

# Section 7: Subsetting an Image

## Section Objective

This section will introduce students to a multitude of approaches for subsetting. A subset using an active AOI layer on screen will be used. The steps to create and define shapefile attributes will also be covered. This will provide a starting point to lead into subsetting by shapefile attributes using the MosaicPro Tool

## Tools Used

- AOI Layer Area-of-Interest Layer used for subsetting and opacity
- Subset Image Core Subset Tool using Raster and AOI as Input
- Display Two Views Display Icon to show two separate views (windows)
- Vector Layer New Shapefile including point, line and polygons
- Polygon Editor Define a new polygon feature for associated vector
- Show Attributes Displays the Feature Attributes Table
- Column Properties Allows creation and editing of Attribute Features
- Mosaic Pro from 2DView Shortcut to load current view raster/s into MosaicPro
- Output Definition Dialog within MosaicPro to define Subset Output

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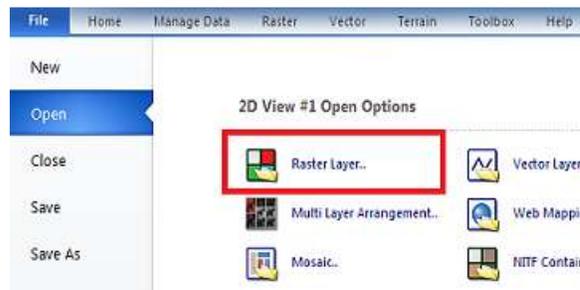
*Class Notes*

# Subsetting an Image

## Task 1: Subset by AOI

This first subset example will guide you over how to digitize an AOI polygon on screen and subset your imagery to the area of interest to suit your needs

1. Ensure you have a clear IMAGINE Session Open
2. File | **Open** | **Raster Layer**

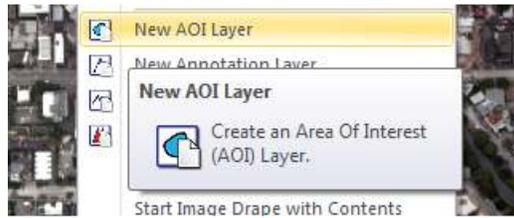


3. Open TrainingData\Sorrento\Ortho\_images\*sorrento\_rgb\_combined\_15cm.tif*

This is an Ortho Image of Sorrento Beach, Australia



4. Right-Click in the 2DView | **New AOI Layer**



AOI “Area of Interest” is used in IMAGINE to define a range of processing tasks for a set area. In this case, will subset the image to this AOI Layer

