



Technical Training Manual

SMART 6

Updated: July 2019



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MODULE 1: Setting Up a Conservation Area

Objective


In this module, you will work through the creation and setup of a Conservation Area to the point that patrol information can be entered into SMART.

This will include:

- Starting SMART on your computer for the first time
- Naming and describing the Conservation Area
- Creating user accounts
- Choosing a data model
- Defining spatial boundaries
- Creating a list of stations
- Defining participating organizations and ranks
- Creating employees
- Defining patrol teams, transport types, objectives and mandates

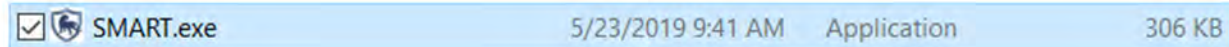
Detailed Steps

Starting the SMART Application for the First Time

- Create a folder called SMART Training 6 on your hard drive.
- If downloading SMART from the website (<http://smartconservationtools.org/download/>), then follow the below steps:
 - Download the file from the “Download” page of the SMART website
 - Unzip the file contents into the folder from where you will be running SMART
 - In this folder, locate the file called **SMART.exe** (note: Mac computers do not include extensions, such as .exe and some may display **SMART.app**)
A screenshot of a file explorer window showing a file named 'SMART.exe'. The file is highlighted in blue. To the left of the file name is a small icon of a document with a checkmark. To the right of the file name, the date '5/23/2019 9:41 AM' and the file type 'Application' are displayed. Further to the right, the file size '306 KB' is shown.

<input checked="" type="checkbox"/> SMART.exe	5/23/2019 9:41 AM	Application	306 KB
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 - Right-click on the SMART.exe file and select ‘**Create a shortcut**’.
 - Copy and paste the shortcut link (**SMART.in**k) onto your desktop
 - Double-click on the shortcut to launch the SMART application.
- If you were given a USB key with the software then follow the steps listed below:
 - Open the SMART .zip file and unzip the file contents into the folder on your hard-drive from where you will be running SMART

- In this folder, locate the file called **SMART.exe** (note: Mac computers do not include extensions, such as .exe)



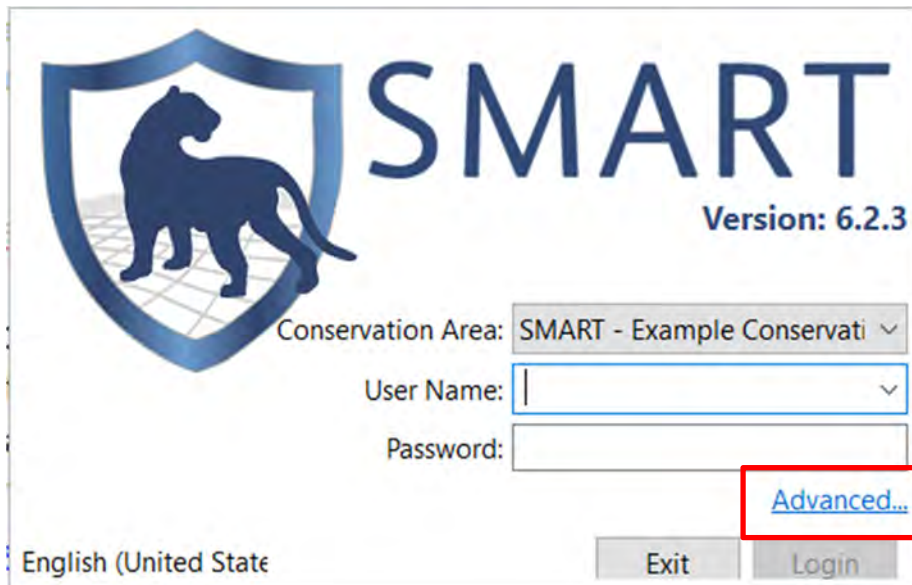
- Right-click on the file.exe and select ‘**Create a shortcut**’
- Copy and paste the shortcut link (**SMART.ink**) onto your desktop
- Double-click on the shortcut to launch the SMART application

Note: Prior to starting the training, make sure you download the ‘**SMART 6 Technical Training Manual Support Materials (April 2019)**’, which can be found in the Training Materials section of the “Download” page or the “Support” page on the SMART website (<http://smartconservationtools.org/>).

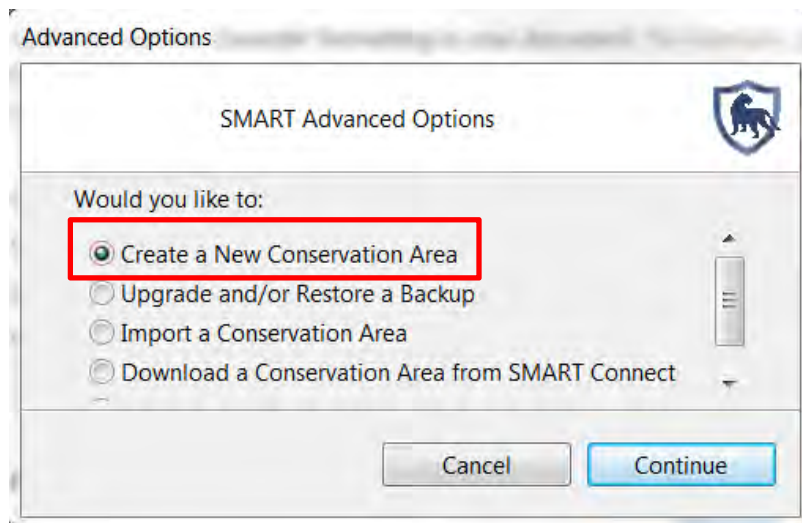
Create a New Conservation Area

SMART has the ability to manage multiple Conservation Areas (or protected areas) within a single database. You will start with an empty database and create a new conservation area.

- Launch the SMART application by double-clicking on the shortcut on the desktop



- Select **Advanced**



- Select **Create a New Conservation Area**
- Click **Continue**

Note: If SMART contains no databases, then SMART automatically opens at this page.

Conservation Area Properties

The Conservation Area properties are names and descriptors assigned to a specific Conservation Area. These properties help users of the SMART software manage multiple conservation areas.



- Check that **Create Blank Conservation Area** is selected
- Click **Next**

Create Conservation Area Wizard

Conservation Area

Enter the information related to the Conservation Area.

Identifier: SMART

Name: SMART Conservation Area

Description: Training Database

Designation:

Organization:

Point of Contact:

Country / Location:

Owner:

Logo: Not Set ... clear

Fallback Language: English [en]

The fallback language is the language used when translations cannot be found for the system language. Users must always specify values for this language when creating new label (data model elements, names etc.). Additional languages can be added later.

< Back Next > Finish Cancel

- Enter the following information:
 - Identifier: **SMART**
 - Name: **SMART Conservation Area**
 - Description: **Training Database**
 - Default Language: **English (en)**
- Click **Next**

***Note:** Properties of the Conservation Area may also be modified later after initial Conservation Area creation.*

Defining an Administrative User

Creating an account for the primary administrator of a newly created Conservation Area is mandatory, and all fields need to be populated. After completing the form, the primary administrator's account will be created and can be used to make any changes within the newly defined Conservation Area.

Create Conservation Area Wizard

Administrative User

You must create one administrative user here. Additional users can be created later.

ID: system-generated

Given Name(s): smart

Family Name(s): smart

Conservation Area Start: 04 July 2012

Birth Date: 01 January 1950

Gender: ☒ Male ☐ Female

SMART User

SMART Username:

SMART Password:

Re-Type Password:

< Back Next > Finish Cancel

- Enter in the following information:
 - Given Name(s): **smart**
 - Family Name(s): **smart**
 - Conservation Area Start: **05 May 2019**
 - Birth Date: **Leave as default**
 - Gender: **Leave as default**

***Note:** The ID field is automatically populated but will accept entered values if an employee has an existing ID.*

- Under the SMART User section enter the following information:
 - SMART Username: **smart**
 - SMART Password: **smart**
 - Re-Type Password: **smart**
- Click **Finish**

***Note:** After creating the primary administrator account, the application will restart and bring you back to the login screen.*

The image shows the SMART login interface. At the top left is a logo featuring a blue silhouette of a panther standing on a checkered floor, enclosed within a blue shield. To the right of the logo, the word "SMART" is displayed in large, bold, blue capital letters. Below "SMART", the text "Version: 6.2.3" is shown in a smaller blue font. The login form consists of three fields: "Conservation Area:" with a dropdown menu showing "SMART - SMART Conservatio", "User Name:" with a dropdown menu showing "smart", and "Password:" with a text box containing five black dots. To the right of the password field is a blue link labeled "Advanced...". At the bottom left, the text "English (United State" is partially visible. At the bottom right are two buttons: "Exit" and "Login".

SMART
Version: 6.2.3

Conservation Area: SMART - SMART Conservatio

User Name: smart

Password: ●●●●●

[Advanced...](#)

English (United State

Exit Login

- Enter in the login information:
 - Conservation Area: **SMART - SMART Conservation Area**
 - User Name: **smart**
 - Password: **smart**
- Click **Login**

Defining a Data Model

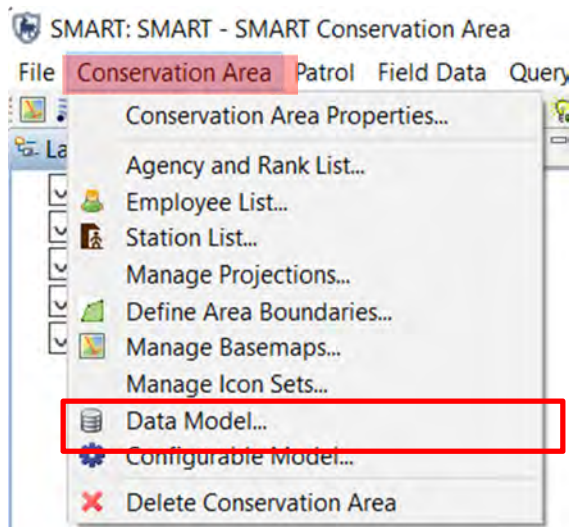
Upon initialization of a new Conservation Area, the primary administrator will need to define the data model to be used for the new Conservation Area.

This process can be accomplished by:

- Using the default data model¹
- Starting with a blank data model
- Copying from an existing Conservation Area that has been previously initialized in your instance of SMART (*you will only see this option if there is an existing Conservation Area in your database*)
- Importing a custom data model (from a previously exported XML data model file)

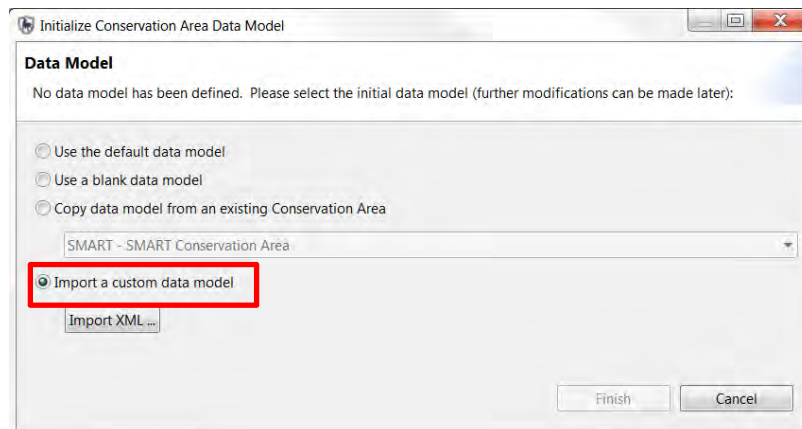
For this exercise, you will import a custom data model.

¹ The default data model was developed by the SMART Partnership and represents best practices. If you are setting up SMART for the first time then we recommend you start with this model as a guide.

