

Exercise 1: Queries & Reports

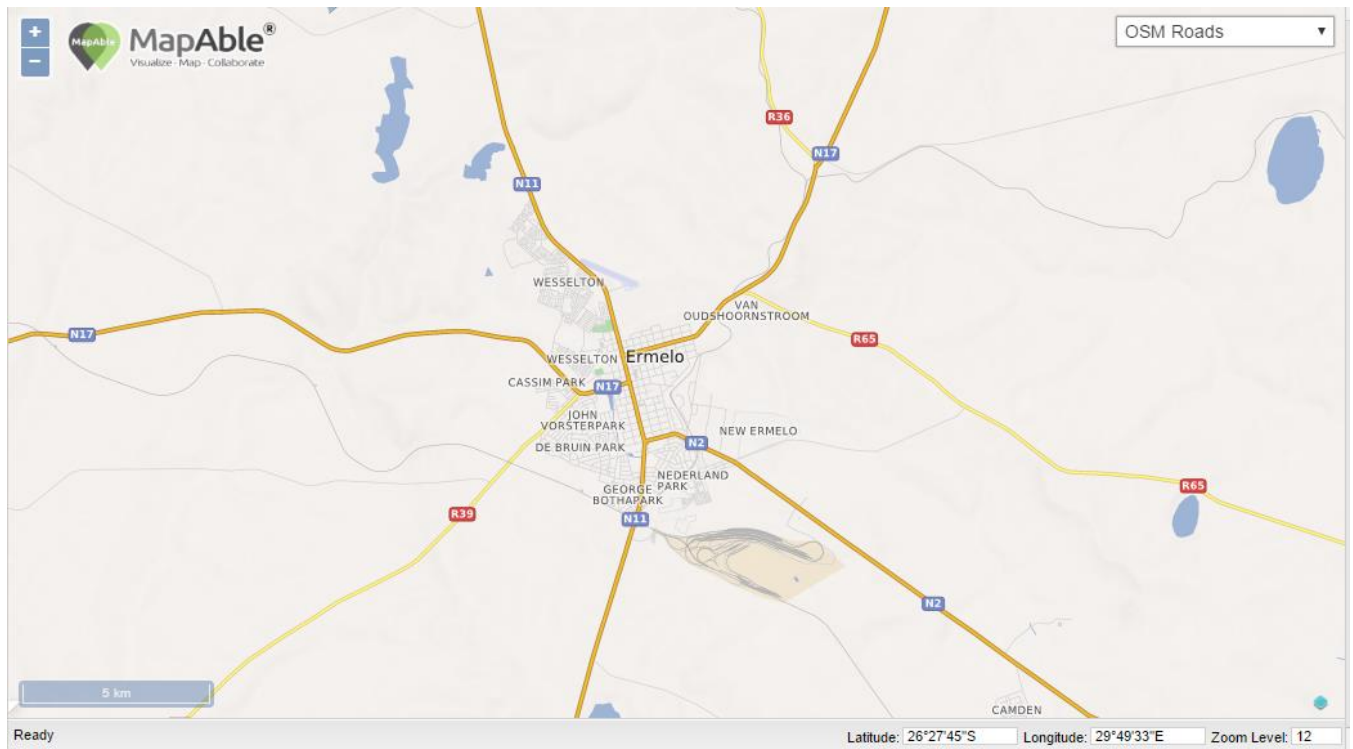
Purpose

The purpose of this exercise is to teach you how to utilise the Report function within your workspace. This exercise is based on creating various queries and a report which can be run on Wards. You will essentially create a simple Ward profile (based on the 20 queries available to MapAble users).

Finding the site

The first step is to locate the case study area in this case the town of Ermelo. Ermelo can be found by utilising a combination of the pan mode and zoom mode or the search and report tool in your MapAble workspace. Remember to save the map extent.