5. A new AOI Layer will become present in the Contents Panel

6. Select this New AOI Layer in Contents Panel and Click on the Drawing Tab | Insert Geometry Group | **Polygon Icon**



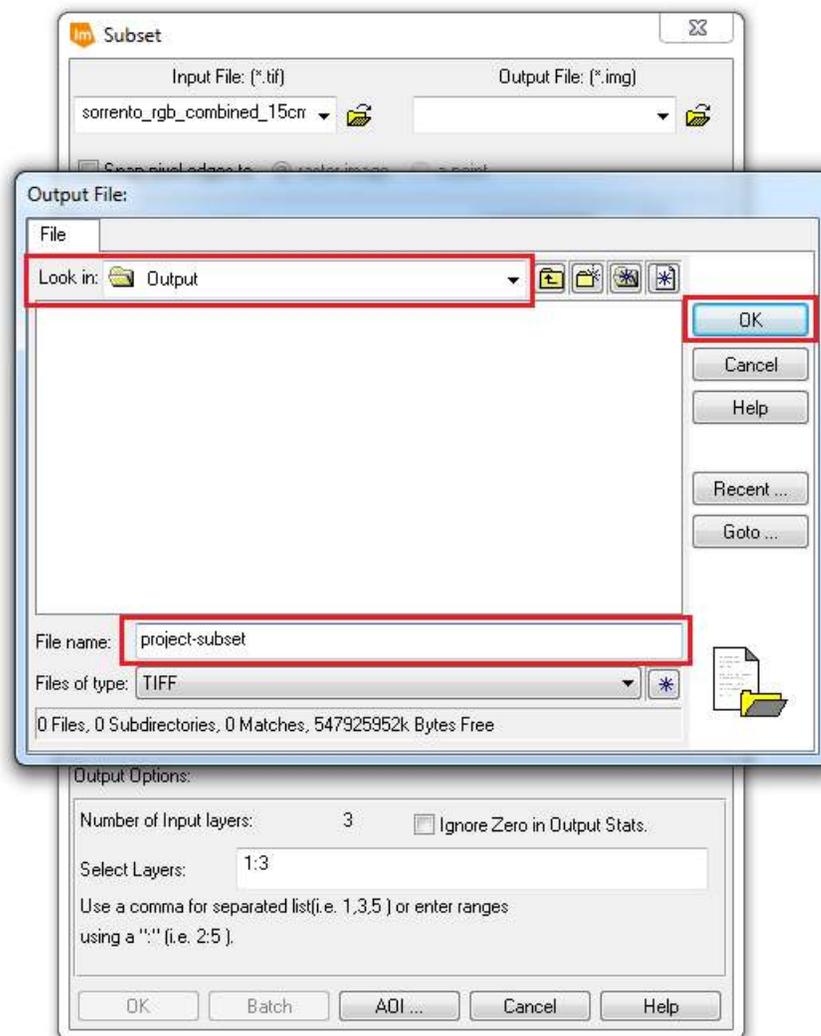
7. Digitize a polygon along coast line as illustrated below. Double click to close polygon



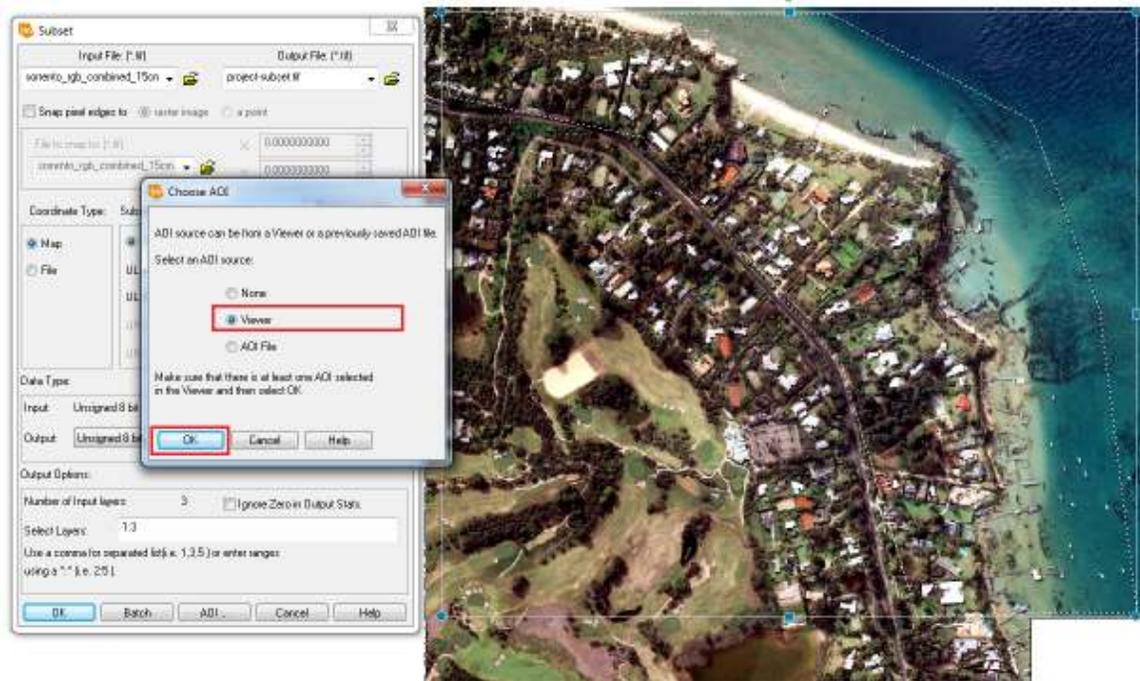
8. Ensure the AOI Layer is highlighted in the viewer
9. Select **Create Subset Image** from the Raster Tab | Subset & Chip Pull down list