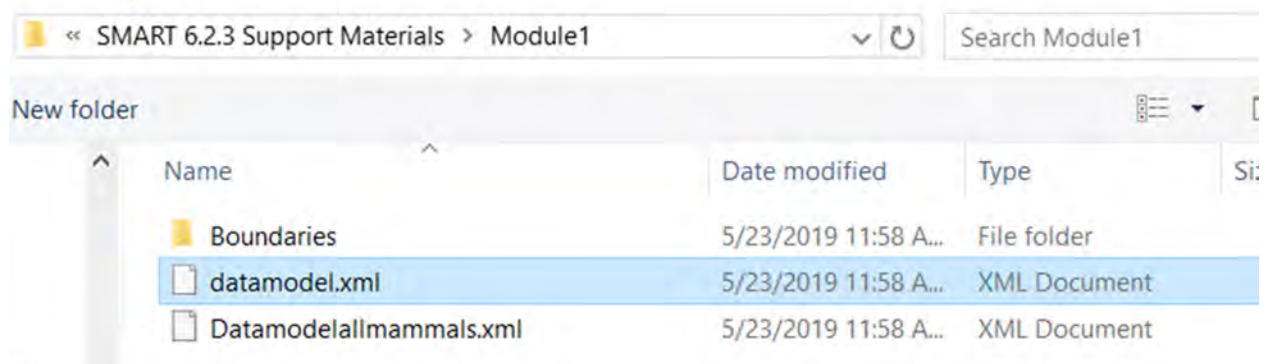


In the menu bar:

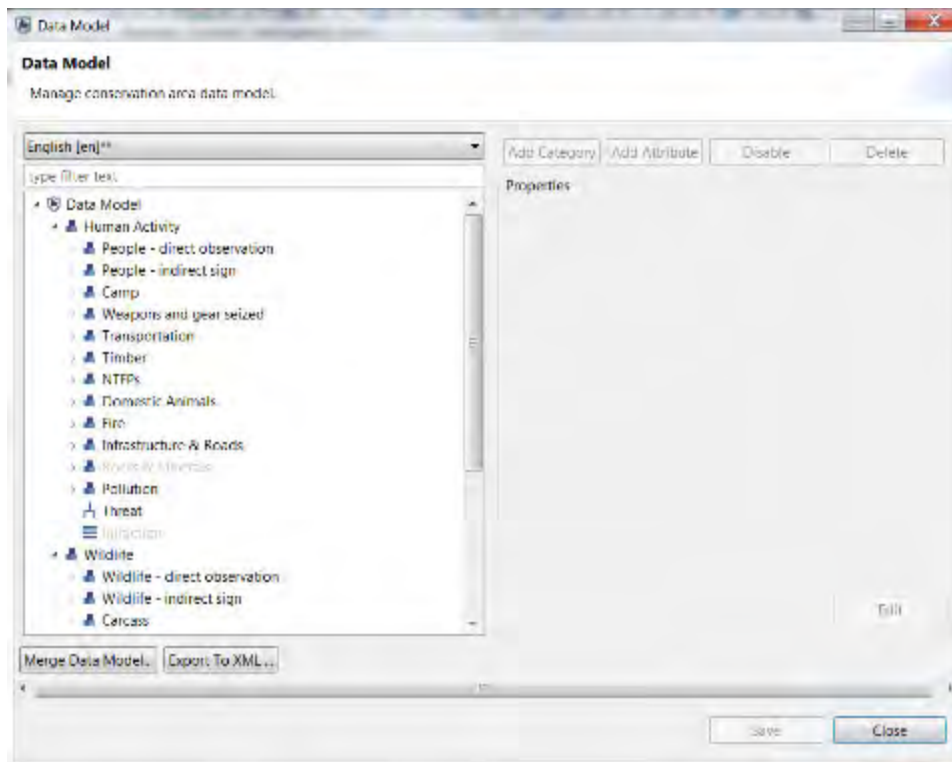
- Click **Conservation Area > Data Model**



- Select **Import a custom data model**
- Click **Import XML...**



- In the **Module 1** support files folder on your USB key or in the files you downloaded from the website select **datamodel.xml** (see above “Starting with SMART Applications for the first time” section for more information)
- Click **Open**
- Click **Finish**
- After the data model has finished loading, the following screen will be displayed showing its contents



***Note:** For further information on editing, modifying, importing/exporting and other elements of data models please refer to Module 7 - Data Model Management.*

- Click **Close**

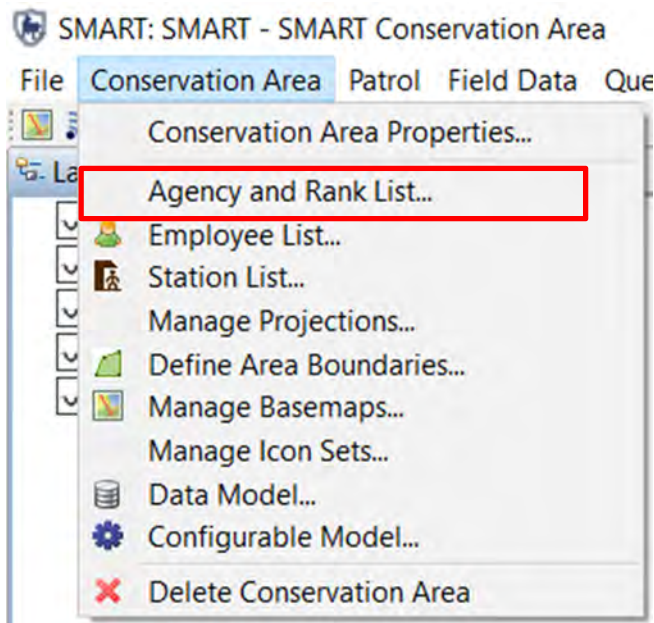
The Conservation Area now has a name and descriptors, a primary administrator and a data model but more work is needed to prepare it before patrol information can be entered.

Entering Agencies and Ranks

SMART users and employees working within a Conservation Area may belong to a particular agency, and they may have a rank within that agency.

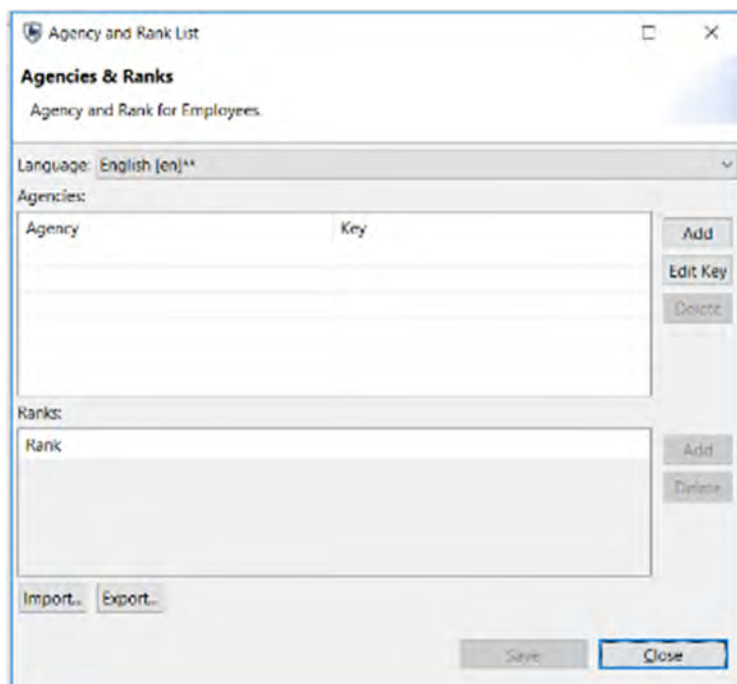
As part of the initial setup of a Conservation Area, the list of Agencies and their associated Ranks is accessed through the menu “Conservation Area > Agency and Rank List ...”

Note: Agencies must be defined first because Ranks are always associated with an Agency. Be careful to enter the agency names exactly as given below as we will be using them later.



In the menu bar:

- Click **Conservation Area > Agency and Rank List...**

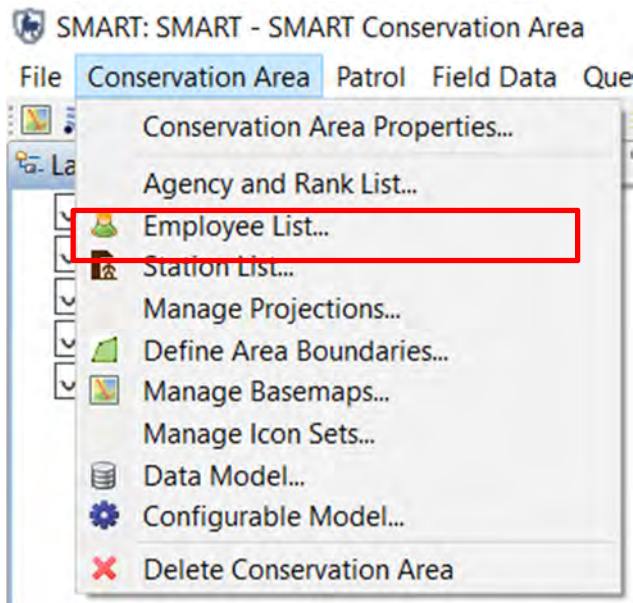


- Click the Add button next to the Agencies table
- Double-click on **New Agency**

- Enter **National Park Department**
- Click the Add button next to the Ranks table
- Enter **Ranger**
- Click the Add button next to the Ranks table
- Enter **Patrol Leader**
- Click the Add button next to the Ranks table
- Enter **Patrol Warden**
- Click **Save**
- **Close**

Note: All entries can be edited by double-clicking on the name and retyping in new values. Agencies and Ranks can be deleted by clicking the Delete Agency or Delete Rank button. Additionally, there are options to import and export, which is useful when creating a new conservation area that uses the same set up.

Entering Conservation Area Employees



In the menu bar:

- Click **Conservation Area > Employee List..**

The current Employee List contains the single administrator account that was created during the creation of the Conservation Area. Additional employees of a Conservation Area can be entered individually or through a bulk upload process.

Employee List
Manage the employees.

Enter search terms

Active	ID	Family Name(s)	Given Name(s)	Gender	Birth Date	Agency	Rank	SMART Username
Y	195000017	smart	smart	M	01-Jan-1950			smart

☐ Include Inactive Employees

The “Create New...” button will bring up the same form that was previously used to create the primary administrator’s account. New employees can be entered into the system using this form.

- Click **Create New ...**

Create Employee

ID: system-generated

Given Name(s): Samnang

Family Name(s): Tang

Conservation Area Start: Thursday, May 23, 2019

Birth Date: ☒ Sunday, January 1, 1950

Gender: ☒ Male ☐ Female

Agency: National Park Department

Rank: Ranger

SMART User
☐ SMART User
 SMART User Level:
 SMART Username:
 SMART Password:
 Re-Type Password:

Enter the following employee information:

- Given name(s): **Choose the name of a ranger from your site**
- Family name(s): **Choose a name**

- Conservation Area Start: <today's date>
- Birth Date: <choose a date>
- Gender: <choose one>
- Agency : **National Park Department**
- Rank : **Ranger**
- **Save**
- **Repeat these steps to add another 2 rangers, a patrol leader and a patrol warden.**

Note: If you need to make any changes to the Employees you created, just highlight the applicable row, click Edit, make the required changes, and click Save.

Create an Account for a New SMART User

You can add a new SMART User in the Employee List page by clicking on 'Create New'

- Click **Create New** and enter your own employee details

Create Employee

ID: system-generated

Given Name(s): Torre

Family Name(s): Joseph

Conservation Area Start: Monday , December 12, 2016

Birth Date: Sunday , January 01, 1984

Gender: ☒ Male ☐ Female

Agency:

Rank:

SMART User

☒ SMART User

SMART User Level: ADMIN

SMART Username: new_smart

SMART Password: ••••••••

Re-Type Password: ••••••••

Save Cancel

- Under the SMART User section enter the following information:
 - Check the **SMART User** box
 - Choose Smart User Level: **ADMIN**
 - SMART Username: **Enter a name**

- SMART Password: **Enter a password**
- Re-Type Password
- Click **Save**

Importing Employees

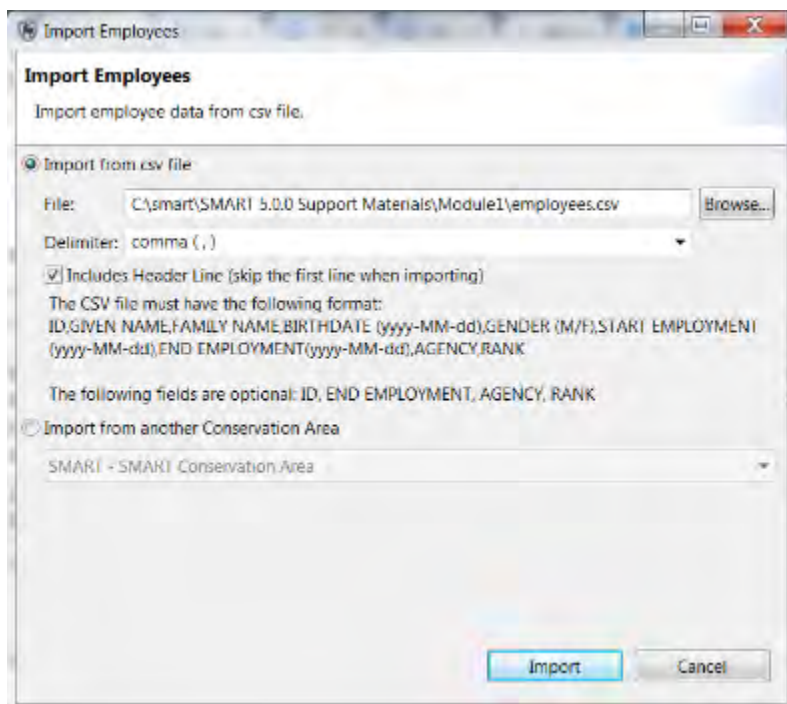
The employee list can also be populated for a Conservation Area by importing an existing employee list. This is done in the Employee List page. Click the “Import...” button to import a .CSV file and auto-populate the Employees List. The .CSV file must have the following format:

ID,GIVEN NAME,FAMILY NAME,BIRTHDATE(yyyy-mm-dd),GENDER(M/F),
START EMPLOYMENT(yyyy-mm-dd),END EMPLOYMENT(yyyy-mm-dd),AGENCY,RANK

***Note:** If the Agency and Rank data have not yet been populated, then it will not be possible to assign an Agency or Rank to that employee at this point.*

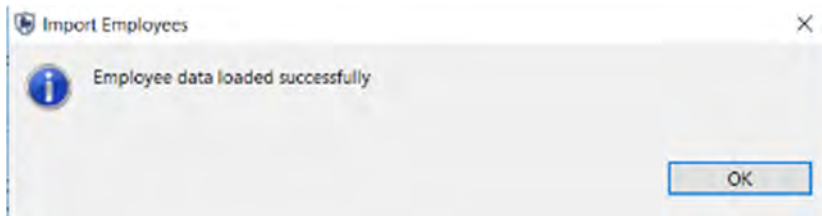
If the employee is also a user of the SMART software, the form will allow for the creation of a SMART account. The parameters for a username, password and account privileges are entered in at this point. Edits to employee details or SMART account settings can be done at any point but must be done via an administrator account.