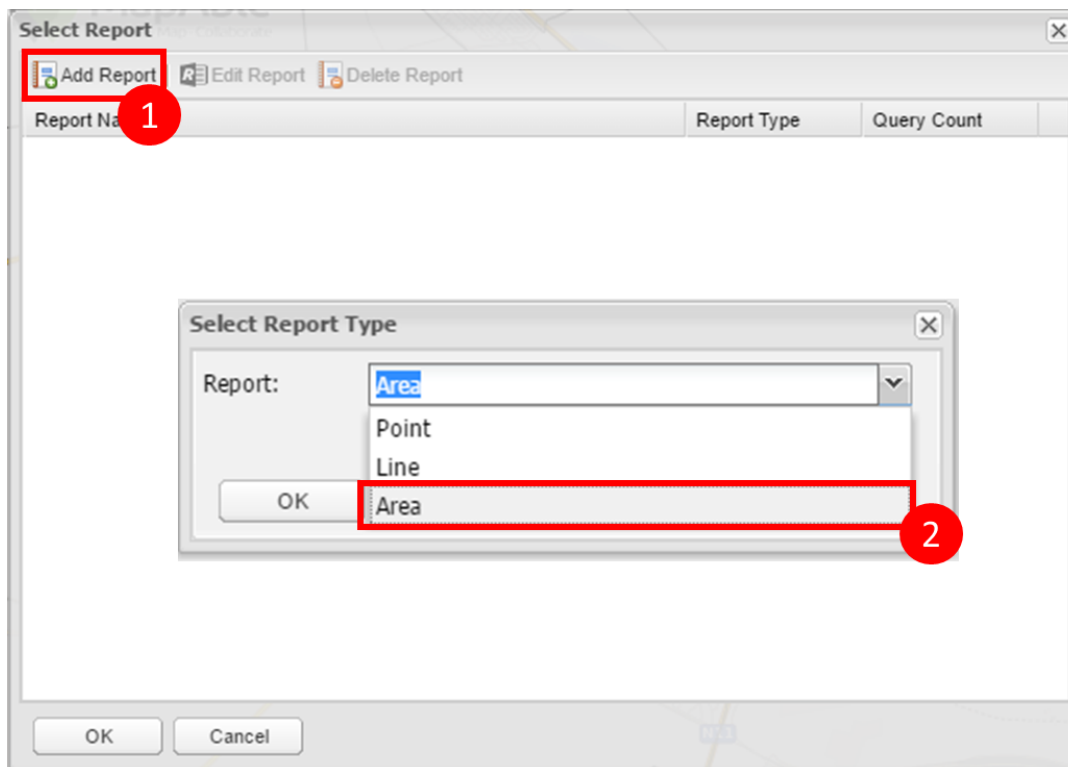
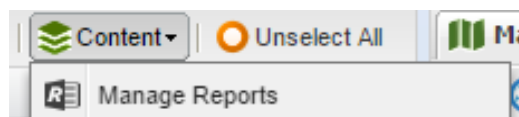
The study area is shown in the image below:



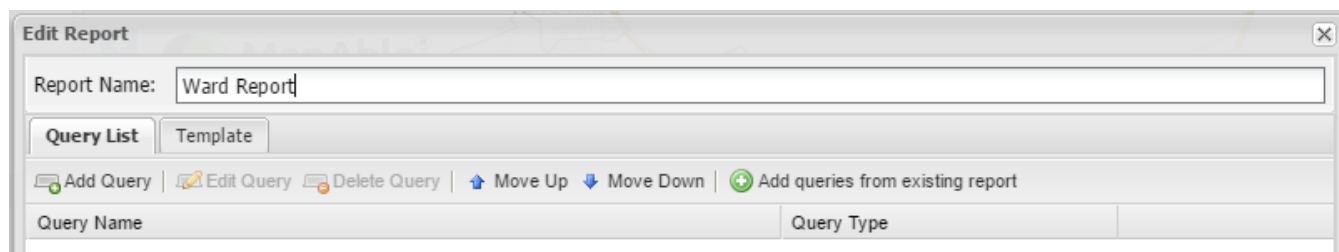
Create the Ward Profile Report:

To create queries and build a report click on the on the Content dropdown list and select Manage Report button:

To create the Ward Profile Report first click on the Add Report button to create a new Report and select an Area report as a Ward is a polygon or an area which you want to report on:



Once you create the report, an edit report box will be opened. To start change the name of the report to Ward Report:



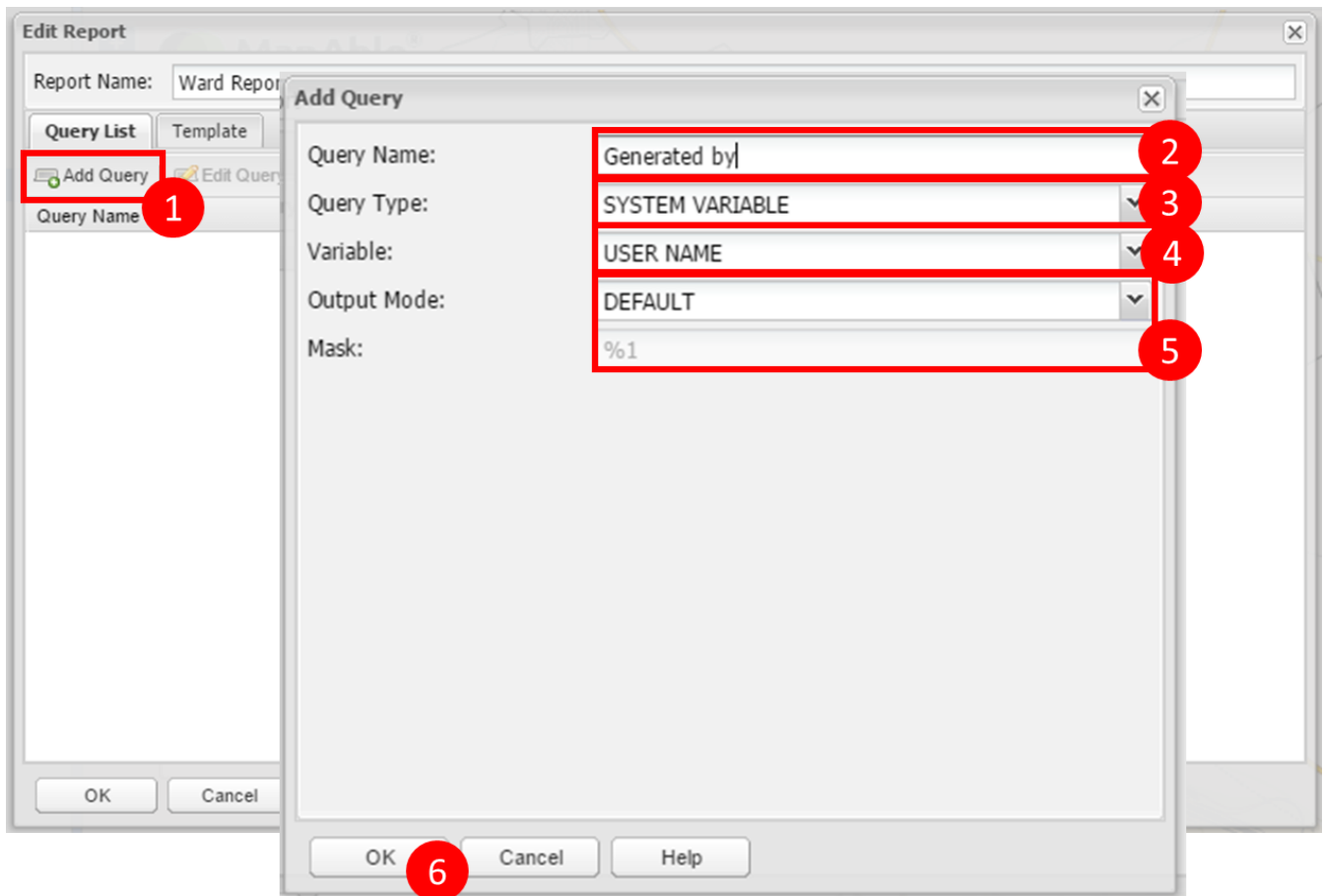
System variables queries – System Variables

System variables gives some administrative information about the report.

To add the query, click on the "Add Query button" and the add query box will open. Create the following system variables:

- What is the name of the report? (Variable - REPORT NAME – name query "Report name");
- Who generated the report? (Variable - USER NAME – name query "Generated by"); and
- When was, the report generated? (Variable - CURRENT DATE + TIME-name query "created on").

Type in the query name as described above; the query type (System Variable) and the Variable as described above, leave the Output mode as default (displays the value as is). The generated by query is shown below.

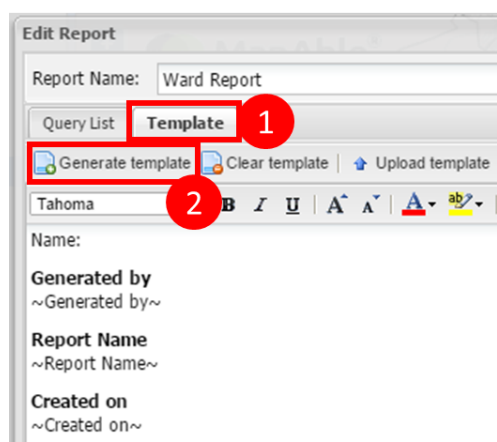


When all three queries are created the following query, list will be visible:

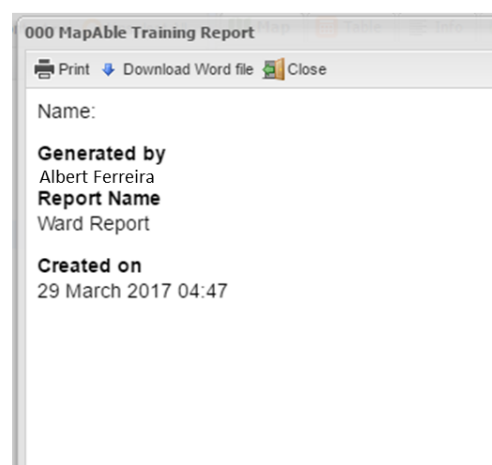
Add Query Edit Query Delete Query Move Up Move Down Add queries from existing report	
Query Name	Query Type
Generated by	SYSTEM VARIABLE
Report Name	SYSTEM VARIABLE
Created on	SYSTEM VARIABLE

If you were to run the report now the result would look like the following:

TEMPLATE



REPORT



Size of the Ward – Area Calc

A simple query to use is the “Area Calc” Query which calculates of the total area of the study area in hectares. Add the query in the following way (click ok once finished):

The 'Add Query' dialog box is shown with the following settings:

- Query Name: Size of the Ward
- Query Type: AREA CALC
- Percentage: 100
- Output Mode: DEFAULT
- Mask: %1 hectares
- Number Format: Default
- Decimals: 2

Name of Query
Choose Area Calc Type
Select entire area by typing 100%
Choose Default
%1 = Value eg. 4.12 hectares
Leave number format
Decimals you want e.g. 2 decimals = 4.12 hectares

Is there a Police Station in the Ward? - Yes/No –

The YES/NO method does a quick check by means of an intersection, and simply reports on the presence of a specific entity that are present on the property/area. The answer is either YES or NO.

The query in this case needs to report whether a police station exists in the ward. Set up the query in the following way:

The 'Add Query' dialog box is shown with the following settings:

- Query Name: Is a SAPS Station Present
- Query Type: YES / NO
- Query Layer: MapAble / Facilities / SAPS Stations
- Buffer Mode: INSIDE AREA
- Radius (km): 10
- Output Mode: DEFAULT
- Mask: %1

Name of Query
YES/NO Query
Select SAPS Station Layer
Choose inside the area
N/A
Leave output mode as default
Only the value either YES/NO will be displayed

Nearest Water and Waste Water Treatment Facilities - Nearest Neighbour

Infrastructure forms a crucial part of any settlement. The nearest neighbour query reports on how close a certain element is. In this case, we want to know how far the nearest Water and Waste Water Treatment Facilities are. Set up the Water Treatment Facility query in the following way:

The 'Add Query' dialog box is shown with the following settings:

- Query Name: Nearest WTW
- Query Type: NEAREST NEIGHBOUR
- Query Layer: MapAble / Infrastructure / Water Treatment Wor
- Query Field 1: WTWName
- Output Mode: DEFAULT
- Mask: %1 is %2 km away

Name of Query – Water Treatment Works/WTW
Choose Nearest Neighbour
Select Water Treatment Works 2014 layer
Choose WTW Name i.e. will give the name of the WTW
Keep Default
The result will be as follows: Ermelo WTW is 3 km away

Repeat the same for the Waste Water Facilities/Works (Layer name – Waste Water Treatment Works 2014).

How many 1000m² erven can fit inside in the Ward – Unit Calculation per Hectare

For development purposes, it is often useful to know how many equally sized erven can fit inside the study area. In this case, you need to calculate how many 1000m² units can fit in the area. Set up the Unit Calc per Hectare query in the following way:

Add Query	
Query Name:	Max number of 1000m2 units
Query Type:	UNIT CALC PER HECTARE
Percentage:	100
Number of units per Ha:	10
Output Mode:	DEFAULT
Mask:	%1 units
Number Format:	Default
Decimals:	2

Name of Query
Choose Unit Calc Per Hectare
Select entire area – 100%
10 units per ha = 1000m² per plot
Keep Default
The result eg. 3200 units
Keep Default
Decimals to 2 eg. 3223.43 units

In what Municipality is the Ward located? – Drill down on point

The drill down point query makes it possible to query data of other layers in the MapAble Catalog. In this case, you need find out in which municipality the Ward is located by “drilling down” into the Local Municipality 2016 layer. Set up the Drill Down on Point query in the following way:

Add Query	
Query Name:	Municipality
Query Type:	DRILL DOWN ON POINT
Query Layer:	MapAble / Base / Local Municipalities 2016
Percentage / Ratio:	Field Value
Query Field 1:	MUNICNAME
Output Mode:	DEFAULT
Mask:	%1

Name of Query
Choose Drill down on point
Select Local municipality 2016 layer
Choose Field Value
Attribute you want: Municipality Name
Keep Default
Field Value will be displayed i.e. City of Tshwane

How many hospitals/clinics are in the Ward? – Instances within buffer/area

The instances within the area query, indicated how many elements of a certain type is in your selected area. This is useful to indicate how many facilities (health facilities) are present within the Ward. Set up the Drill Down on Point query in the following way:

Add Query	
Query Name:	Total amount of Public Health Facilities
Query Type:	INSTANCES WITHIN BUFFER/AREA
Query Layer:	MapAble / Facilities / Public Health Facilities 2013
Buffer Mode:	INSIDE AREA
Radius (km):	10
Output Mode:	DEFAULT
Mask:	%1 in a %2 km radius
Number Format:	Default
Decimals:	0

Name of Query
Choose Instances within area
Select Public Health Facilities 2013
Choose Inside Area
N/A
Keep Default
Field Value will be displayed i.e. 3 in the area
Keep Default
0 Decimals

What are names of the health facilities located in the Ward? – List instances within buffer/area

The list instances within the area query lets you list all the same element and describe them in a certain way. In this case if you list all the public facilities per its name. Set up the List instances within buffer/area query in the following way:

The 'Add Query' dialog box is shown with the following settings:

- Query Name: Names of Public Health Facilities
- Query Type: LIST INSTANCES WITHIN BUFFER/AREA
- Query Layer: MapAble / Facilities / Public Health Facilities 20
- Query Field 1: NAME
- Sort Field: NAME
- Sort Direction: Ascending
- Buffer Mode: INSIDE AREA
- Radius (km): 10
- Maximum Results: 100
- Output Mode: DEFAULT
- Mask: %1
- Seperator:

Name of Query
Choose list instances within the area
Select Public Health Facilities
Attribute you want to query – name of facility
Sort by NAME
Ascending order
Choose inside the area
N/A
Total amount of facilities listed
Default mode
Only the names will be displayed

 = results displayed below each other

What is the Geological Profile of the Ward - % Area Calc

A geological profile can be constructed through the % Area Calc. The different types of Geology in the area are listed and the percentage area covered is also reported. Set up the % Area Calc query in the following way:

The 'Add Query' dialog box is shown with the following settings:

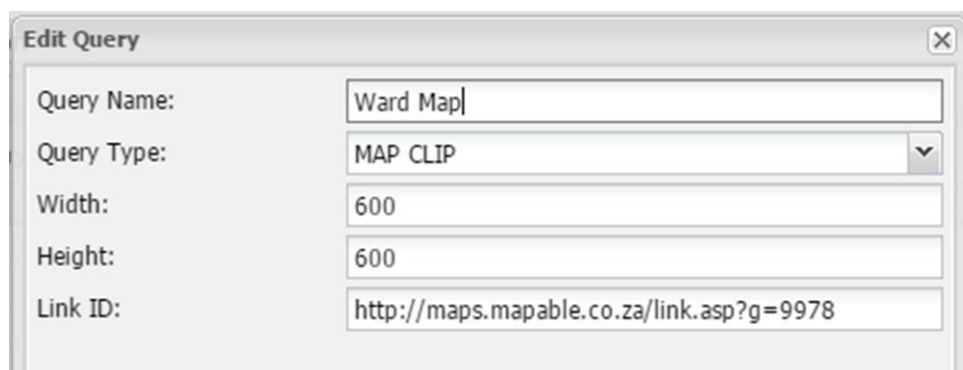
- Query Name: Geological Profile
- Query Type: % AREA CALC
- Query Layer: MapAble / Environmental / Geology
- Query Field 1: LITHO_1
- Sort Field: LITHO_1
- Sort Direction: Ascending
- Buffer Mode: INSIDE AREA
- Radius (km): 10
- Output Mode: DEFAULT
- Output Type: PERCENTAGE
- Mask: %1 - %2 %
- Number Format: Default
- Decimals: 2
- Seperator:

Name of Query
Choose % Area Calc
Select Geology layer
Attribute you want to query – LITHO_1
Sort by LITHO_1
Ascending order
Choose inside the area
N/A
Default mode
Percentage
Results will be eg. Dolomite - 5%
Keep Default
2 Decimals eg. 4.34 %