10. This will open the Subset Tool. Navigate to your TrainingData\Output Folder. Specify the Output File **project-subset.tif** and click **OK** to close Output File Dialog

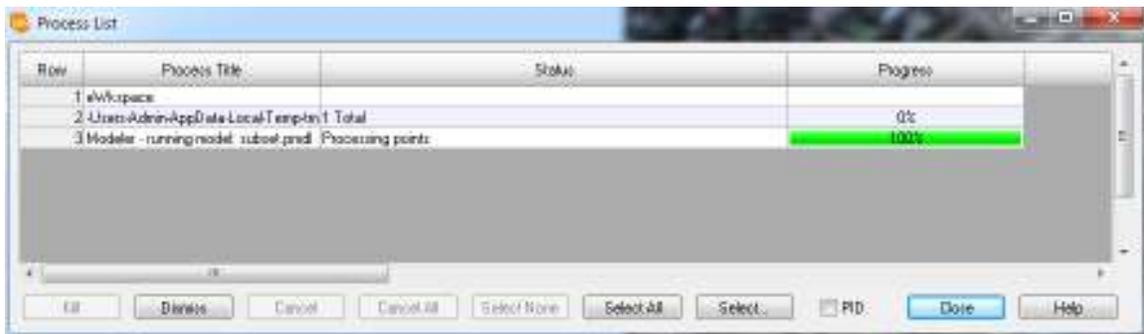


11. Click on the **AOI** button and select **Viewer** then click **OK** to close the Choose AOI dialog



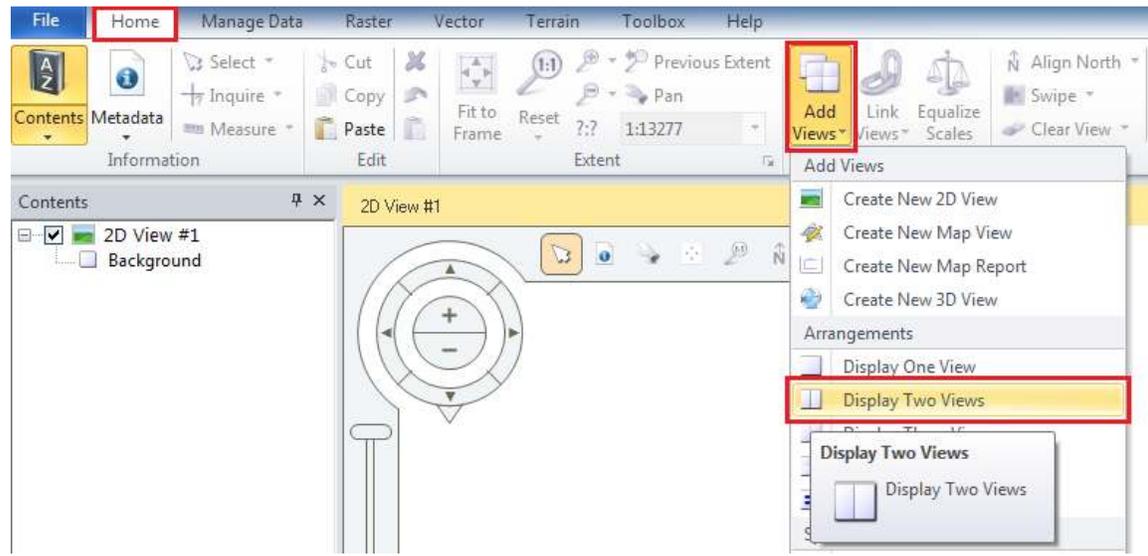
12. Leave all other settings as Default, Click **OK** to run subset tool

