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Process Recipes

The Process classes are in the [geoscript.process](#) package.

Execute a built-in Process

Create a Process from a built-in process by name

```
Process process = new Process("vec:Bounds")
String name = process.name
println name
```

```
vec:Bounds
```

Get the title

```
String title = process.title
println title
```

```
Bounds
```

Get the description

```
String description = process.description
println description
```

```
Computes the bounding box of the input features.
```

Get the version

```
String version = process.version
println version
```

```
1.0.0
```

Get the input parameters

```
Map parameters = process.parameters
println parameters
```

```
[features:class geoscript.layer.Cursor]
```

Get the output parameters

```
Map results = process.results  
println results
```

```
[bounds:class geoscript.geom.Bounds]
```

Execute the Process to calculate the bounding box of all Features in a Layer

```
Workspace workspace = new GeoPackage('src/main/resources/data.gpkg')  
Layer layer = workspace.get("places")  
Map executeResults = process.execute([features: layer])  
Bounds bounds = executeResults.bounds
```



Listing built-in Processes

Get the names of all built-in Processes

```
List<String> processes = Process.processNames  
processes.each { String name ->  
    println name  
}
```

```
vec:Aggregate  
vec:BarnesSurface  
vec:Bounds  
vec:BufferFeatureCollection
```

vec:Centroid
vec:ClassifyByRange
vec:Clip
vec:CollectGeometries
vec:Count
vec:Feature
vec:FeatureClassStats
vec:Grid
vec:Heatmap
vec:InclusionFeatureCollection
vec:IntersectionFeatureCollection
vec:LRSGeocode
vec:LRSMeasure
vec:LRSegment
vec:Nearest
vec:PointBuffers
vec:PointStacker
vec:Query
vec:RectangularClip
vec:Reproject
vec:Simplify
vec:Snap
vec:Transform
vec:UnionFeatureCollection
vec:Unique
vec:VectorToRaster
vec:VectorZonalStatistics
geo:getX
geo:getY
geo:isValid
geo:buffer
geo:union
geo:intersection
geo:difference
geo:isRing
geo:endPoint
geo:reproject
geo:splitPolygon
geo:within
geo:touches
geo:convexHull
geo:area
geo:crosses
geo:symDifference
geo:distance
geo:boundary
geo:centroid
geo:interiorPoint
geo:getGeometryN
geo:overlaps
geo:isSimple

geo:isWithinDistance
geo:relate
geo:densify
geo:simplify
geo:numGeometries
geo:startPoint
geo:numPoints
geo:isClosed
geo:dimension
geo:exteriorRing
geo:numInteriorRing
geo:geometryType
geo:envelope
geo:polygonize
geo>equalsExact
geo:relatePattern
geo:interiorRingN
geo>equalsExactTolerance
geo:pointN
geo:length
geo:isEmpty
geo:contains
geo:disjoint
geo:intersects
polygonlabelprocess:PolyLabeller
ras:AddCoverages
ras:Affine
ras:AreaGrid
ras:BandMerge
ras:BandSelect
ras:Contour
ras:ConvolveCoverage
ras:CovarianceClassStats
ras:CropCoverage
ras:Jiffle
ras:MultiplyCoverages
ras:NormalizeCoverage
ras:PolygonExtraction
ras:RangeLookup
ras:RasterAsPointCollection
ras:RasterZonalStatistics
ras:RasterZonalStatistics2
ras:ScaleCoverage
ras:StyleCoverage
ras:TransparencyFill
geoscript:convexhull

Executing a new Process

Create a Process using a Groovy Closure

```
Process process = new Process("convexhull",
    "Create a convexhull around the features",
    [features: geoscript.layer.Cursor],
    [result: geoscript.layer.Cursor],
    { inputs ->
        def geoms = new GeometryCollection(inputs.features.collect{f -> f.geom})
        def output = new Layer()
        output.add([geoms.convexHull])
        [result: output]
    }
)
String name = process.name
println name
```

geoscript:convexhull

Get the title

```
String title = process.title
println title
```

convexhull

Get the description

```
String description = process.description
println description
```

Create a convexhull around the features

Get the version

```
String version = process.version
println version
```

1.0.0

Get the input parameters

```
Map parameters = process.parameters
println parameters
```

```
[features:class geoscript.layer.Cursor]
```

Get the output parameters

```
Map results = process.results  
println results
```

```
[result:class geoscript.layer.Cursor]
```

Execute the Process created from a Groovy Closure

```
Workspace workspace = new GeoPackage('src/main/resources/data.gpkg')  
Layer layer = workspace.get("places")  
Map executeResults = process.execute([features: layer.cursor])  
Cursor convexHullCursor = executeResults.result
```



Process Functions

Process Functions are a combination of Functions and Processes that can be used to create rendering transformations.

Create a Function from a Process that converts geometries in a Layer into a convexhull.

```
Workspace workspace = new GeoPackage('src/main/resources/data.gpkg')
Layer places = workspace.get("places")
Process process = new Process("convexhull",
    "Create a convexhull around the features",
    [features: geoscript.layer.Cursor],
    [result: geoscript.layer.Cursor],
    { inputs ->
        def geoms = new GeometryCollection(inputs.features.collect{ f -> f.geom})
        def output = new Layer()
        output.add([geoms.convexHull])
        [result: output]
    }
)
Function function = new Function(process, new Function("parameter", new Expression(
    "features")))
Symbolizer symbolizer = new Transform(function, Transform.RENDERING) + new Fill(
    "aqua", 0.75) + new Stroke("navy", 0.5)
places.style = symbolizer
```



Create a ProcessFunction from a Process that converts geometries in a Layer into a bounds.

```
Workspace workspace = new GeoPackage('src/main/resources/data.gpkg')
Layer places = workspace.get("places")
Process process = new Process("bounds",
    "Create a bounds around the features",
    [features: geoscript.layer.Cursor],
    [result: geoscript.layer.Cursor],
    { inputs ->
        def geoms = new GeometryCollection(inputs.features.collect{ f -> f.geom})
        def output = new Layer()
        output.add([geoms.bounds.geometry])
        [result: output]
    }
)
ProcessFunction processFunction = new ProcessFunction(process, new Function
("parameter", new Expression("features")))
Symbolizer symbolizer = new Transform(processFunction, Transform.RENDERING) + new
Fill("aqua", 0.75) + new Stroke("navy", 0.5)
places.style = symbolizer
```

