

INTRODUCTION TO ARCVIEW & CREATION EDITING OF SPATIAL DATABASE

HANDS-ON

I. STARTING ARCVIEW PROGRAM

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-Double Click



-Or click at Start Menu





- 1. Application Window
- 2. Menu Bar
- 3. Button Bar
- 4. Tool Bar
- 5. Project Window

6. View Window
 7. Layout Window
 8. Chart Window

9. Table Bar

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GRAPHICAL USER INTERFACE (GUI)



II.CREATION EDITING OF SPATIAL DATABASE

Spatial data stores location of geographic features, along with attribute information describing what these features represent. The spatial data is stored in a vector or raster data structure, and corresponding attribute data is stored in a set of tables .

Creation of Spatial database

- Digitizing -----> Vector
- Scanning -----> Raster
- From image processing of remotely sensed data
 Image (Raster)



1.Tablet Digitizing

1.1 Setting digitizer tablet and Loading the Digitizer Extension

1.2 Registering the Map to be digitized

1.3 Creating new polygon theme

1.4 Splitting polygons

1.5 Merging polygons

1.6 Creating doughnut polygons

1.7 Creating line features

1.8 Creating Point features

1.9 Editing the attribute Table

1.1 Setting digitizer tablet and Loading the Digitizer Extension

- Turn on digitizer tablet
- Be ensure that the driver of digitizer tablet is installed
- Double click on on TabletWork icon
- at the Desktop Tray near clock.
- > Once TabletWorks Control Panel window is loaded, assign specific

function to the buttons (Ex: Left click on button 0, Double click left button 1,

Right click on button 2, and Double click right button 3).



Restart the computer to activate the digitizer

Start ArcView; Start -> Programs -> ESRI -> ArcView 3.2a -> Or Asian Institute of Technology



Select with a new View to open a new view

> Click OK



> Select Extension... in File menu then

check block Digitizer

> Click OK





🝳 Extensions		×
Available Extensions:		
ADRG Image Su ADRG Image Su CADRG Image Su Cad Reader CIB Image Supp Database Acces	pport Support ort	OK Cancel Reset
Dialog Designer ✔ Digitizer About:		Make Default

1.2 Registering the Map to be digitized

>To setup a map unit, choose properties from View Menu.

>Select Meter to map unit and Kilometer at distance unit, click OK

🍳 View Properties	×
Name: View1	ок
Creation Date: 18 ¾ÄÉÀÒ¤Á 2003 19:36:49	Cancel
Creator:	
Map Units: meters	-
Distance Units: kiometers	-
Projection Area Of Interest	
Background Color: Select Color	
Comments:	
	-
	_

- In View menu click Digitizer setup
- > In dialogue box Click digitize puck button,
- > Move the Puck to check whether the puck is functioning or not.





A record appears in the dialogue for each control point digitized

_ 🗆 X 🚨 Digitizer Setup $11028 \leftrightarrow$ Save.. Load... > Write down ground coordinates for all recorded 8707 \$ Units Meters ld# X Coordinate Y Coordinate Error (km) control points in the X and Y Coordinate fields, then 1 0.0042 500000 1900000 × 2 1900000 0.0042 650000 type to each record × ; 3 0.0042 1750000 650000 4 0.0042 1750000 500000 Check The Root Mean Square (RMS) that it should V Errort Error Report... 0.004 in be lower than the Error Limit. Calculated Error: 0.003 in Cancel

Click Register button, once it is activated

If the calculated error is larger than the Error Limit, you cannot register your map, and you'll have to do one of the following:

- Re-digitize control points on your paper map.
- Re-enter the corresponding ground control points.
- Increase the value in the Error Limit edit box and press TAB key.

The value of the Error Limit field can be increased depending on the scale of map and accuracy level. To maintain highly accurate geographic data, the RMS should be kept under 0.004 inches in page units. For less accurate data, the value can be as high as 0.008 inches or its equivalent measure.

Switching between digitizing mode and mouse modes > Press F2 from key board or go to view menu and select Digitizer as puck or Digitizer as Mouse

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Ero	perties		
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Ge	ocode Ada	dresses	
Ado	d Event Th	neme	
Ne	w Theme		
The	emes On		
The	emes Off		
Lay	out		
то	C Style		
Ful	l E <u>s</u> tent		
Zo	om In		
Zo	om <u>O</u> ut		
Zoo	om To The	emes	
Zoo	om To <u>S</u> ele	ected	
Zoo	om Pre <u>v</u> iou	as.	
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Dig	jitizer as M	ouse F	2
Str	ea <u>m</u> Tolera	ance	
En	able Strea	m Model F	3

1.3 Creating Polygon Theme

- Choose New Theme from View menu.
- > From the dialogue, select Polygon from the dropdown list is, and press OK.



🔍 New Theme	×
Feature type:	OK
Polygon	Cancel
Line	
Polygon	
•	

> Navigate to working directory and set new name, click OK

🍳 New Theme		×
File Name: boundary.shp	Directories: d:\training	ОК
	it d:\ it raining in health-gis	Cancel
	Drives: d:	

•Create new polygon

- ➢ From the dropdown list of Drawing Tool Palette, click on ☐ Polygon tool
- Press '0' of digitizer puck button, start click first of polygon on tablet
- Continue digitizing along the line of the polygon and then double click or press button '1' when you are finished

If you can not see the

Polygon after digitizing

Click on Zoom to Active

Theme button to view.





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•Share part of the boundary

Start

Click on Polygon tool for subsequent polygons to be digitized. To create a new polygon if it shares part of its boundary with an existing polygon(s)
 Press '0' of digitizer puck button, click first starting point inside the existing polygon, digitize along the line of new polygon

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> Press'1' when click the stop point inside the existing polygon

Stop



1.4 Splitting Polygons While editing Polygons, you can use the Polygon Split tool to trace a line

across a defined polygon to split it into separate polygons.