13. IMAGINE will display the Process List Dialog Box



14. This is a useful display to check on the status of your processing tasks and to check if it completes without any error. Once Complete, **Close** Process List

## 15. Home Tab | Add Views | **Display Two Views**



16. Open the Output Image **project-subset.tif** to view result

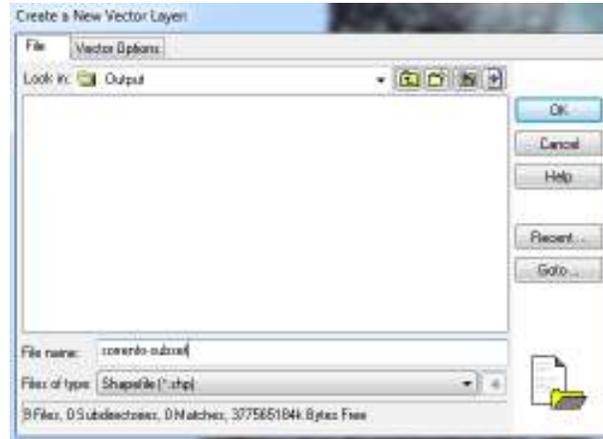
17. **Close 2<sup>nd</sup> Viewer**

Note: Depending on if/any No Data values are set in your imagery – you can change this via Image Metadata. Open Image Metadata from the Home Tab, load your image and select Edit | Set/Clear NoData Value

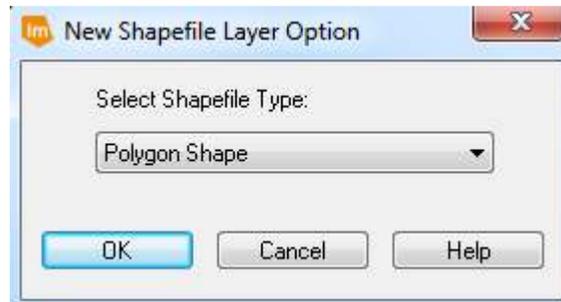
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## Task 2: Creating Shapefiles and Defining Attributes

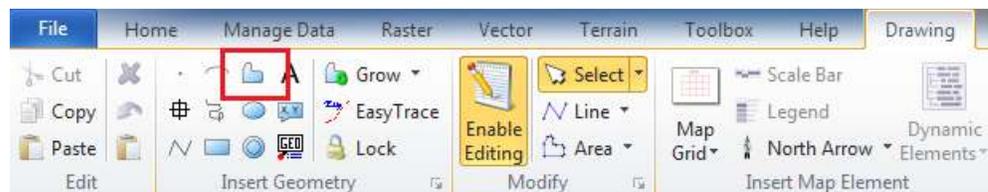
1. In a clear 2D View Open **Sorrento\_rgb\_combined\_15cm.tif** from TrainingData\Sorrento\Ortho\_images folder
2. Right Click in the Viewer and select **New Vector Layer**  
You will now create a multi-part polygon to illustrate subsetting images by feature attributes.
3. Navigate to your TrainingData\Output Folder and save the New Vector File as **sorrento-subset.shp** Click **OK** to Close