- On the Employee List screen, click **Import ...**



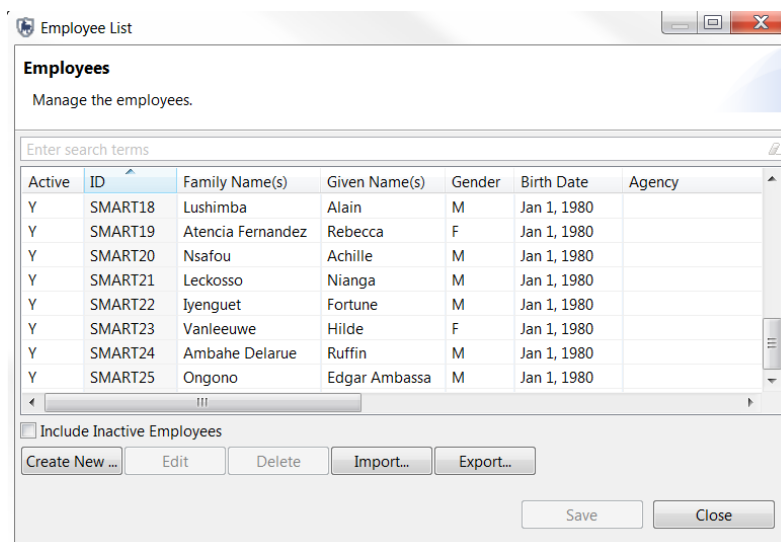
- Click the **Browse** button
- In the Module 1 folder select **employees.csv**
- Click **Open**
- Leave the Delimiter as “comma (,)”
- Check the **Includes Header Line (skip the first line when importing)** box

- Click **Import**
- A confirmation will be shown in a pop-up window after a successful import



- Click **OK** on the Import Employees pop-up
- Click **Close** on the Employee List pop-up

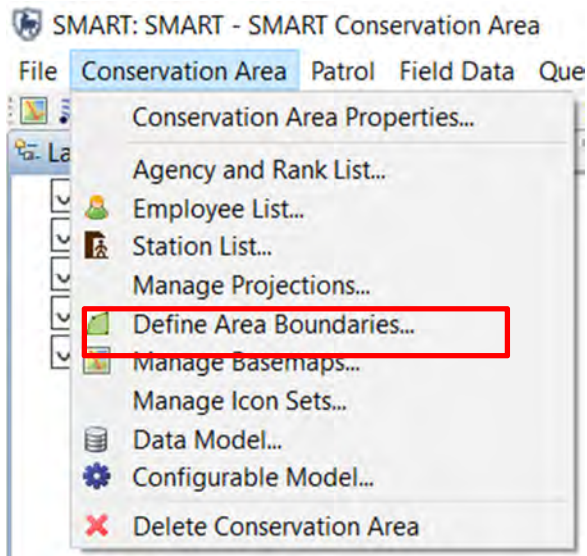
After the import, you should have all of the new employees entered into the database for this Conservation Area.



Define Conservation Area Boundaries

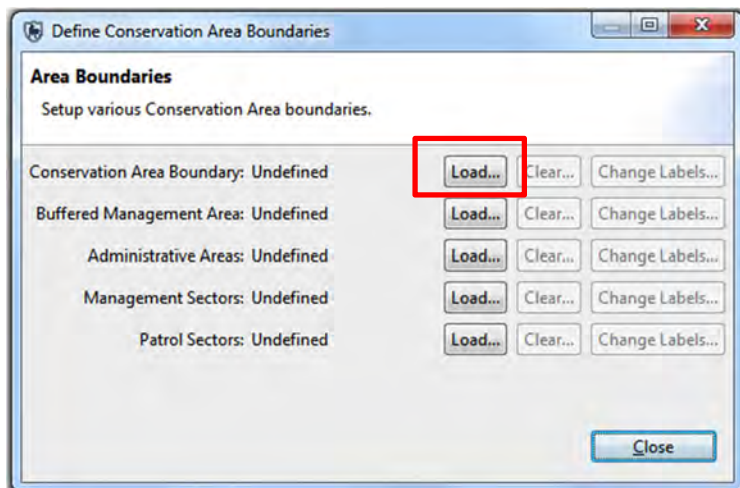
The next step in initializing a Conservation Area is to define the spatial boundaries. This is accomplished by uploading ESRI Shapefiles for the five (5) administrative divisions.

***Note:** Shapefiles are required to have an ESRI projection file (*.prj)*



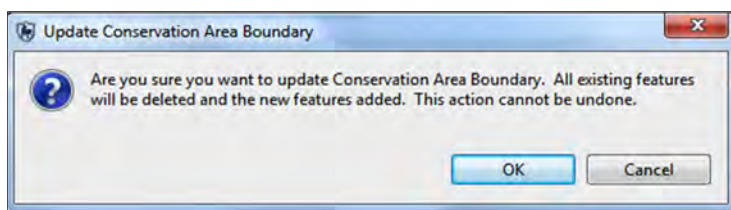
In the menu bar:

- Click **Conservation Area > Define Area Boundaries**



- Click the **Load** button beside Conservation Area Boundary to begin the load process

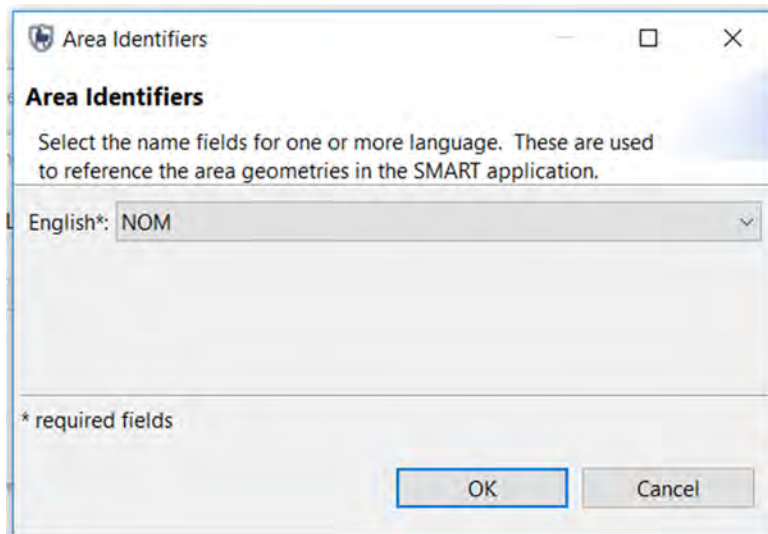
***Note:** Not all five different zones will apply to all conservation areas.*



***Note:** For the initial load of boundaries, there are no features that will be overwritten. On future uses of this feature, the previously loaded boundaries will be replaced with the new selections.*

- Click **OK**
- In the **Module 1\Boundaries** folder select **CA.shp**
- Click **Open**

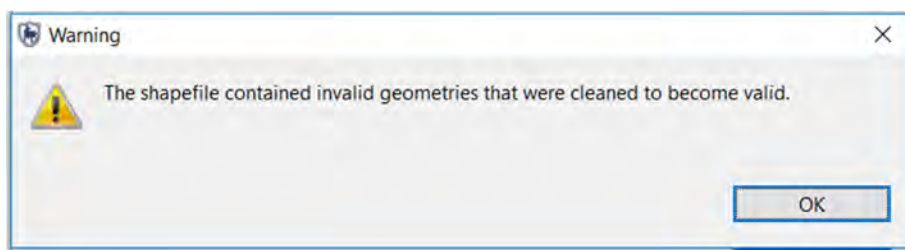
As part of the definition process, the user is required to select an identifier field that will be used for display and querying purposes.



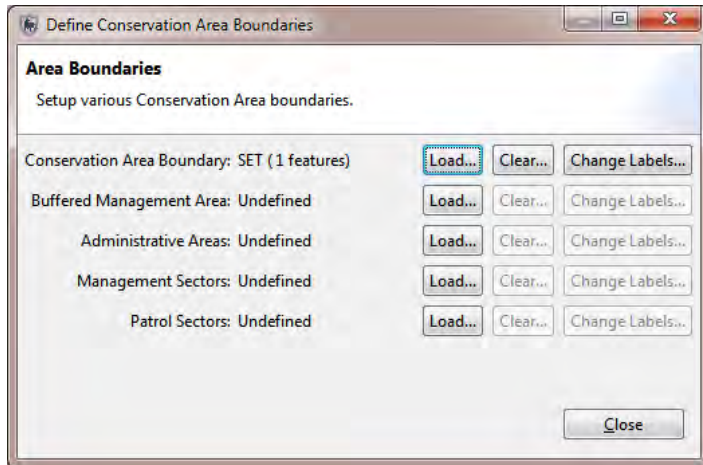
- Under English select “**Nom**” from the dropdown list

***Note:** This should be the attribute field with the name of the Conservation Area in the loaded shapefile.*

- Click **OK**

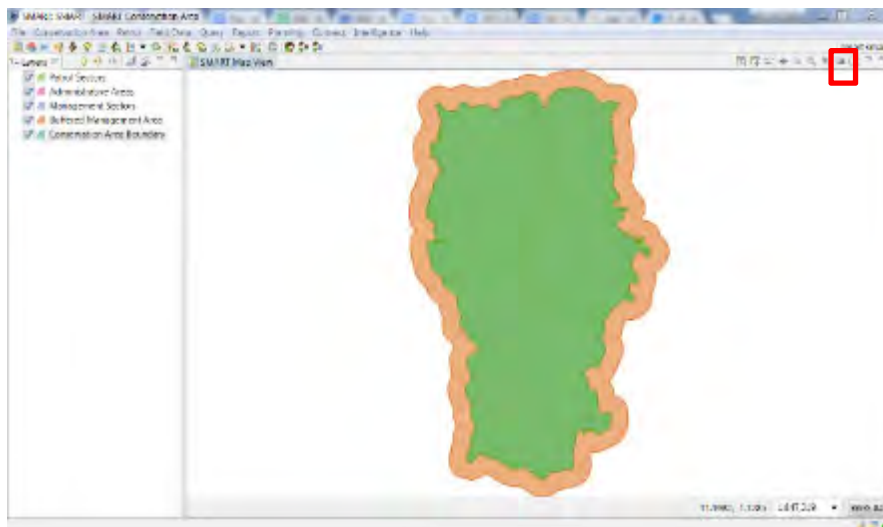


***Note:** You might get this warning when importing the training shapefiles. You can just click OK and the files will import correctly.*