≻ Click the polygon split tool

> Press '0' of digitizer puck button, click first starting point outside an existing polygon and digitize along the shared line between two polygon Press '1' when click the stop point outside the existing polygon Properties... Stop Editing > Save Edits and Stop Editing in Theme menu when finish Save Edits Save Edits As... digitizing





1.5 Merging Polygons

Group of polygons can be merged to one polygon

Select Polygon to be merged using

> Edit menu, Choose Union Features







1.6 Creating Doughnut Polygons

If in a polygon, an area is to be deleted > Using Drawing Tool Palette, circle to the required area is marked

Select the polygon marked for the deletion along with the area selected for deletion



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Choose "Combine Features" to cut the area marked



1.7 Creating Line Features

- Choose New Theme from View menu.
- > From the dialogue, select Line from the dropdown list is, and press OK.



🍳 New Theme		×
Feature type:		ОК
Polygon		Cancel
Line		
Polygon	T	

> Navigate to working directory and set new name, click OK

🝳 New Theme		×
File Name: roads.shp	Directories: d:\training	ОК
	C d:\ C training	Cancel
	Drives: d:	

- > From the dropdown list of Drawing Tool Palette, click on _____ "Draw Line" tool
- > Press '0' of digitizer puck button, start click first of polygon on tablet
- Continue digitizing along the line and then double click or press button '1' when you are finished

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> Split the line click on _____ "Draw line to split feature"

1.8 Creating Point Features

Choose New Theme from View menu.

> From the dialogue, select Point from the dropdown list is, and press OK.



🔍 New Theme	×
Feature type:	ОК
Point	Cancel
Line Polygon	
▼	

> Navigate to working directory and set new name, click OK

🍭 New Theme		×
File Name: hospitals.shp	Directories: d:\training	ОК
	d:\ training	Cancel
	Drives: d:	

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Similar to crate a new polygon theme and/or line feature





1.9 Editing the attribute Table

- > Activate our digitized map of previous steps (Boundary.shp)
- > Open attribute table of this theme, select Table in Theme menu or click
- Activate on the table and click Start Editing in Table menu
- Input Id number into ID field
- Select Add Field ArcView GIS 3.2a e Edit Iable Fjeld ⊠Too Cut Ctrl+X CODY Ctrl+C Paste Ctrl+V Undo Edit Ctrl+Z Redo Edit Ctrl+Y Add Eield.. Add Record Ctrl+A Select All Select None





> Add a new field Name: Area

Switch Selection

Type: number, Width: 10 and Decimal Places: 2

Click OK

👰 Field Definition	×
Name: Area	OK
Type: Number	Cancel
Width: 10	
Decimal Places: 2	



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When we digitize our data with ArcInfo, the software calculates the area and perimeter of the polygons by itself. But in ArcView we have to request to calculate the area and perimeter.

Click activate on 'Area' Field name in the table

Shape	ID	Area	
Polygon	1		_
Polygon	2		1
Polygon	3		
Polygon	0		

Click on calculator and type [Shape].returnarea into the text box

Click OK, Select Save Edit and Stop Editing in Table Menu

🎗 Field Calculator		×
Fields	Туре	Requests
[Shape]	Number	*
[Area]	C Date	
		7
		< <
است (área) =		, <u> </u>
[Shape].returnarea		■ OK
		Cancel

2.Screen Digitizing

-Add TIFF file image "TM_svk001129"

-Add boundary theme name "Savanakhet.shp"

-To copy a theme to be a new file name, Activate on "Savanakhet.shp" theme

-Select Covert to Shapefile in Theme Menu



- -Input new theme name as "Lu2000.shp"
- -To edit this theme, click
- Start Editing in Theme Menu.
- -Once dash-line appear around Check box, it means this theme can be edited.





- -Then change theme's color as transparent so that image beneath can be seen.
- -Select Show Symbol Window
- at Window menu

-At Legend Editor window, select Legend Type as Single Symbol -Double click at Symbol legend, then select Fill Palette style. -Click Color Palette button and select color of Back ground (should be no color) & Fore ground (any color).

🔍 Legend Edit	or					
Theme:	l.shp	Load				
Legend Type: S	ingle Symbol	Save				
		Default				
Symbol	Label					
Double click the	symbol to edit it					
Double click the symbol to edit it Double Click						
Advanced	Statistics Undo	Apply				



-Then click Apply button



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Eile Edit View Iheme Graphics

Cut Themes Copy Themes

Delete Themes

Cut Features

Copy Features

Delete Features

Combine Features Union Features Subtract Features

Intersect Features

Select All Graphics

Paste

Undo Feature Edit Ctrl+Z Redo Feature Edit Ctrl+Y

Ctrl+X

Ctrl+C

Ctrl+V

Del

-From the dropdown list of Drawing Tool Palette, click on C Polygon tool

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-Click Select Feature button Select both new

polygon and Main polygon

-Select Subtract Features to cut these two

polygons

-Select a proper tool to complete a landuse Digitizing.





-Use Edit Menu to
Edit polygons
-Select Undo Feature
Edit if you want cancel
a recent editing and
return to the previous step.





🍳 ArcView GIS 3.3								
Eile	<u>E</u> dit	⊻iew	Iheme	<u>G</u> raphics	Window	Help		
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			Stop <u>E</u> diting					
			Save Edjts					
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	🎗 Vie	:w1	Convert to <u>S</u> hapefile					

-Save and Stop Editing, Once finished digitizing