4. Define the Layer Option as **Polygon Shape** and Click **OK** to Close

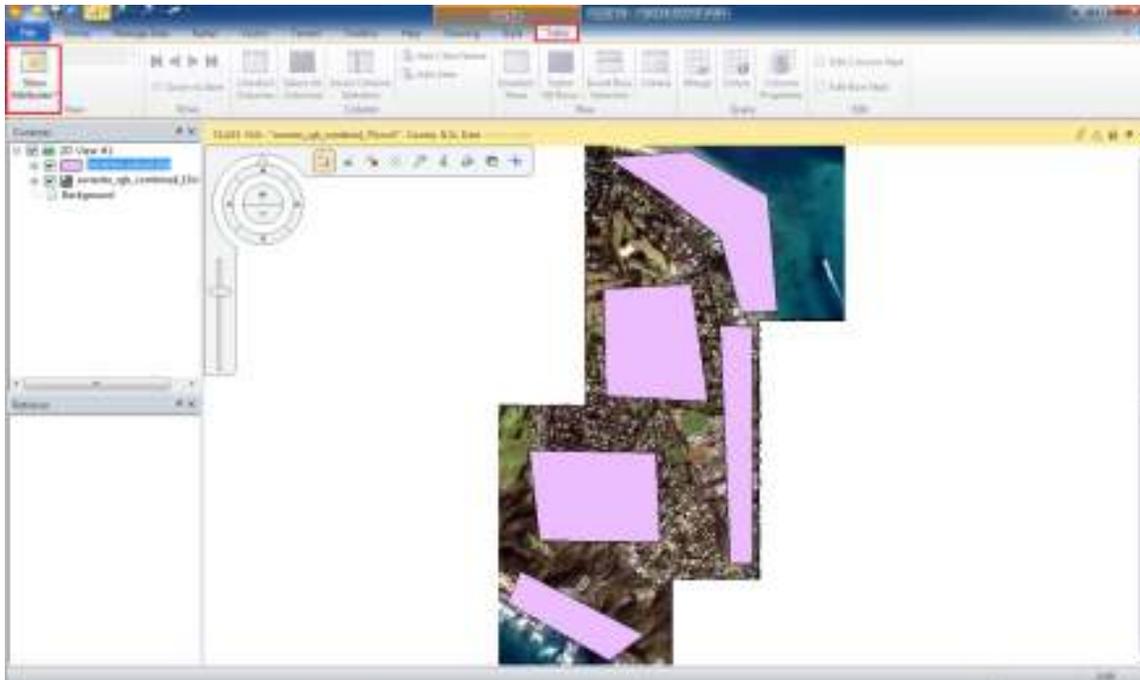


5. Select the **Polygon** Editing tool from the Drawing Tab | Insert Geometry Group



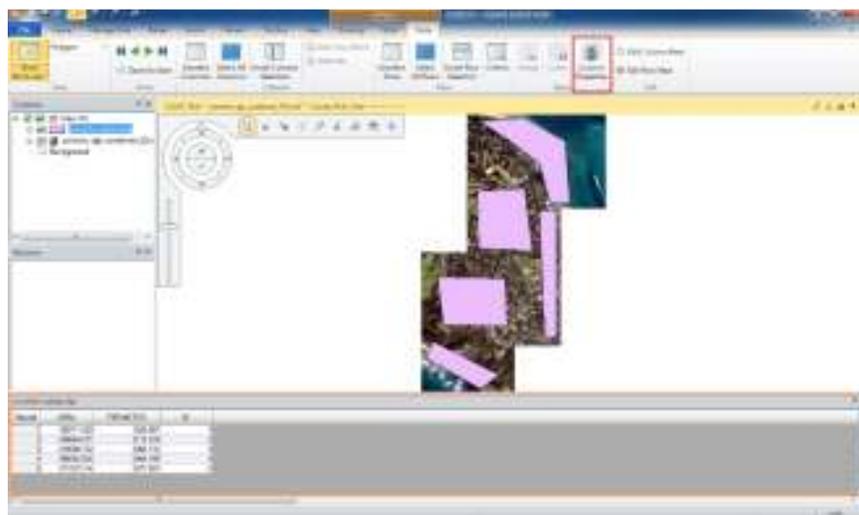
6. Now digitize Five (5) Polygons on the Image. Remember to double-click to close polygon. This tool is to illustrate the basic editing functionality and how you can use this in a subsetting workflow

7. Once the Polygons are digitized select **Show Attributes** from the Table Tab



The Basic Table of Attributes for *sorrento-subset.shp* will appear. Now Feature Attributes will be defined. These Feature Attributes will be used in the Subset Output Names in the following steps

8. With the Attribute Table now visible, select **Column Properties** from the Table Tab



9. In the Column Attributes Dialog click **New** and define the following:

Title: **Project\_ID**  
Type: **String**  
Max Width: **20**  
Display Width: **20**  
And then click **OK**