 = results displayed below each other

Create a ward map for the report – Map Clip/Link

To insert maps into a report you either need a map link (Map Clip query) or simply capture your current view (Map Link query). Duplicate and activate the Ward 2016 layer and go to the Content Drop down and select the Map Link item. This will generate the map link (copy link). Set up the query in the following way:



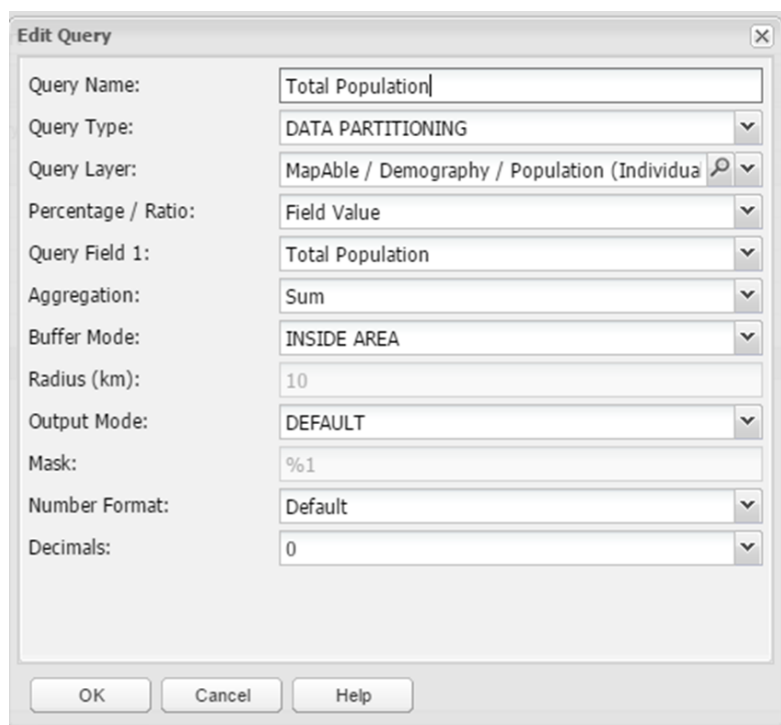
The 'Edit Query' dialog box is shown with the following fields:

- Query Name: Ward Map
- Query Type: MAP CLIP
- Width: 600
- Height: 600
- Link ID: <http://maps.mapable.co.za/link.asp?g=9978>

Name of Query
Choose Map Clip
Select 600 pixels in width
Select 600 pixels in height
Map link

What is the Population in the Ward? – Data Partitioning

Population is important when describing an area or in this case a Ward. However, population is captured on a different boundary set (SAL -Small Area Layers for 2011 Census Pop) and thus population needs to be calculated for the Ward. MapAble has the query Data partitioning that allows for population (or any quantity) to be calculated for a specific area. Set up the query in the following way:



The 'Edit Query' dialog box is shown with the following fields:

- Query Name: Total Population
- Query Type: DATA PARTITIONING
- Query Layer: MapAble / Demography / Population (Individual)
- Percentage / Ratio: Field Value
- Query Field 1: Total Population
- Aggregation: Sum
- Buffer Mode: INSIDE AREA
- Radius (km): 10
- Output Mode: DEFAULT
- Mask: %1
- Number Format: Default
- Decimals: 0

