

Subset an Image

Many images used in IMAGINE cover a large area, while the actual area being studied can only cover a small portion of the image. To save on disk space and processing time, you can make new images out of a subset of the entire data set.

In this workflow, you use the Subset dialog to take a subset of a small urbanized Area of Interest (AOI) from a larger scene of Washington, DC. One workflow demonstrates the results when the subset pixels are not snapped to the pixel grid of the original image, and another workflow demonstrates the results when subset pixels are snapped.

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Data Set

Example data sets are provided with the software and are installed separately. The example image used in this workflow is a suggested data set.

Image Name	Image Size	Pixel Size	Sensor	Map Projection
dc_ikonos_subset.img	3623 rows x 4293 columns 3 bands	1.0 meter	IKONOS	UTM

Create an AOI to Represent the Subset

In this workflow, you create an AOI (area of interest) within a large image by using an Inquire Box with Snap to Raster option disabled. Then you use the AOI to create a subset image.

1. Open the image **dc_ikonos_subset.img** in a 2D View. This is an image of Washington, DC, USA.

2. Click **Home** tab >  **Fit to Frame** to fit the image into the View pane.

3. Click **Home** tab >  **Inquire** ▼ > **Inquire Box** to open an [Inquire Box](#) and corresponding dialog.

4. Click the **Snap to Raster** checkbox to uncheck this option. This tells the Subset function to use the exact coordinates you enter for the Inquire Box.

5. Enter the following coordinates into the Inquire Box dialog:

ULX: 325921.85

ULY: 4307256.90

LRX: 326039.28

LRY: 4307167.18

6. Press Enter on your keyboard.
7. Click **Apply** on the Inquire Box dialog. The Inquire Box moves to the new coordinates.

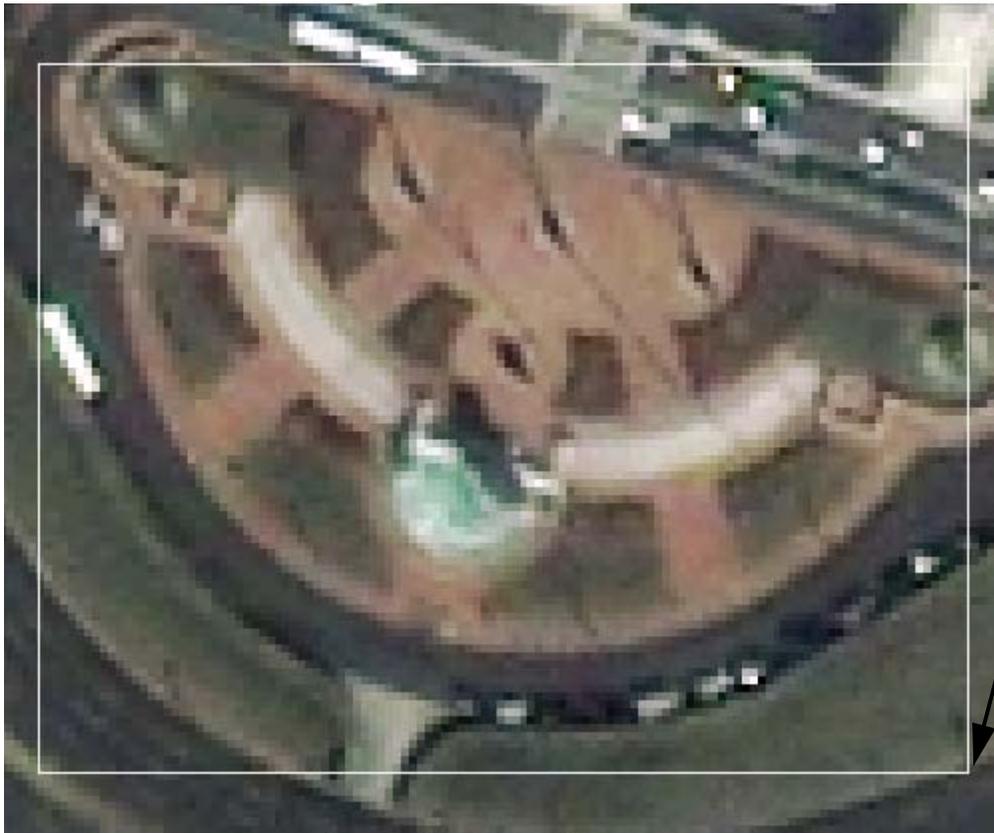


The Inquire Box coordinate values change slightly because of precision of the Inquire Box graphic at the current zoom level.

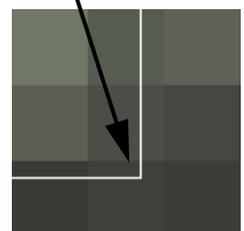
When you type in coordinates when the image is zoomed out, the screen location of the Inquire Box graphic may not be placed on the actual entered coordinates, but the values reported in the Inquire Box dialog must be those of the image at those coordinates.