10. Type the Project\_ID's as "Project-A" to "E" as shown

Record	AREA	PERIMETER	ID	Project_ID
1	156711.529	1928.887	1	Project-A
2	350864.671	3119.224	2	Project-B
3	218588.722	3066.133	3	Project-C
4	356062.824	2404.185	4	Project-D
5	371007.514	2473.501	5	Project-E

11. **Right-Click** on the Shapefile in the Contents Panel and **Save Layer**

### Task 3: Subset by Shapefile Attributes

1. If this is not already open, In a clear 2D View Open **Sorrento\_rgb\_combined\_15cm.tif** from TrainingData\Sorrento\Ortho\_images folder
2. Select **MosaicPro** from **2D View** from the Raster Tab | Mosaic Pull-down list



A new MosaicPro window will open with the image contents of your viewer already loaded into the mosaic project. This task will only use the output definition option, please review other mosaic training documentation if you would like a more in-depth look into this tool

3. Select **Set Output Options Dialog** icon from the toolbar



4. Define the following settings and Click **OK**

Method: **Polygon Vector File**

Vector Name: **sorrento-subset.shp**

*If you have not already created this file, use the shapefile found in the TrainingData\ExampleOutput Folder*

Output Multiple Polygons to **Multiple Files**

Attribute for File Name: **Project\_ID**



5. Click **Run** (right of Output Options Icon)



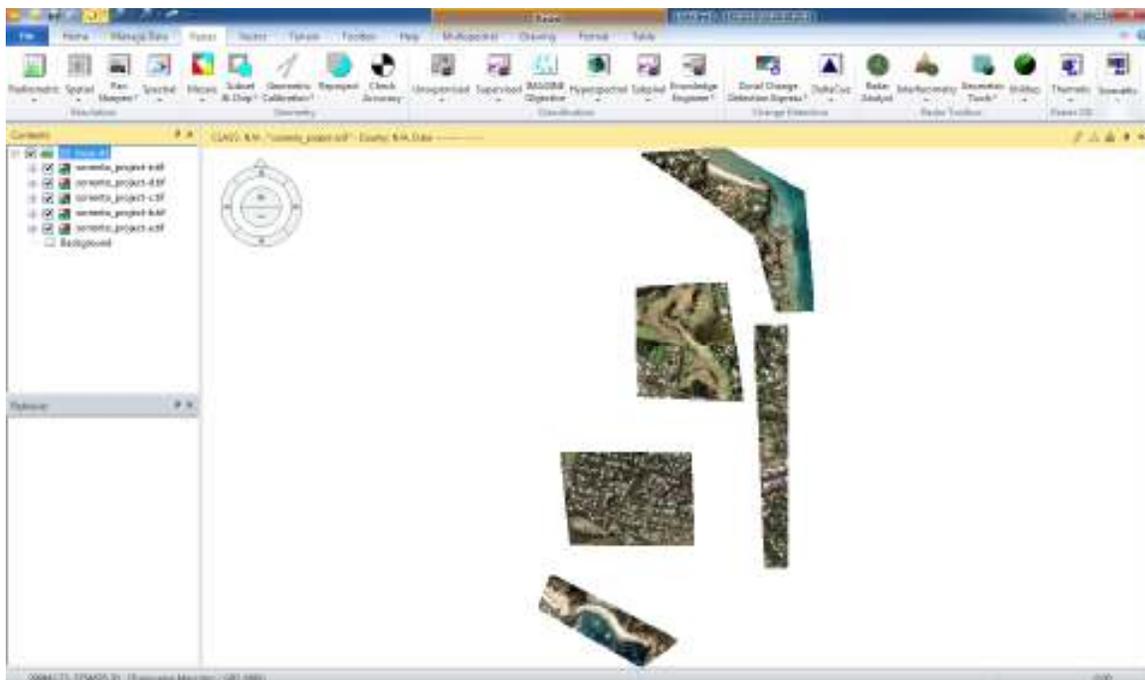
6. Navigate to your Output Folder and Save As **sorrento.tif**

7. Click **OK**

Your input image will now be subsetted according to Project ID (Features you defined in previous task) and the file name will follow this naming convention:  
"OutputName"\_"FeatureID".ext

E.g. sorrento\_project-a.tif

8. In a clear view open your Five(5) subsetted images to view Subset Result



9. **Clear View**

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## Task 4: Dice Image

Users will learn how to split an image into smaller, regularly sized and spaced output tiles. Neighboring new images can overlap each other by an extent that you specify.