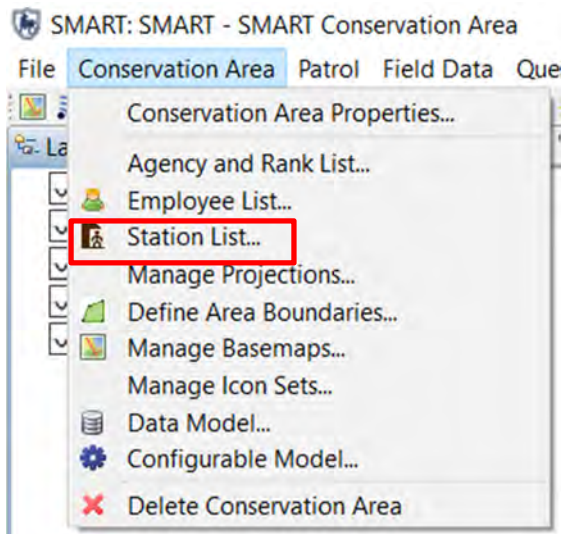
- Repeat the process for the remaining two boundary types for this particular Conservation Area
 - Buffered Management Area = **CA_BUFF.shp**
 - Area identifier = **BUFFERDIS**
 - Patrol Sectors = **PS.shp**
 - Area identifier = **Zone**
- Click Close

Note: If you do not immediately see the map layers in the window then click on the Zoom to Full Map Extent icon in the top right hand corner of the map window



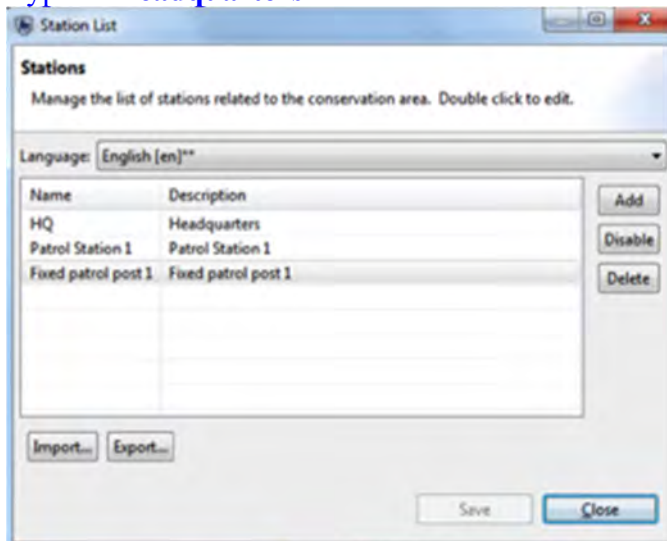
Entering Stations

Another part of the initialization process is defining the list of stations that are used by employees to start their patrols.



In the menu bar:

- Click **Conservation Area > Station List**
- Click **Add**
- Double-click **New Station**
- Enter **HQ**
- Double-click in the Description cell for **HQ**
- Type in **Headquarters**



- Add two more Stations using the same process:
 - **Patrol Station 1**
 - **Fixed patrol post 1**
- Click **Save**, then **Close**

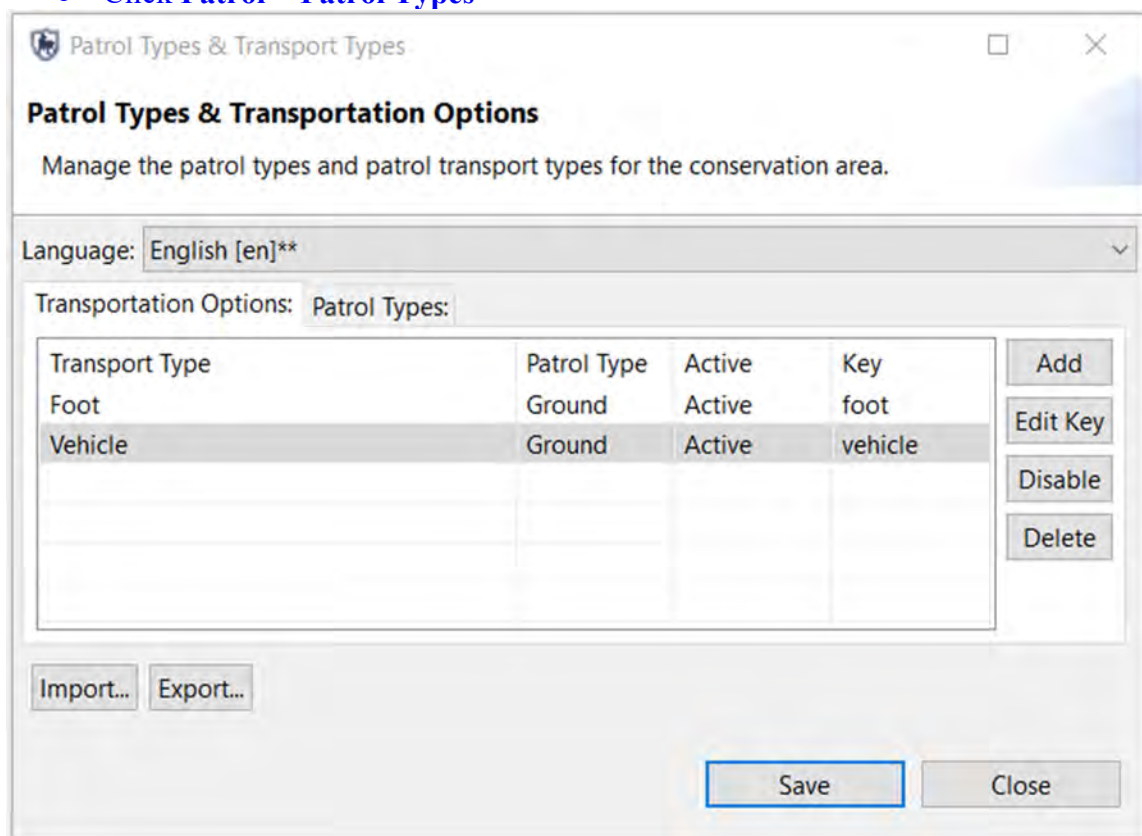
Defining Patrol Types

Patrol Types define the mode of transportation used for the patrols. The default Patrol Types are Air, Ground and Water. The subtypes or “Transportation Options” define the various forms of transportation used for each of the three Patrol Types. The “Add” button will allow administrative users to add new Transportation Options.



In the menu bar:

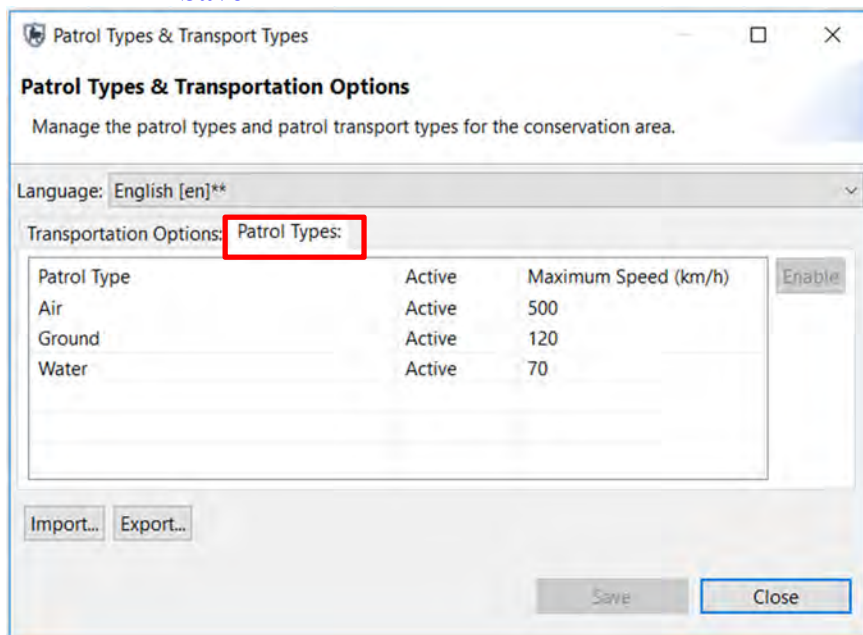
- Click **Patrol > Patrol Types**



- On the Transportation Options tab, click the **Add** button
- Double-click on **New Transport Type** and enter **Foot**
- Press Tab
- Change the **Patrol Type** from **Air** to **Ground**
- Select Patrol Type **Ground**

Note: the Key will be automatically generated.

- Click the **Add** button and repeat these steps to add a **Transport Type** of **Vehicle** with a **Patrol Type** of **Ground**
- Click **Save**



- Click on the **Patrol Types** tab

Maximum Speed for Valid GPS points

This setting help reduce errors in GPS data points by filtering out data points where the calculated speed exceeds the values in the Patrol Types.

Note: You can Disable and Enable Patrol and Transport Types in order to simplify the process of creating a patrol. For example, if your Conservation Area never runs water patrols, you can disable this option.

Defining Patrol Mandates

Patrol Mandates are defined by the administrator, and they state the general objective of a patrol. Mandates are assigned to each patrol in order to categorize patrols according to their objective, facilitating analysis by patrol objective.



- Click **Patrol > Patrol Mandates** from the main Menu Bar.

Patrol Mandates
Manage the list of mandates associated with a patrol. Double click to edit.

Language: English [en]**

Mandate	Key
Surveillance	surveillance
Anti-poaching	antipoaching
Follow-up	followup
Research and Monitoring	researchandmonitoring

Buttons: Add, Edit Key, Disable, Delete

Buttons: Save, Close

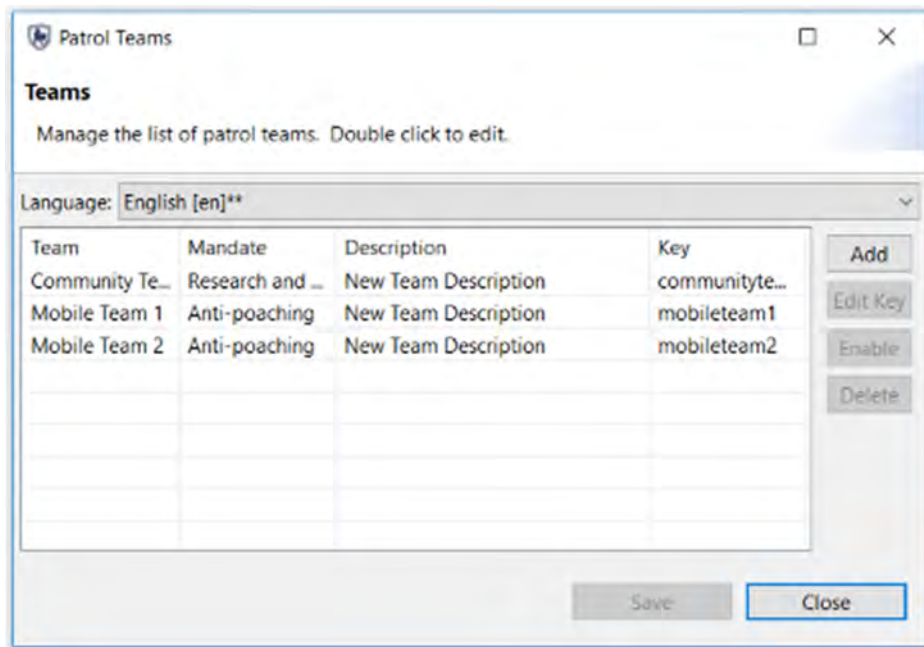
- Click the **Add** button
- Type in **Surveillance**

Note: the Key will be automatically generated.

- Add **3** more Mandates in this way
 - **Anti-poaching**
 - **Follow-up**
 - **Research and Monitoring**
- Click **Save**
- Click **Close**

Defining Patrol Teams

Patrol Teams are assigned to each patrol in order to categorize them according to their specialty or team name.



In the menu bar:

- Click **Patrol > Patrol Teams**
- Click **Add**
- Enter **Mobile Team 1**
- Press Tab
- Select the Mandate **Anti-poaching**
- Click **Add**
- Enter **Mobile Team 2**
- Press Tab
- Select the Mandate **Anti-poaching**
- Click **Add**
- Enter **Community Team 1**
- Press Tab
- Select the Mandate **Research and Monitoring**
- Click **Save**
- Click **Close**

Managing Patrol Options

Managing Patrol Options allows the administrator to specify a time period (in days) for how long after a Patrol was entered that users can edit Patrol information.

In the menu bar:

- Click **Field Data > Field Data Options**

Data Collection Options
Manage data collection options.

Waypoint Options
Allow users to additionally record the Distance and Direction of each waypoint/incident.
☐ Record Distance and Direction

Allow users to track an observer for each waypoint/incident.
☐ Track Observer

Edit Options
Number of days after which field data are no longer editable by non-admin users. A value of -1 specifies that the field data will always be editable.
 Days

Save Close

- -1 in Edit Options indicates that there is no time limit for editing patrols.

Another setting on this screen is whether to collect distance and direction information. For example, a Conservation Area manager may wish to have rangers record an observation that was seen, “500 metres to the North-East”.