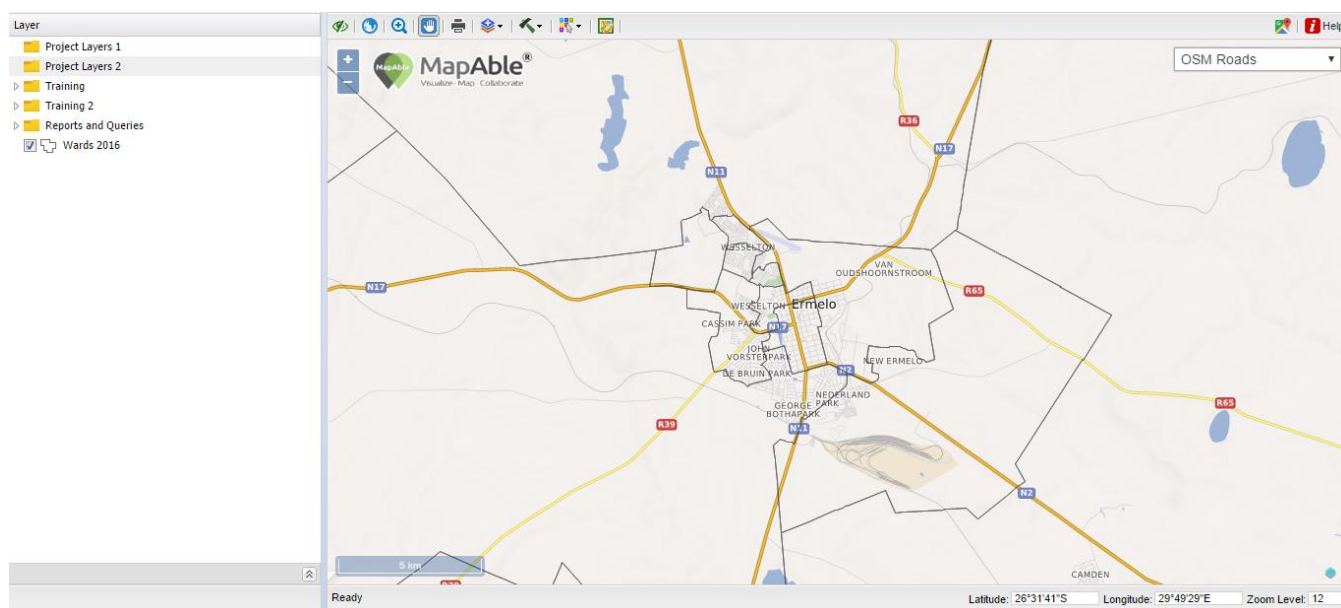
Buttons: OK, Cancel, Help

Name of Query
Choose Data Partitioning query
Select layer you want to query
Field Value/Percentage/Ratio
Select attribute field you want to query
Sum or Weighted Average
Choose inside the area
N/A
Keep Output mode Default
Only the value will be generated i.e. 126
Number format – keep default
0 decimals – cause it refers to population

Duplicate the 2016 Ward layer and run the report

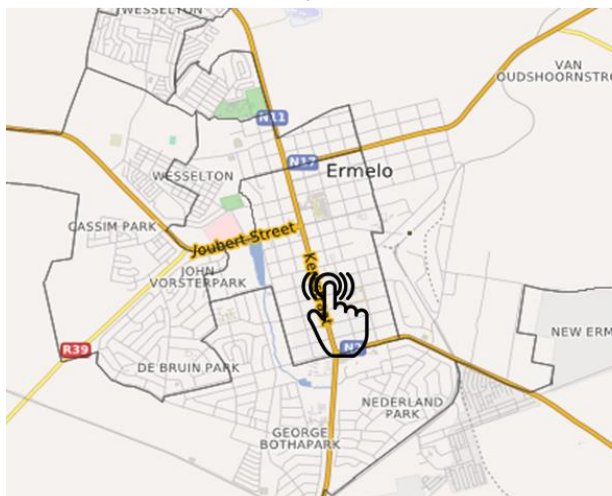
To start, click on the duplicate existing layer  and search for the layer called Wards 2016.

Click on the layer called: **MapAble / Base / Wards 2016** in the find search engine. The layer will be loaded to your workspace:

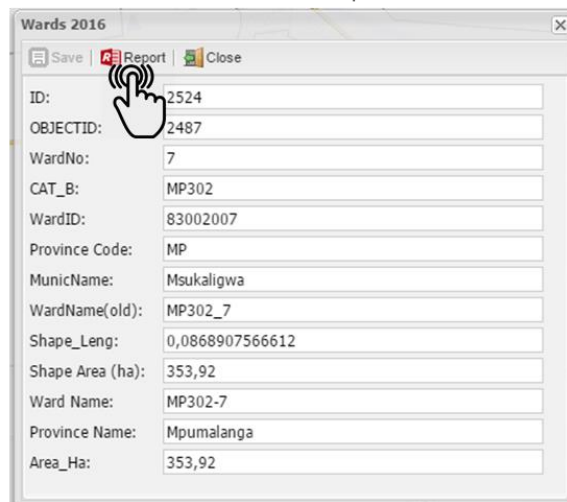


Click on one of the Wards in the Ermelo (make sure the layer is selected in the list of layers) and run the report that you have created:

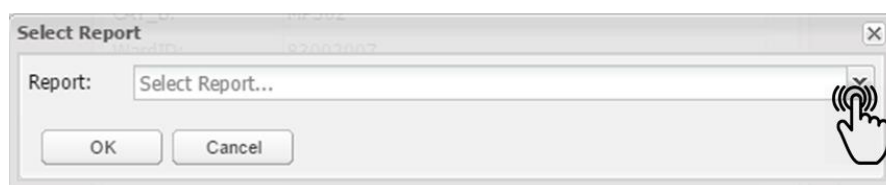
Click on the map feature (Ward):



