

# Part 1

## Download two datasets from the MN Geospatial commons

Already did this in a seperate notebook PLease see "MNGeo\_ETL\_lab01.ipynb" file for code. For the sake of using Esri packages to complete the spatial joins, The rest of this notebook will be performed within ArcPro.

```
In [56]: # but I will import arcpy

import arcpy

In [57]: #current working directory
%pwd

#setting the working directory where my data is...
arcpy.env.workspace = "E:\Fall 2021\ArcGIS1\Labs\Lab01\MNGEOdata_lab01\MNGEOdata_lab01.gdb"

In [58]: #indentfying everything already in my gdb
Feature_list = arcpy.ListFeatureClasses()

In [59]: #naming the path for each of my downloaded shapefiles
Plants = r"E:\Fall 2021\ArcGIS1\Labs\Lab01\shp_biota_dnr_native_plant_comm\dnr_native_plant_communities.shp"
Parks = r"E:\Fall 2021\ArcGIS1\Labs\Lab01\shp_bdry_dnr_lrs_prk\dnr_management_units_prk.shp"

In [60]: #turning my variables (PATHS) into Layers
Plant_l = arcpy.MakeFeatureLayer_management(Plants, "Plants_layer")
Park_l = arcpy.MakeFeatureLayer_management(Parks, "Parks_Layer")
```

# Part 2

## Making sure they are in the same CRS and PCS

```
In [67]: # Code sourced from: https://gis.stackexchange.com/questions/170088/checking-if-two-feature-classes-have-same-spatial-refernces

#attempting to check and see if the spatial refernces are equal
sr1 = arcpy.Describe(Plant_l).spatialReference
sr2 = arcpy.Describe(Park_l).spatialReference
sr3 = arcpy.Describe(Park_l)
print(type(sr3))

#I can extract the Geographic and projected coordinate systems from these spatialRefernces now that they are strings
sr1String = sr1.exportToString()
sr2String = sr2.exportToString()
print(sr1String , sr2String )

matching = False

if sr1String == sr2String:
    # Exact string match
    matching = True
    print('Spatial References match')
else:
    # difference
    print("Spatial Refernces don't match?")

-----
AttributeError                                Traceback (most recent call last)
In [67]:
Line 6:      sr3 = arcpy.Describe(Park_l).GSCName

AttributeError: DescribeData: Method GSCName does not exist
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In [ ]: #set a working directory
%pwd
# 'C:\WINDOWS\System32'
arcpy.env.workspace = "D:\Fall 2021\ArcGIS1\Labs\Lab01\MNGEOdata_lab01\MNGEOdata_lab01.gdb"

#naming and creating variables (using the previously ETL sourced MNGEO data)
arcpy.FeatureClassToFeatureClass_conversion(r"D:\Fall 2021\ArcGIS1\Labs\Lab01\shp_biota_dnr_native_plant_comm\dnr_native_plant_communities.shp", "D:\Fall 2021\ArcGIS1\Labs\Lab01\MNGEOdata_lab01\MNGEOdata_lab01.gdb", "plant_park_t1")
arcpy.FeatureClassToFeatureClass_conversion(r"D:\Fall 2021\ArcGIS1\Labs\Lab01\shp_bdry_dnr_lrs_prk\dnr_management_units_prk.shp", "D:\Fall 2021\ArcGIS1\Labs\Lab01\MNGEOdata_lab01\MNGEOdata_lab01.gdb", "plant_park_t2")
```

# Part 3

## Spatially join the datasets

```
In [4]: arcpy.analysis.SpatialJoin("dnr_native_plant_communities",
                                     "dnr_management_units_prk",
                                     r"E:\Fall 2021\ArcGIS1\Labs\Lab01\MNGEOdata_lab01\MNGEOdata_lab01.gdb\plant_park_t1",
                                     "JOIN_ONE_TO_ONE",
                                     "KEEP_COMMON",
                                     'NPC "NPC" true true false 150 Text 0 0,First,#,dnr_native_plant_communities,NPC,0,1',
                                     "INTERSECT",
                                     None,
                                     '')
```

## Output

E:\Fall 2021\ArcGIS1\Labs\Lab01\MNGEOdata\_lab01\MNGEOdata\_lab01.gdb\plant\_park\_t1

## Messages

Start Time: Thursday, September 30, 2021 1:10:28 PM  
Succeeded at Thursday, September 30, 2021 1:10:53 PM (Elapsed Time: 25.21 seconds)

# Part 4

## Save/export the resulting data as a geodatabase

```
In [5]: #current working directory
%pwd

arcpy.env.workspace = "E:\Fall 2021\ArcGIS1\Labs\Lab01\MNGEOdata_lab01\MNGEOdata_lab01.gdb"

#exporting the spatially joined data to my ArcPro GDB (already there becasue fo the spatial join but i'll save it as a new layer)
arcpy.FeatureClassToFeatureClass_conversion(r"E:\Fall 2021\ArcGIS1\Labs\Lab01\shp_biota_dnr_native_plant_comm\plant_park_t1", "D:\Fall 2021\ArcGIS1\Labs\Lab01\MNGEOdata_lab01\MNGEOdata_lab01.gdb", "plant_park_t1")

Out[5]: 'E:\Fall 2021\ArcGIS1\Labs\Lab01\MNGEOdata_lab01\plant_park_t1'

In [6]: #see a list of features within my current GDB
arcpy.ListFeatureClasses()

#google 'getCRS for arcpy'

Out[6]: ['plant_coms_parks', 'plant_coms_plark_int', 'Plants', 'Parks', 'plant_park_t1']

In [ ]:
```