

GIS: How to search and select data by attributes


Steps:

1. Click **Editor**, and then click **start editing**
 - a. Once you are editing, click **Selection** on the tool bar, and then click **Selection by Attributes**.
 - b. The window will guide you through the selection process
 - i. Layer – which ever layer you want to work with
 - ii. Method – What you would like to do with the selection you are searching
 - iii. Select from _____ WHERE: Here you want to use the button above to tell the software what you are looking for. (For ex: Your looking for a parcel owner name is “Smith.”
 1. Layer – Parcels
 2. Method – create a new selection
 - i. Select from Parcels WHERE – “OWNER_NAME” Like ‘_mith’

More on building expressions for this application: Searching strings

1. Strings must always be enclosed within single quotes.
 - a. For example "STATE_NAME" = 'California'
2. Strings in expressions are case sensitive except when you're querying personal geo-database feature classes and tables.
 - a. To make a case-insensitive search in other data formats, you can use a SQL function to convert all values to the same case.
 - b. For file-based data sources like file geo-databases or shape files, use either the UPPER or LOWER function.
 - c. For example, the following expression will select customers whose last name is stored as either Jones or JONES:
 - i. UPPER("LAST_NAME") = 'JONES'
3. Other data sources have similar functions. Personal geodatabases, for example, have functions named UCASE and LCASE that perform the same operation.
4. Use the LIKE operator (instead of the = operator) to build a partial string search.
 - a. For example, this expression would select Mississippi and Missouri among USA state names: "STATE_NAME" LIKE 'Miss%'
 - i. % means that anything is acceptable in its place: one character, a hundred characters, or no character. Alternatively, if you want to search with a wildcard that represents one character, use _.
 - ii. For example, this expression would find Catherine Smith and Katherine Smith: "OWNER_NAME" LIKE '_atherine smith'
5. Wildcards: The wildcards above work for any file-based data or multiuser geodatabase data. The wildcards you use to query personal geodatabases are * for any number of characters and ? for one character.
 - a. Wildcard characters appear as buttons on the Select by Attributes and Query Builder dialog boxes. You can click the button to enter the wildcard into the expression you're building. Only the wildcard characters that are

appropriate to the data source of the layer or table you are querying are displayed.

- b. If you use a wildcard character in a string with the = operator, the character is treated as part of the string, not as a wildcard.
 - c. You can use greater than (>), less than (<), greater than or equal (>=), less than or equal (<=), and BETWEEN operators to select string values based on sorting order. For example, this expression will select all the cities in a coverage with names starting with the letters M to Z:
"CITY_NAME" >= 'M'
 - i. The not equal (<>) operator can also be used when querying strings.
 - ii.
6. The NULL keyword: You can use the NULL keyword to select features and records that have null values for the specified field. The NULL keyword is always preceded by IS or IS NOT.
 - a. For example, to find cities whose 1996 population has not been entered, you can use "POPULATION96" IS NULL
 - b. Alternatively, to find cities whose 1996 population has been entered, you can use "POPULATION96" IS NOT NULL
 7. Searching numbers: You can query numbers using the equal (=), not equal (<>), greater than (>), less than (<), greater than or equal (>=), less than or equal (<=), and BETWEEN operators.
 - a. For example: "POPULATION96" >= 5000
 - b. Numeric values are always listed using the point as the decimal delimiter regardless of your regional settings. The comma cannot be used as a decimal or thousands delimiter in an expression.
 8. Calculations: Calculations can be included in expressions using the arithmetic operators: + - * / .
 - a. Calculations can be between fields and numbers.
 - i. For example: "AREA" >= "PERIMETER" * 100
 - b. Calculations can also be performed between fields.
 - i. For example, to find the countries with a population density of less than or equal to 25 people per square mile, you could use this expression: "POP1990" / "AREA" <= 25
 9. Operator precedence: Expressions evaluate according to standard operator precedence rules. For example, the part of an expression enclosed in parentheses is evaluated before the part that isn't enclosed.
 - a. This example: "HOUSEHOLDS" > "MALES" * "POP90_SQMI" + "AREA" evaluates differently from "HOUSEHOLDS" > "MALES" * ("POP90_SQMI" + "AREA")
 - b. You can either click to add parentheses and type the expression you want to enclose or highlight the existing expression that you want to enclose, then click the Parentheses button  to enclose it.
 10. Combining expressions: Complex expressions can be built by combining expressions with the AND and OR operators.

- a. For example, the following expression would select all the houses that have more than 1,500 square feet and a garage for three or more cars: "AREA" > 1500 AND "GARAGE" > 3
 - b. When you use the OR operator, at least one side of the expression of the two separated by the OR operator must be true for the record to be selected.
 - i. For example: "RAINFALL" < 20 OR "SLOPE" > 35
 - c. Use the NOT operator at the beginning of an expression to find features or records that don't match the specified expression.
 - i. For example: NOT "STATE_NAME" = 'Colorado'
 - ii. NOT expressions can be combined with AND and OR.
 - 1. For example, this expression would select all the New England states except Maine: "SUB_REGION" = 'New England' AND NOT "STATE_NAME" = 'Maine'
11. Sub-queries: A sub-query is a query nested within another query and are supported by geo-database data sources only. They can be used to apply predicate or aggregate functions or to compare data with values stored in another table.
- a. For example, this query would select only the countries that are not also listed in the table indep countries: "COUNTRY_NAME" NOT IN (SELECT "COUNTRY_NAME" FROM indep_countries)

Once that is done...you will have a selection of all the parcels with Smith in the owners name.

How to use select attributes to create new layer

Steps:

1. Right click the layer you want to work with on left
2. Click **Selection**, and then click **Create Layer From Selected Features.**
3. You will have a new layer!
4. To change the name of your new layer right click and rename.