1. From the Raster tab click **Subset & Chip > Dice Image**.
2. Select **sorrento\_rgb\_comibned\_15cm.tif**
3. Name the Output file **sorrento.img**



*The Dice Image tool will automatically append an extension to the end of each diced image.*

4. Change the Definition Units to **meters**.
5. Check **Calculate Pyramids ON**.
6. Change the **Dimension in x dir** and **Dimension in y dir** to **500**.
7. Change the **Collar extent X** and **Collar extent Y** to **10**

This will create a series 500 x 500 meter tiles which overlap by 10 metres. We could also select pixels or megabytes as the units to dice by.

8. Click **OK** to run the Dice process.
9. Once the process has completed, navigate to the Outputs and open all of the resulting images from **Sorrento\_1\_1.img** to **Sorrento\_6\_4.img**.

***Do the images look different?***

***If they look different, what could be done to display them the same?***

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## Task 5: Dicing an image with a Shapefile

Students will learn how to dice an image into 5 x 5 minute tiles using a Shapefile. This exercise will use MosaicPro to set the output.

1. Go to **File > Open Raster Layer**.
2. Open the dataset *Pleiades\_melbourne\_pan.ecw*

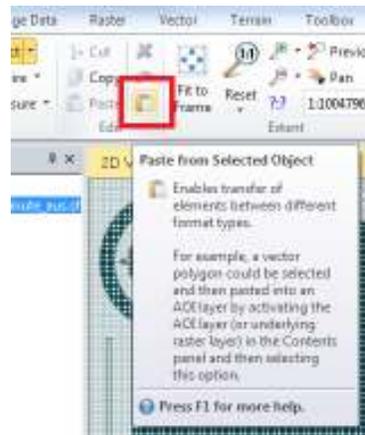
For this exercise we will use a Shapefile containing 5 minute tiles for all of Australia. As this Shapefile contains over 200,000 individual polygons, we will copy and paste only the required tiles into a new Shapefile.

3. Go to **File > Open Vector Layer**.
4. Open the Shapefile dataset. This dataset may take some time to load.
5. **Right click** on the Pleiades image in the contents pane and select **Fit Layer to Window**.

We will now select only the tiles that fall over this dataset.

6. Arrange the data layers in the contents pane so the Shapefile appears on top.
7. You may want to set the interior of the Shapefile to “**No Fill**” which can be done in the Drawing tab by setting Area Fill to “**No Fill**”.

8. Ensure the Arrow button is selected
9. Whilst holding the **Shift** key, click any Shapefiles which intersect the image.
10. From the **Home** tab, click the **Copy** button
11. Click **Paste from Selected Object** button.



The selection is pasted as an AOI. We could also paste this into a new shapefile.

12. **Right click** on the new AOI layer in the contents pane and select **Save-As**.
13. Name the AOI file *5min\_select.aoi*.
14. From the **Toolbox** tab, select **MosaicPro**.
15. From MosaicPro click the Add Image icon .
16. Select *Pleiades\_melbourne\_pan.ecw*.

17. Click the **Output Options** icon .
18. From the **Method** drop-down list choose **User-Defined AOI**.
19. Click the **Set Output AOI** button.
20. Check AOI File on.
21. Navigate to **5min\_select.aoi**.
22. Click **OK**.
23. Click **OK** in the Output Image Options dialog.
24. Click the run icon in **MosaicPro** .
25. Wait for the process to complete.
26. Open the resulting tiles in IMAGINE.

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*Class Notes*