For the purposes of this training module, you will leave the default settings

- [Click Close](#)

<End of Module 1 - Configuring a Conservation Area>

MODULE 2: Map Navigation and GIS

Objective

This Module will instruct you on how to use SMART's mapping features. You will learn how to create custom maps, export maps, set basemaps and access attribute information directly from the mapping windows.

- Icons and navigation
- Adding datasets
- Styling and labelling
- Exporting data
- Setting map projections
- Setting basemaps
- Adding new layers
- Adding map legends

Detailed Steps

Embedded in SMART in the Mapping, Patrol and Query perspectives are the mapping features that allow for the visualization of the spatial data used to manage the Conservation Area.

Boundaries, GPS waypoints and observations, query results, and other spatial data sets are all easily viewed within SMART's mapping framework.

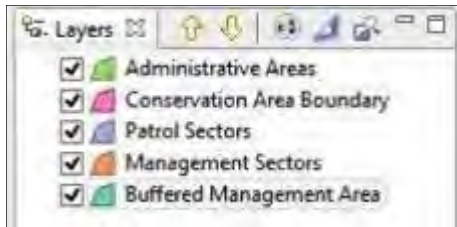


- Click the **Map Perspective** icon






The Map Perspective contains two main sections. On the right is the mapping window called SMART Map View and on the left are the boundary layers that were loaded into the Conservation Area in Module 1.

Icons and Navigation

Upon logging into the application as an administrator, SMART will open the Map Perspective window. The 'Layers' tab, which can be found on the left side of the screen, will be displayed in this window with the five available boundary layers (*remember only 3 were loaded*). The icons above the layers list allow for reordering, restyling and zooming to the extents of the layers.



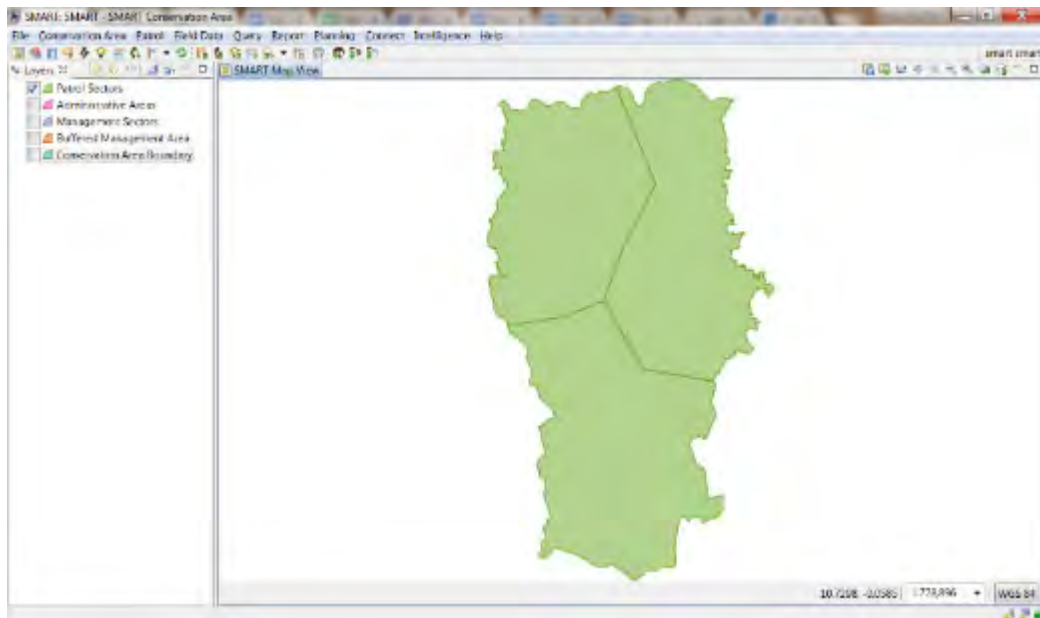
Icon Key:

	Moves the selected layer up
	Moves the selected layer down
	Changes the style of the selected layer
	Toggles whether the selected layer is focused
	Zooms to selected layers

- Turn layers **off/on** by clicking the checkbox next to a layer
- Move layers **up/down** by using the arrows or by dragging the layer
- Select Conservation Area Boundary and click **Zoom to selected layers** icon

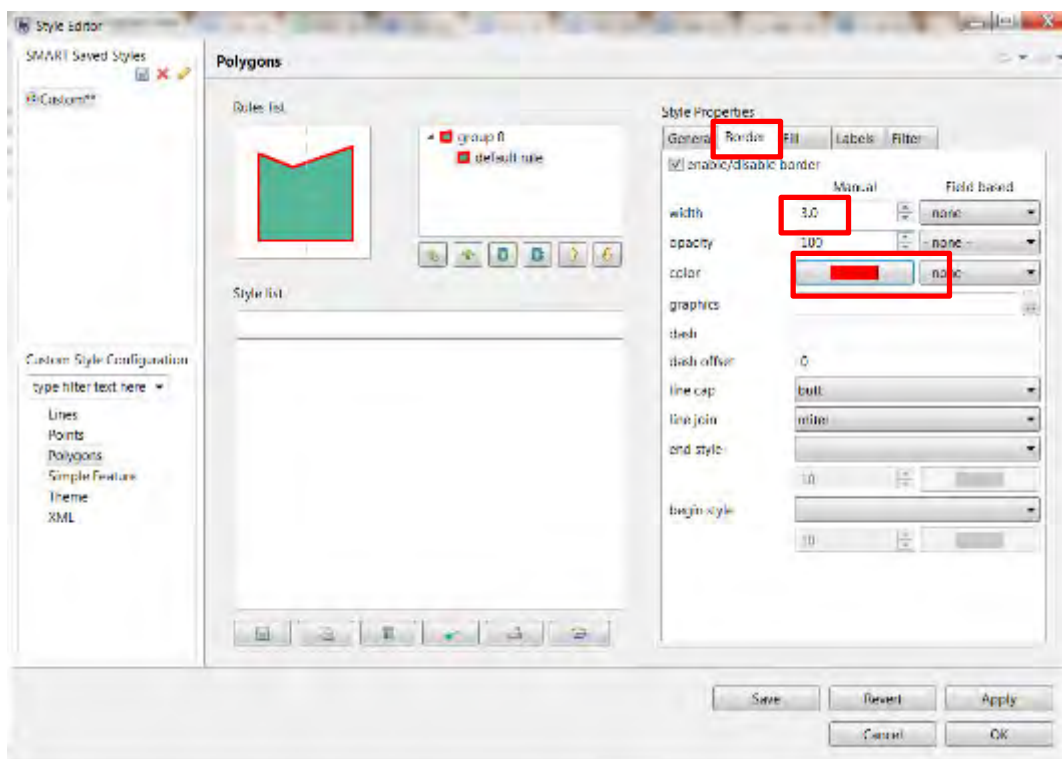
Changing Styling

SMART has an extensive tool set for creating custom maps with user-defined colors and labels.

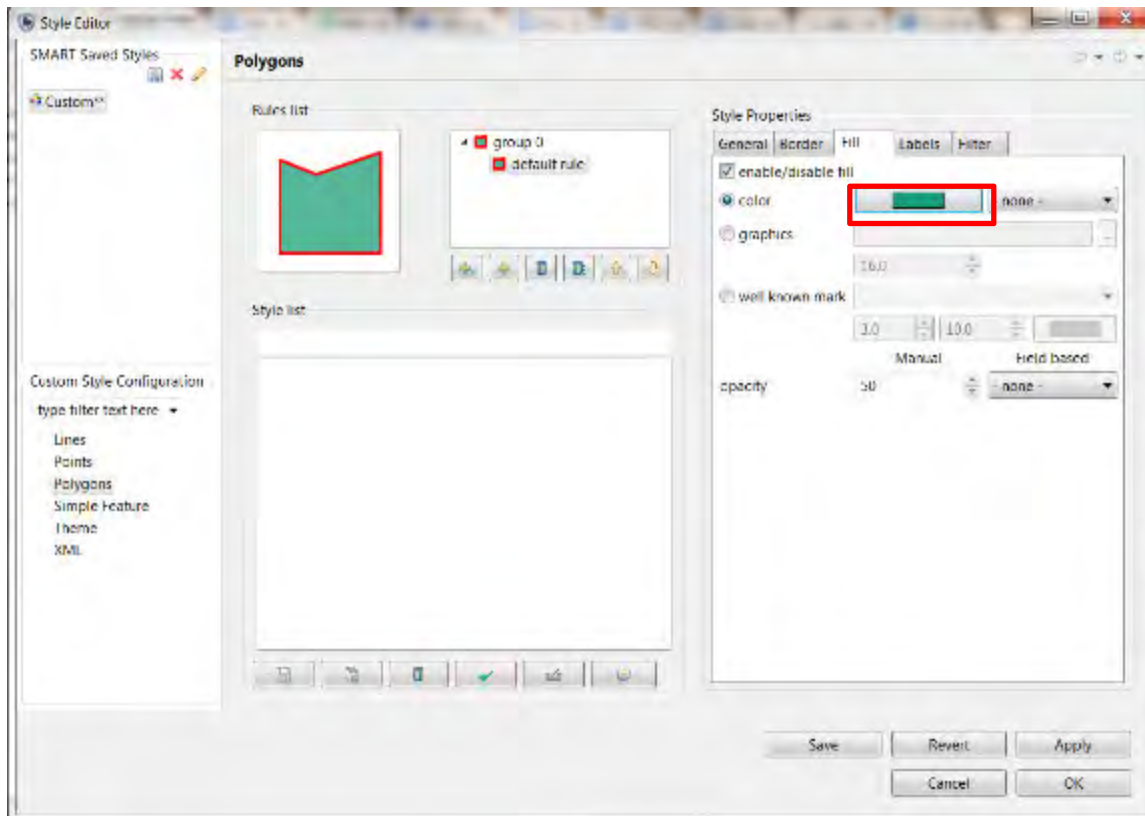


- Select only the **Patrol Sections** layer in the map legend
- Click the style icon above the map legend on the left hand side or right click the patrol sections layer and select **Change Style** from the list

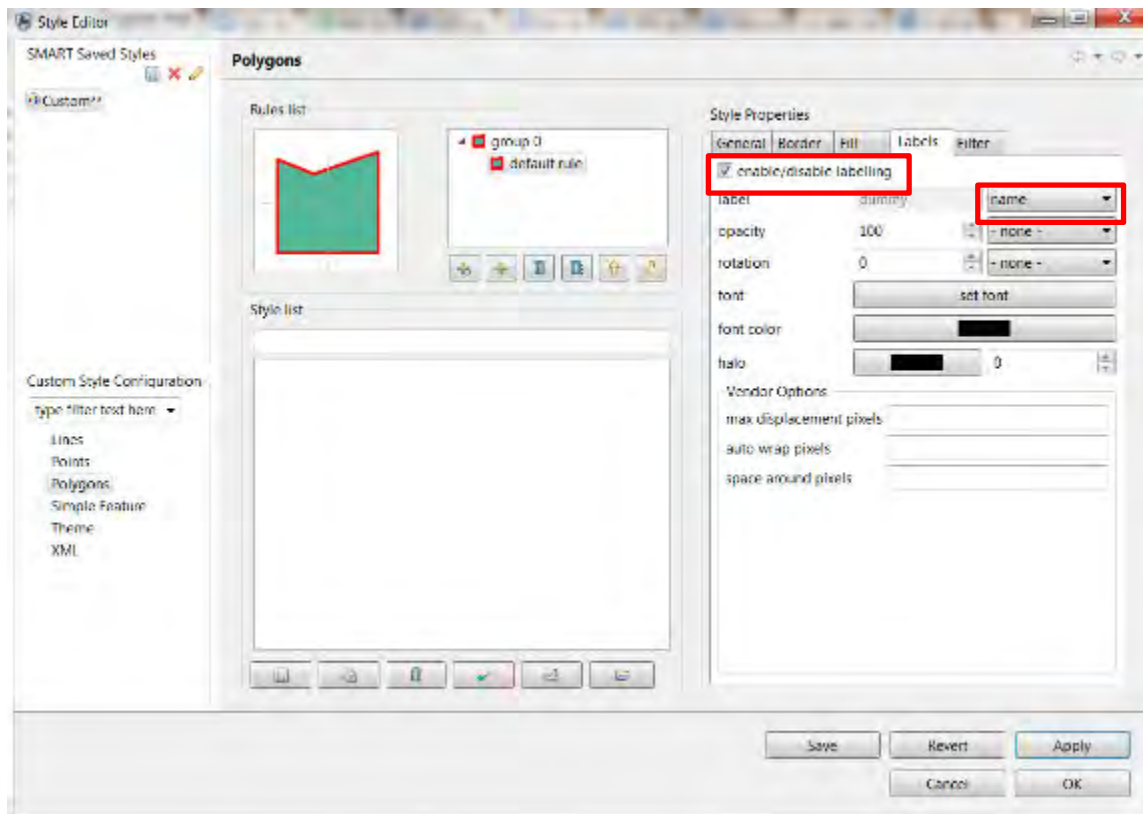
The Style Editor dialogue box will appear. There are many styling features that are available, but for this exercise, you will adjust the border fill color, line size and create a label for the feature.