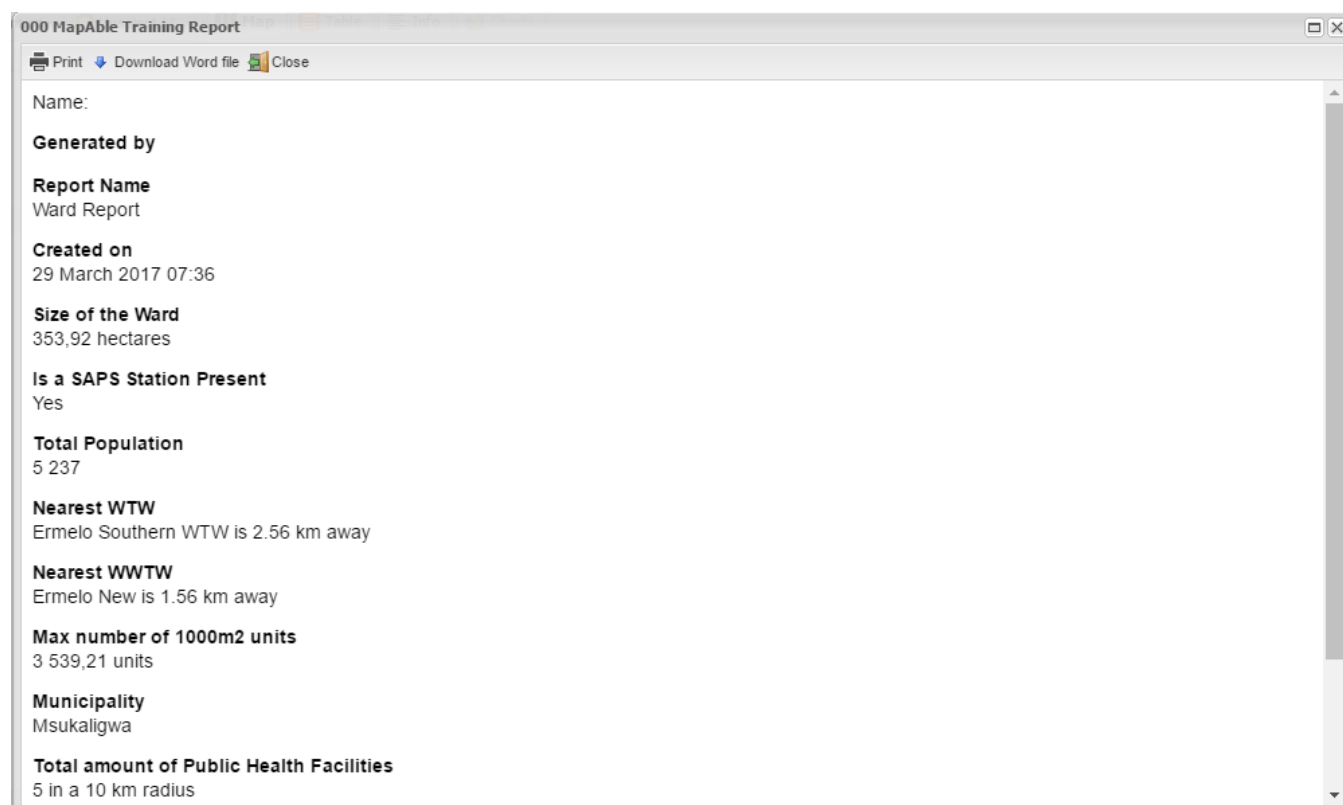
Click on the run report button:



Select the report you want to run:



The finished report (in autogenerated template will look as follows:



000 MapAble Training Report

Print Download Word file Close

Name:

Generated by

Report Name
Ward Report

Created on
29 March 2017 07:36

Size of the Ward
353,92 hectares

Is a SAPS Station Present
Yes

Total Population
5 237

Nearest WTW
Ermelo Southern WTW is 2.56 km away

Nearest WWTW
Ermelo New is 1.56 km away

Max number of 1000m2 units
3 539,21 units

Municipality
Msukaligwa

Total amount of Public Health Facilities
5 in a 10 km radius

Need to know more?

If you have any questions about these training sessions, please contact us by email on info@mapable.co.za for more information