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# Layer Recipes

The Layer classes are in the [geoscript.layer](#) package.

A Layer is a collection of Features.

## Getting a Layer's Properties

*Get a Layer from a Workspace and it's name*

```
Workspace workspace = new GeoPackage("src/main/resources/data.gpkg")
Layer layer = workspace.get("countries")
String name = layer.name
println "Name: ${name}"
```

Name: countries

*The Layer's Format*

```
String format = layer.format
println "Format: ${format}"
```

Format: GeoPackage

*Count the number of Features*

```
int count = layer.count
println "# of Features: ${count}"
```

# of Features: 177

*Get the Layer's Projection*

```
Projection proj = layer.proj
println "Projection: ${proj}"
```

Projection: EPSG:4326

### *Get the Bounds of the Layer*

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

```
Bounds: (-179.99999999999997, -
90.000000000000003, 180.00000000000014, 83.64513000000002, EPSG:4326)
```

## Getting a Layer's Features

### *Iterate over a Layer's Features*

```
Workspace workspace = new GeoPackage("src/main/resources/data.gpkg")
Layer layer = workspace.get("states")
layer.eachFeature { Feature feature ->
    println feature["NAME_1"]
}
```

```
Minnesota
Montana
North Dakota
Hawaii
Idaho
Washington
Arizona
California
Colorado
Nevada
...
```

### *Iterate over a subset of a Layer's Features*

```
Workspace workspace = new GeoPackage("src/main/resources/data.gpkg")
Layer layer = workspace.get("states")
layer.eachFeature("NAME_1 LIKE 'M%'") { Feature feature ->
    println feature["NAME_1"]
}
```

Minnesota  
Montana  
Missouri  
Massachusetts  
Mississippi  
Maryland  
Maine  
Michigan

*Iterate over a Layer's Features with parameters.*

```
Workspace workspace = new GeoPackage("src/main/resources/data.gpkg")
Layer layer = workspace.get("states")
layer.eachFeature(sort: ["NAME_1"], start: 0, max: 5, fields: ["NAME_1"], filter:
"NAME_1 LIKE 'M%'" ) { Feature feature ->
    println feature["NAME_1"]
}
```

Maine  
Maryland  
Massachusetts  
Michigan  
Minnesota

## Parameters

- filter: The Filter or Filter String to limit the Features. Defaults to null.
- sort: A List of Lists that define the sort order [[Field or Field name, "ASC" or "DESC"],...]. Not all Layers support sorting!
- max: The maximum number of Features to include
- start: The index of the record to start the cursor at. Together with maxFeatures this simulates paging. Not all Layers support the start index and paging!
- fields: A List of Fields or Field names to include. Used to select only a subset of Fields.

*Read all Feature into a List*

```
Workspace workspace = new GeoPackage("src/main/resources/data.gpkg")
Layer layer = workspace.get("states")
List<Feature> features = layer.features

println "# Features = ${features.size()}"
features.each { Feature feature ->
    println feature["NAME_1"]
}
```

```
# Features = 52
Minnesota
Montana
North Dakota
Hawaii
Idaho
Washington
Arizona
California
Colorado
Nevada
...
```