- Select the **Polygons** option from the left-hand list
- Click the **Border** tab
- Click **color** to open the color selector
- Select the color **you want**
- Click **OK**
- Set the width to **3.0**



- Click the **Fill** tab
- Click **color** to open the color selector
- Select the color **you want**
- Click **OK**






- Click the **Labels** tab
- Check the **enable/disable labelling** box to activate labelling
- In the dropdown of label select **name**
- Click **Apply**
- Click **OK**




The map will now display your chosen color, border, and labels.

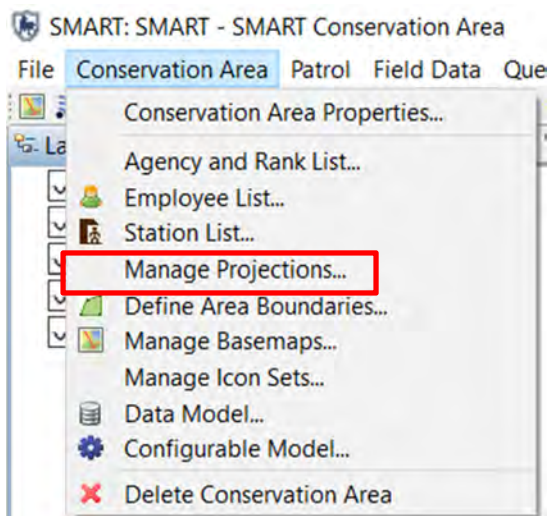
Setting Map Projections

SMART uses geographic coordinates and WGS84 as default (i.e. decimal degrees). If you want to load spatial boundaries in a different projection and/or datum (e.g. UTM and/or WGS 1972) you can set this manually.

Icon Key for SMART Map View

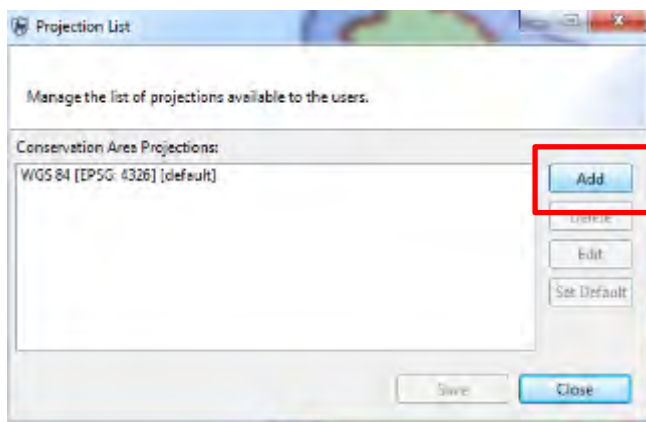
	Saves the current map as a Basemap
	Selects a saved Basemap
	Pans/moves the map

	Zooms the map in
	Zooms to the full extent of all layers
	Adds data layers to the map

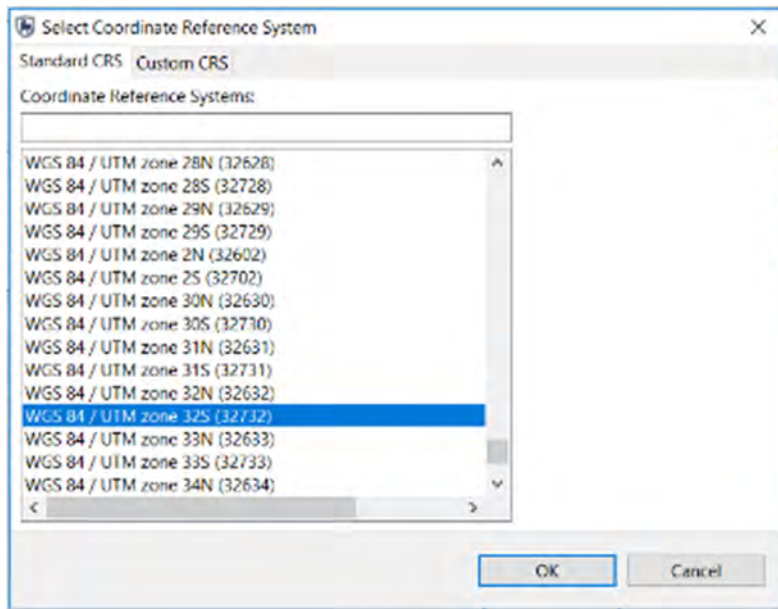


In the menu bar:

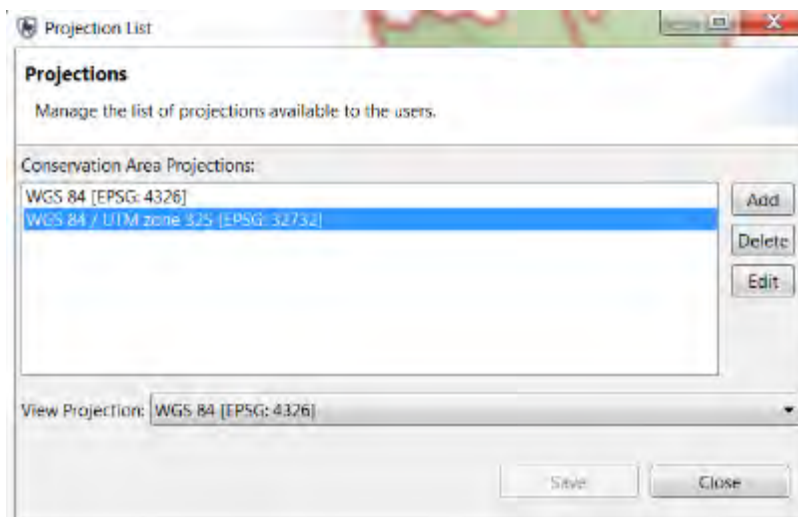
- Click **Conservation Area > Manage Projections...**



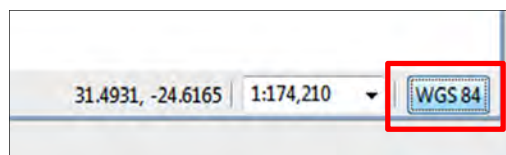
- You will see the default projection. Click **Add**



- Select **WGS 84/UTM Zone 32S**
- Click **Ok**



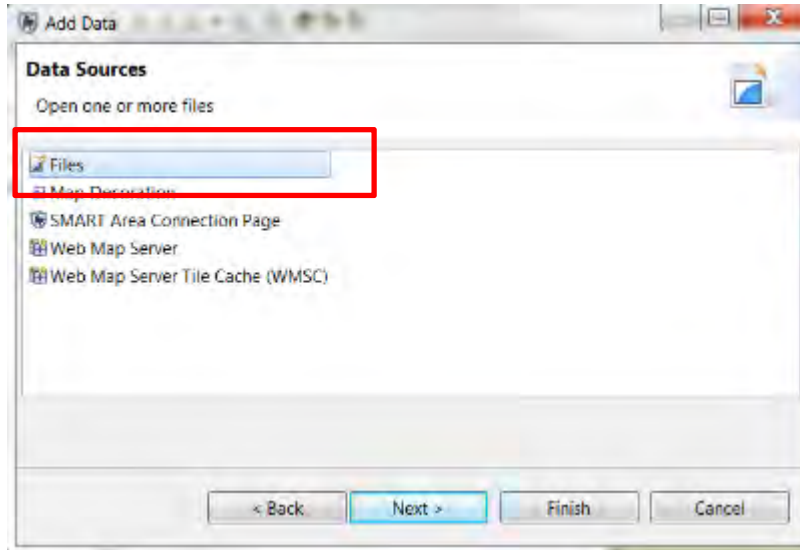
- Click on **WGS 84/UTM Zone 32S**
- Click **Save** then **Close**



- In the bottom right hand corner of the map window, click the projection and select the project you just added
- You should then see your map coordinates displayed in UTM

Add New Layers

- In the top right corner of the map, click on the **Add layer** icon



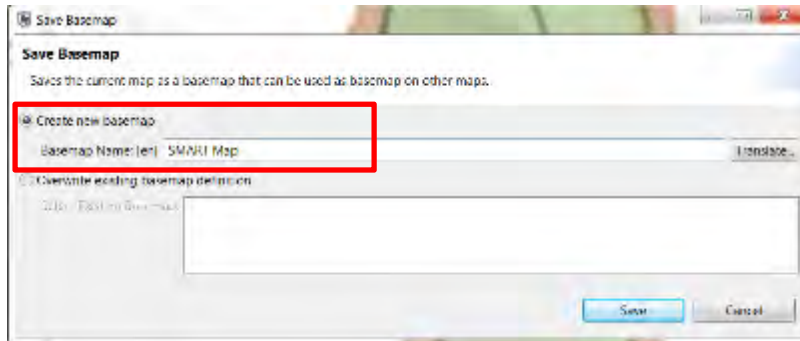
- Select **Files** then **Next**
- Navigate to **Module 2** folder in the support files (either on your USB key or in the files you downloaded from the website)
- Select the file **Road.shp**
- Click **Open**



Save a Basemap

In the SMART Map View you will see the boundary files that are associated with the Conservation Area. In the upper right of the SMART Map View window are the map navigation icons.

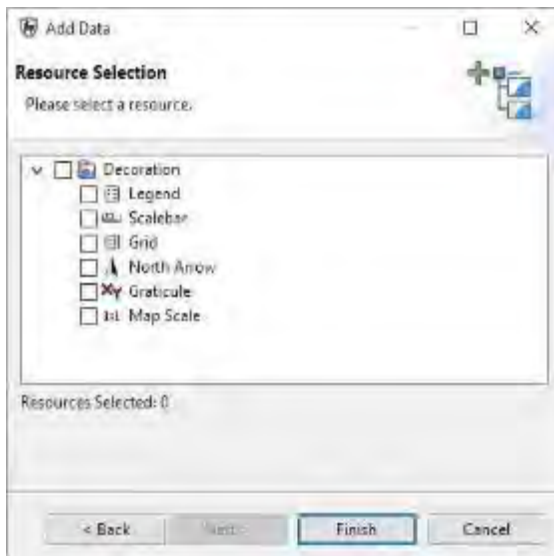
- To save your first Basemap click the **save as basemap** Icon 



- Select **Create new Basemap**
- Enter **SMART Map**
- Click **Save**
- Click **OK** once saved

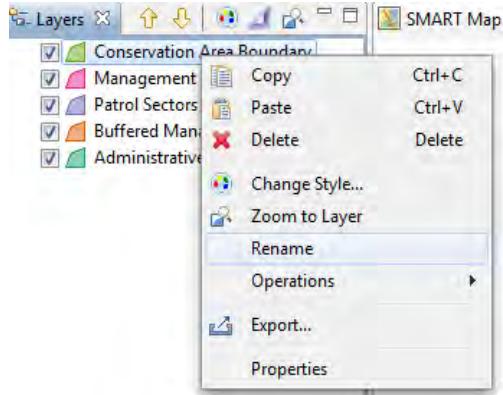
Add a Basemap legend

Map decoration can be added to the maps (including legends, scale bars etc.) to make them easier to interpret.



