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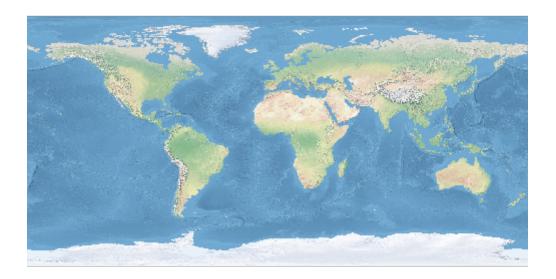
## Raster Recipes

The Raster classes are in the geoscript.layer package.

### **Raster Properties**

Read a Raster from a File

```
File file = new File("src/main/resources/earth.tif")
Format format = Format.getFormat(file)
Raster raster = format.read("earth")
```



Get the Raster's Bounds.

```
Bounds bounds = raster.bounds
println "Bounds: ${bounds}"
```

Bounds: (-179.99999999997,-89.99999999998205,179.99999999996405,90.0,EPSG:4326)

Get the Raster's Projection.

```
Projection projection = raster.proj
println "Projection: ${projection}"
```

Projection: EPSG:4326

Get the Raster's Size.

```
List size = raster.size
println "Size: ${size[0]}x${size[1]}"
```

```
Size: 800x400
```

Get the Raster's number of columns and rows.

```
int cols = raster.cols
int rows = raster.rows
println "Columns: ${cols} Rows: ${rows}"
```

```
Columns: 800 Rows: 400
```

Get the Raster's Bands.

```
List<Band> bands = raster.bands
println "Bands:"
bands.each { Band band ->
    println " ${band}"
}
```

```
Band:

RED_BAND

GREEN_BAND

BLUE_BAND
```

Get the Raster's block size.

```
List blockSize = raster.blockSize
println "Block size: ${blockSize[0]}x${blockSize[1]}"
```

```
Block size: 800x8
```

Get the Raster's pixel size.

```
List pixelSize = raster.pixelSize
println "Pixel size: ${pixelSize[0]}x${pixelSize[1]}"
```

```
Pixel size: 0.4499999999995505x0.449999999999551
```

Get more information about a Raster's Bounds.

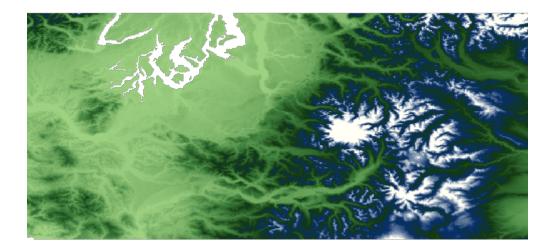
```
File file = new File("src/main/resources/earth.tif")
Format format = Format.getFormat(file)
Raster raster = format.read("earth")
List<Band> bands = raster.bands
bands.each { Band band ->
    println "${band}"
    println " Min = ${band.min}"
    println " Max = ${band.max}"
    println " No Data = ${band.noData}"
    println " Is No Data = ${band.isNoData(12.45)}"
    println " Unit = ${band.unit}"
    println " Scale = ${band.scale}"
    println " Offset = ${band.offset}"
    println " Type = ${band.type}"
}
```

```
RED_BAND
  Min = 0.0
  Max = 0.0
  No Data = [0.0]
  Is No Data = false
  Unit = null
  Scale = 1.0
  Offset = 0.0
  Type = byte
GREEN_BAND
  Min = 0.0
  Max = 0.0
  No Data = [0.0]
  Is No Data = false
  Unit = null
  Scale = 1.0
  Offset = 0.0
  Type = byte
BLUE_BAND
  Min = 0.0
  Max = 0.0
  No Data = [0.0]
  Is No Data = false
  Unit = null
  Scale = 1.0
  Offset = 0.0
  Type = byte
```

#### **Raster Values**

Get values from a Raster

```
File file = new File("src/main/resources/pc.tif")
Format format = Format.getFormat(file)
Raster raster = format.read("pc")
```



Get values from a Raster with a Point.

```
double elevation = raster.getValue(new Point(-121.799927,46.867703))
println elevation
```

```
3069.0
```

Get values from a Raster with a Pixel Location.

```
List pixel = [100,200]
elevation = raster.getValue(pixel)
println elevation
```

288.0

### **Raster Processing**

#### Crop

Crop a Raster with a Bounds

```
File file = new File("src/main/resources/earth.tif")
Format format = Format.getFormat(file)
Raster raster = format.read("earth")
Raster croppedRaster = raster.crop(new Bounds(-160.927734,6.751896,-34.716797,57.279043, "EPSG:4326"))
```

