first vertex and the cursor location. This helps to see if you're trying to jump too far in a single section - or if you captured a poor template.

4:45

If the rubber band does not stay on the feature, move the cursor to see if it can adjust. Place another key vertex further down the road by left clicking again, and the software will fill in more vertices between the two manually entered key vertices.

We'll continue down the feature, adding more key vertices until a suitable location is reached to terminate this geometry, such as an intersection. We'll double-left-click to terminate the capture and create the geometry.

5:12

We have more features to capture that have similar spectral properties to the first feature. Because they are spectrally similar, turn on the **Reuse Temp**(late) option. With this option active, you will not need to capture a new template before adding a new geometry. You'll turn it off when you need to acquire a new template for Easytrace to use.

Let's use the Polyline tool to insert more geometries.

5:34

While digitizing, note that Easytrace cannot negotiate sharp bends in linear features, so add a manual key vertex at the apex of any sharp turns.

Also note that if you encounter a section of the feature that is spectrally different to the template, Easytrace may not be able to follow the feature in that section.

5:53

Add a key vertex just before the problematic section, swap to **Manual** tracing mode (which can be done by pressing Shift on the keyboard), and manually digitize vertices to jump the gap. Then turn the **Rubber Band** mode back on again (using the A key).

6:08

If you're digitizing and reach the edge of the current display extent while capturing a geometry, you can hold down the middle mouse button to drag the data to a new location without needing to stop capturing the current geometry.

6:20

Easytrace may not work in all circumstances, but as we have seen in this module, it can often significantly increase the efficiency of capturing complex geometries which would require considerable user input if captured completely by traditional manual digitizing methods.

6:44

Thank you for watching this eTraining module from Hexagon Geospatial. For more eTraining, visit hexagongeospatial.com/eTraining.