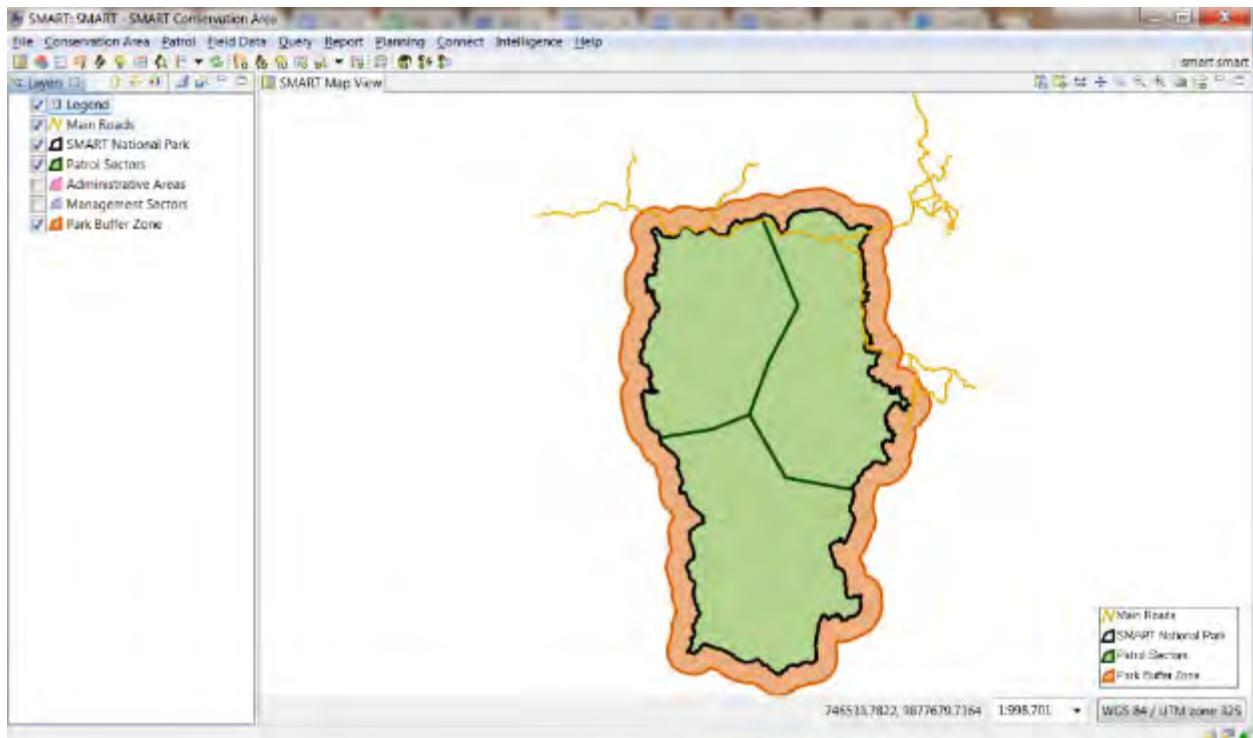
- Click on **add a layer to the map** 
- Select **Map Decoration**
- Click **Next**

- Check **Legend**
 - **Finish**
-
- In the Layers tab, deselect all map layers *EXCEPT* **Conservation Area Boundary, Buffered Management Area, Patrol Sectors and road**

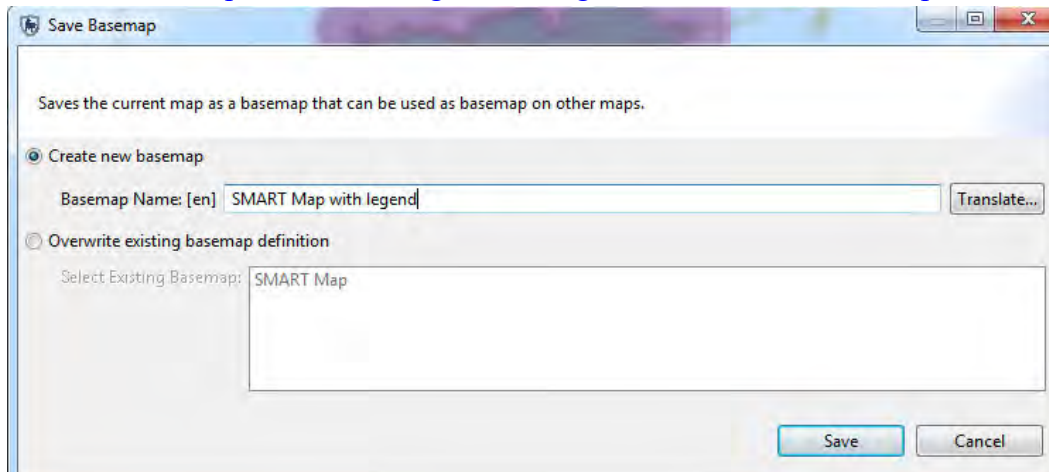


- Rename the map layers by right-clicking on the map layer name and selecting **Rename**:
 - Conservation Area Boundary = **SMART National Park**
 - Buffered Management Area = **Park buffer zone**
 - Patrol Sectors = **Patrol Sectors**
 - road = **Main roads**

Note: it is helpful to move the legend to the top of the list of shapefiles, so it is easily accessible and first.



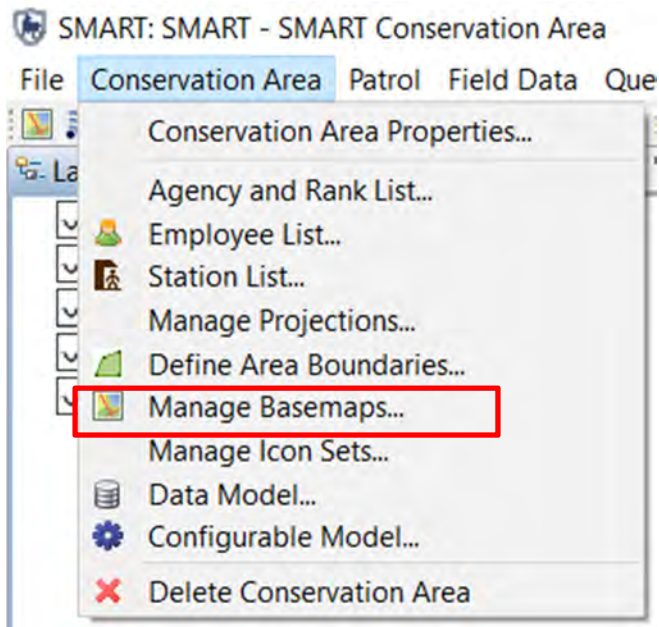
- Now the Basemap has been changed, click again on the save as basemap icon



- Create a new map called: **SMART Map with legend**.
- Click **Save**
- Click **OK** once saved

Setting a Saved Basemap

After a Basemap has been saved, it can be set as the default for the entire session.



In the menu bar:

- Click **Conservation Area > Manage Basemaps...**
- Select **SMART Map with Legend**
- Click **Set as Default**
- Click **Save**
- Click **Close**

<End of Module 2 – Map Navigation and GIS>

MODULE 3: Patrols

Objective

In this module, you will work through the process of creating patrols in SMART. The goal of the module is to familiarize you with creating, editing, and managing patrol data.

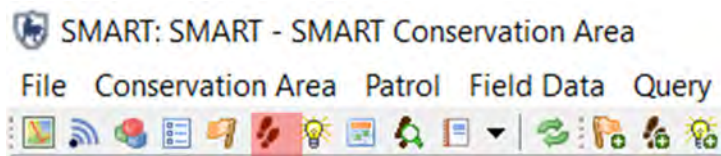
This module will assist your understanding of the following:

- Creating a new patrol
- Downloading waypoints
- Downloading or generating tracklogs
- Data entry
- Viewing a patrol map
- Multi-leg patrols
- Exporting and importing patrols
- Patrol filters

Detailed Steps

Patrol Perspective

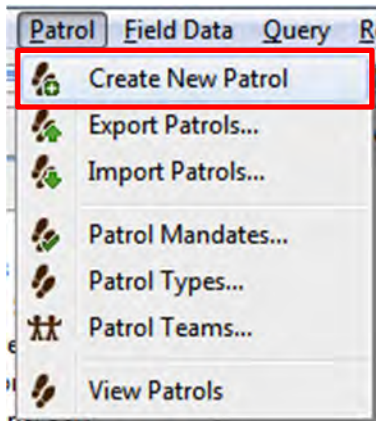
The SMART application allows the user to switch between perspectives. In this module, you will explore options within the Patrol Perspective.



- Click the **Patrol Perspective Icon**, highlighted above in red

Entering Patrol Data using GPS and Tracklogs

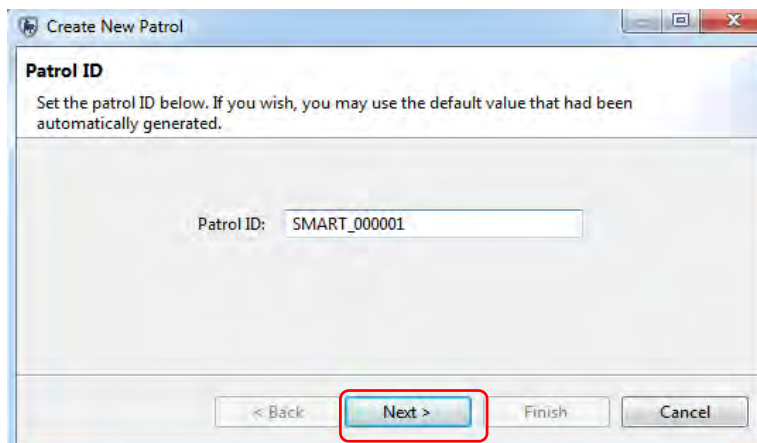
You will see that in the Patrol List View there are no patrols currently listed.



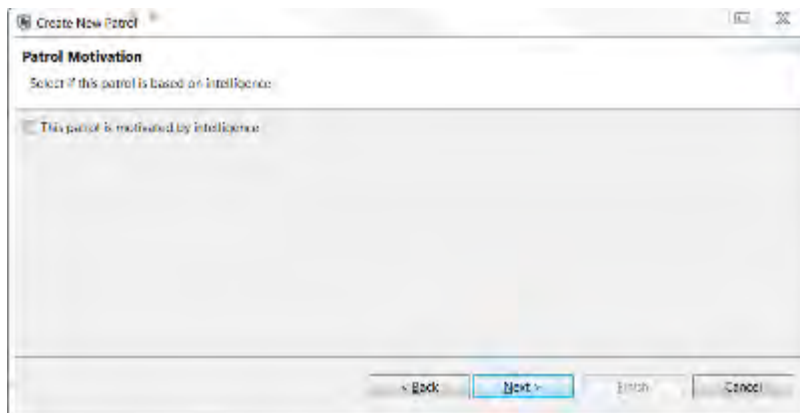
To create a new patrol, in the menu bar:

- Click **Patrol > Create New Patrol**

The Patrol ID will be automatically populated with unique values unless the user enters a new ID manually.



- Click **Next**



- For the window '**Patrol Motivation**' – no intelligence motivated this patrol so leave blank and click **Next**

- For the window '**Patrol Plan**' – leave as '**None**' selected and pass directly to the next window

Note: this information would typically come from the patrol forms from the rangers in your site.

On the **Transport Type** form, SMART will now reference the previously entered choices for Ground Patrols and populate a pull-down list with those values.

- Select **Foot** and click **Next**

The **Armed** form allows you to specify whether the patrol is armed.

Create New Patrol

Armed

Identify whether the patrol was armed or not armed.

Is this patrol armed?

☐ Yes

☒ No

< Back Next > Finish Cancel

- Select **No** and click **Next**

The **Station & Team** form references the previously entered values for Teams and Stations to populate pull-down lists.

Create New Patrol

Station & Team

Select the station and team associated with the patrol. Select (none) if station/team not applicable.

Team: Mobile Team 1

Station: HQ

< Back Next > Finish Cancel

Select:

- Team: **Mobile Team 1**
- Station : **HQ**
- **Next**

On the **Mandate** screen, select

- Patrol Mandate : **Surveillance**
- **Next**

In the **Patrol Objectives** form, you can type free form text to describe the objective of the patrol.

- Type in **“Responding to reports of illegal activities.”**
- Click **Next**

In the **Patrol Comments** form, you can type free form text to enter any comments related to the patrol.

The screenshot shows a window titled "Create New Patrol". At the top, it says "Enter any comments associated with the patrol." Below this is a section labeled "Patrol Comments:" with a text area containing the text "Found evidence ; people encountered,". At the bottom of the window are four buttons: "< Back", "Next >", "Finish", and "Cancel".

- Enter **“Found evidence: people encountered.”**
- Click **Next**

The next screen is for entering the start and end date of the patrol.

The screenshot shows the same "Create New Patrol" window, but now on the "Patrol Dates" section. It says "Select the start and end dates for the patrol." Below this are two date pickers. The "Patrol Start Date:" is set to "Sunday , September 9, 2012". The "Patrol End Date:" is set to "Monday , September 10, 2012". At the bottom are the same four buttons: "< Back", "Next >", "Finish", and "Cancel".

- Enter start date of **9 Sept 2012** and end date of **10 Sept 2012**
- Click **Next**

Each patrol must have at least one employee associated with it. For this patrol, you will select three employees to be associated with the patrol on the **Patrol Members** form.

Create New Patrol

Patrol Members

Select the members who participated in this patrol. Select all members even if the patrol split into multiple groups. At least one member must be selected.