Now when you zoom in, the Inquire Box graphic updates its screen position to the more precise positioning based on the coordinate you originally entered.

8. Click inside the Inquire Box in the 2D View and scroll your mouse wheel to zoom in.
The image in your View should look something like this:



Note that the corners of the Inquire Box are not snapped to the pixel centers.



Create Subset Image without Snapping

In this workflow, you use the Subset dialog to take a small Subset from a large image without using the Snap to Raster option.

1. Click **Raster** tab >  **Subset & Chip > Create Subset Image**.
The [Subset](#) dialog opens.
In the **Input File** field, note the file name **dc_ikonos_subset.img** is already placed.
2. Under **Output File**, enter **dc_inqbox_no_snap.img** in a directory where you have write permission.
3. Click the **From Inquire Box** button to transfer the coordinates from the Inquire Box to the Subset dialog.
Note that the **UL X**, **UL Y**, **LR X**, **LR Y** coordinates in the Subset dialog update to the same coordinates reported in the Inquire Box dialog.
4. Click **OK** in the Subset dialog to generate the subset image.
The [Process List](#) dialog opens, tracking the progress of the function.
When the Job is complete, close the Job Status dialog.

Load the Subset with the Original Data

1. The original image should still be displayed in the View.
2. In the IMAGINE Workspace, click in the 2D View to activate it, then click  in the [Quick Access Toolbar](#).
3. Click the **Recent** button in the Select Layer To Add dialog.
4. Select the file you just created, **dc_inqbox_no_snap.img**, and click **OK**.
5. Click **OK** in the Select Layer To Add dialog.
6. The subset image displays in the View over the original image.
7. In the [Contents](#) panel, note the two layers are listed:
 - dc_inqbox_no_snap.img
 - dc_ikonos_subset.img

The images in your View should look something like this:



The darker pixels belong to the subset image.

The pixels appear to shift. Actually, the pixels are redrawn to match the exact coordinates of the Inquire Box. Note how the corner of the Inquire Box is placed in the Subset pixel.



Pixel Shift when Pixels are not Snapped to Raster

When a subset of an image is taken from an Inquire Box that is not snapped to the pixel grid of the original image, the subset is drawn using the exact coordinates of the of the Inquire Box. Because the subset pixel grid differs slightly from the original image's pixel grid, the subset image appears "shifted" from the original image.

8. In the [Contents](#) panel, right-click on `dc_inqbox_no_snap.img` and select **Remove Layer**.

The original image `dc_ikonos_subset.img` and the Inquire Box should still be displayed in the View.

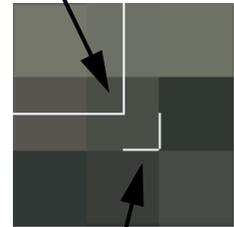
Create Subset Image with Snapping

1. In the Inquire Box dialog, click the **Snap to Raster** checkbox to make sure it is active (checked). Click **Apply**.

The coordinates in the Inquire Box dialog update to reflect the new corner coordinates. The Inquire Box snaps to the pixels centers and looks like this:



The Inquire Box snaps to the centers of the included pixels.



These guides indicate the edges of the included pixels.

2. Click **Raster** tab >  **Subset & Chip > Create Subset Image.**

The [Subset](#) dialog opens.

In the **Input File** field, note the file name **dc_ikonos_subset.img** is already placed.

3. Under **Output File**, enter **dc_inqbox_snap.img** in a directory where you have write permission.
4. Click the **From Inquire Box** button to transfer the coordinates from the Inquire Box to the Subset dialog.
Note that the **UL X**, **UL Y**, **LR X**, **LR Y** coordinates in the Subset dialog update to the same coordinates reported in the Inquire Box dialog.
5. Click **OK** in the Subset dialog to generate the subset image.

The [Process List](#) dialog opens, tracking the progress of the function.

When the Job is complete, close the Job Status dialog.

Load the Snapped Subset

1. The original image should still be displayed in the View.
2. In the IMAGINE Workspace, click in the 2D View to activate it, then click  in the [Quick Access Toolbar](#).
3. Click the **Recent** button in the Select Layer To Add dialog.

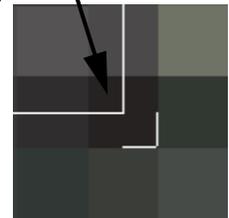
4. Select the file you just created, `dc_inqbox_snap.img`, and click **OK**.
5. Click **OK** in the Select Layer To Add dialog.
6. The subset image displays in the View over the original image.
7. In the [Contents](#) panel, note the two layers are listed:
 - `dc_inqbox_snap.img`
 - `dc_ikonos_subset.img`

The images in your View should look something like this:



The darker pixels belong to the subset image.

The pixels line up with the pixels in the original image.



To continue with a workflow topic, click your internet browser's Back button to return to the previous workflow.