Select members that participated in the patrol:

All Employees:

- Alain Lushimba [SMART18]
- Cedric Sepulchre [SMART13]
- Denis Lambert [SMART16]
- Edgar Ambassa Ongono [SMART25]
- Emma Stokes [SMART11]
- Herbert Ekodeck [SMART17]
- Hilde Vanleeuwe [SMART23]
- John Peter [195000015]
- Lilian Wendy [195000016]
- Nianga Leckosso [SMART21]
- Rebecca Atencia Fernandez [SMART19]
- Ruffin Ambahe Delarue [SMART24]
- Ruth Starkey [SMART12]
- Samnang Tang [195000018]

Selected Employees:

- Achille Nsafou [SMART20]
- Dieudonne Ekotouba [SMART15]
- Fortune Iyenguet [SMART22]

Buttons: Add ->, <- Remove, < Back, Next >, Finish, Cancel

- Click **Add ->** OR double click their **name**

Once the three names appear in the Selected Employees window

- Click **Next**

*Note: you can remove employees by clicking **<-Remove***

Create New Patrol

Patrol Members

Select the members who participated in this patrol. Select all members even if the patrol split into multiple groups. At least one member must be selected.

Select members that participated in the patrol:

All Employees:

- Bernard Williams [196000025]
- Denis Lambert [SMART16]
- Dieudonne Ekotouba [SMART15]
- Edgar Ambassa Ongono [SMART25]
- Emma Stokes [SMART11]
- Fortune Iyenguet [SMART22]
- Herbert Ekodeck [SMART17]
- Hilde Vanleeuwe [SMART23]

Selected Employees:

- Achille Nsafou [SMART20]
- Alain Lushimba [SMART18]
- Cedric Sepulchre [SMART13]

Add -> <- Remove

< Back Next > Finish Cancel

Each patrol must be assigned a leader. SMART will populate the pull-down list with the three previously selected names.

- **Select a patrol leader**
- **Click Next**

SMART has the ability to manage multi-leg patrols. These involve members of the patrol splitting off into a separate group with their own leader and transport type. Later in the exercise, you will create a multi-leg patrol. For this patrol, you will keep the default setting.

Create New Patrol

Patrol Legs

Identify whether the patrol was a multi-leg patrol.

Is this a multi-leg patrol?

☒ No

☐ Yes

A multiple leg patrol is identified by a change in patrol leader, or by a patrol splitting into multiple groups.

< Back Next > Finish Cancel

- **Select No**
- **Click Finish**

SMART will now load the **Patrol Summary** screen, which shows all of the values that you entered in the previous forms. Any field can be edited by clicking the [edit](#) link next to the item.

SMART_000001

Patrol Information

Patrol Type: Ground
 Transportation Type: Foot
 Ammunition: ...
 Mandate: Surveillance
 Team: Mobile Team 1
 Station: 140
 Members: [Leader] Ashik Nwosu (SMART00), [Observer] Ashik Nwosu (SMART01), [Observer] Ashik Nwosu (SMART02)

Patrol ID: SMART_000001
 Objective: Responding to reports of illegal activities
 Comment: Found no more people in the area

Patrol Data

Start Date: September 9, 2012 End Date: September 10, 2012

Day	Win Date	Start Time	End Time	Distance	Total Patrol Time	Active Patrol Time
Sep 9, 2012 Sun	No	12:00:00 AM	11:59:59 PM	0	24h 0m	24h 0m
Sep 10, 2012 Mon	No	12:00:00 AM	11:59:59 PM	0	24h 0m	24h 0m

Summary: Sep 9, 2012 | **Sept 9, 2012** | Map | Other

- Click on the date tab **Sept 9 2012**

Waypoints

Waypoints can be entered into SMART in four distinct ways:

- Direct import from a GPS device;
- Import of a GPX data transfer file;
- Manually entered; or
- Downloading from a csv file- (CSV file import)

Patrol Day: Sunday, Sep 9, 2012

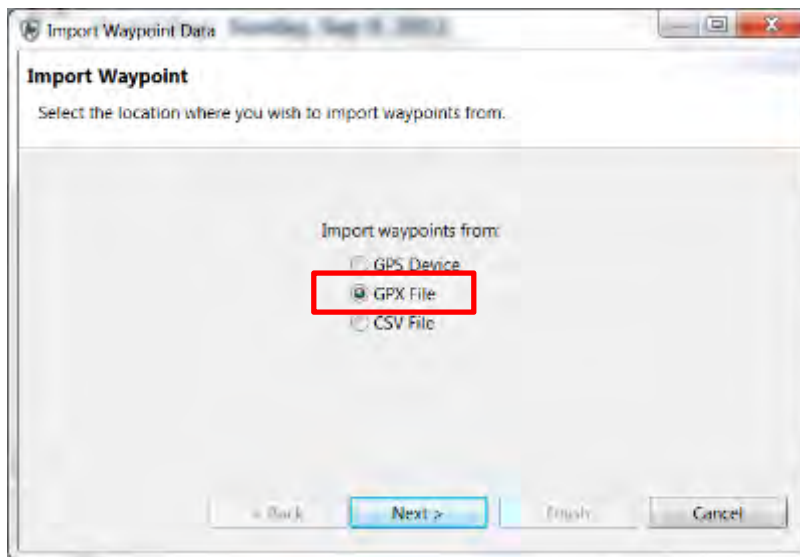
Start Time: 12:00:00 AM End Time: 11:59:59 PM Rest Minutes: 0 Total Patrol Time: 24h 0m
 Update Start & End Times Total Active Patrol Time: 24h 0m

Distance Travelled (km): 0 Set Track... View Track Points...

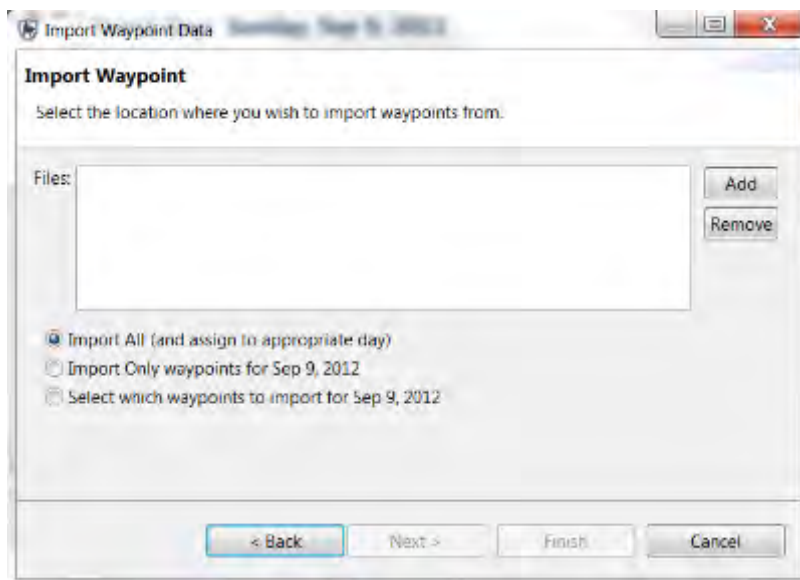
Observations / Waypoints **Import Waypoints ...**

Waypoint ID	X Coordinate	Y Coordinate	Time	Observation	Comment	Attachments	Last Updated	Last Updated By
-------------	--------------	--------------	------	-------------	---------	-------------	--------------	-----------------

- Click **Import Waypoints ...**

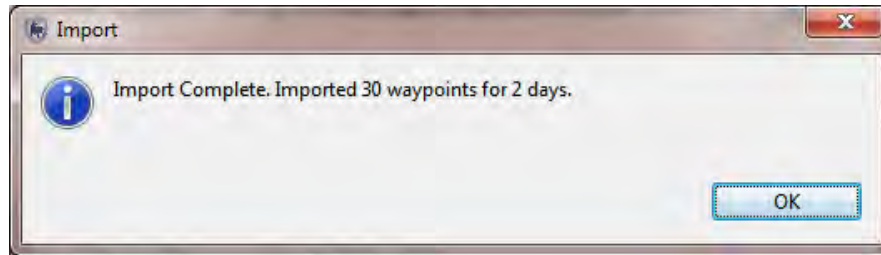


- Select **GPX File**
- Click **Next**



- **Import All (and assign to correct day)** - SMART will use the time provided in the file and assign the collected waypoints to the correct date
- **Import Only waypoints for <date>** - SMART will import only the waypoints for the selected date
- **Select which waypoints to import for <date>** - The SMART user will select and assign waypoints to the selected date
- Select **'Import All (and assign to correct day)'**
- Click **Add**
- Browse to the folder **Module 3** select **SMART_Mission1_wpt.gpx**
- Click **Open**

- Click **Finish**
- On completion of the importing, the following pop-up window will be shown with the results



- Click **OK**

SMART will read the GPX file and assign the waypoints to the appropriate date.

Patrol SMART_000001

Patrol Day: Sunday, Sep 9, 2012

Start Time: 3:33:53 AM End Time: 5:27:06 AM Rest Minutes: 0 Total Patrol Time: 2h 3m
[Update Start & End Times](#) Total Active Patrol Time: 2h 3m

Distance Travelled (km): 0 [Set Track...](#) [View Waypoints...](#)

Observations / Waypoints: [Import Waypoints...](#)

Waypoint ID	X Coordinate	Y Coordinate	Time	Observation	Comment	Attachments	Last Updated	Last Updated By
1	11.855052207	-0.376542199	3:33:53 AM	(None)	09-SEP-12 9:33:53	(None)	May 24, 2019 1:17:27 PM	smart smart
2	11.825351771	-0.382635808	3:40:08 AM	(None)	09-SEP-12 9:40:08	(None)	May 24, 2019 1:17:27 PM	smart smart
3	11.787460959	-0.369753158	3:49:19 AM	(None)	09-SEP-12 9:49:19	(None)	May 24, 2019 1:17:27 PM	smart smart
4	11.787451193	-0.369752403	4:50:02 AM	(None)	09-SEP-12 10:50:02	(None)	May 24, 2019 1:17:27 PM	smart smart
5	11.755346954	-0.336953949	5:00:21 AM	(None)	09-SEP-12 11:00:21	(None)	May 24, 2019 1:17:27 PM	smart smart
6	11.746627595	-0.313957259	5:10:01 AM	(None)	09-SEP-12 11:10:01	(None)	May 24, 2019 1:17:27 PM	smart smart
7	11.733612176	-0.322081938	5:20:04 AM	(None)	09-SEP-12 11:20:04	(None)	May 24, 2019 1:17:27 PM	smart smart
8	11.709576901	-0.319280019	5:30:17 AM	(None)	09-SEP-12 11:30:17	(None)	May 24, 2019 1:17:27 PM	smart smart
9	11.702082508	-0.306774844	5:47:08 AM	(None)	09-SEP-12 11:47:08	(None)	May 24, 2019 1:17:27 PM	smart smart

[Add Waypoint](#) [Delete Waypoint\(s\)](#) [Move Waypoint\(s\)](#)

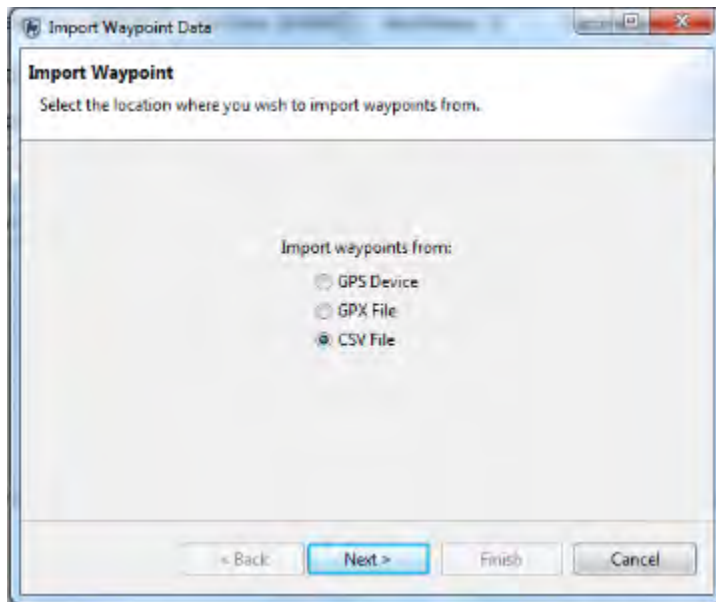
Buttons at bottom of **Patrol Summary** screen:

- **Add Waypoint** - Allows for the manual creation of a waypoint
- **Delete Waypoint(s)** - Deletes a selected waypoint
- **Move Waypoint(s)** - Allows for a waypoint to be moved to a different day

CSV File Import Option

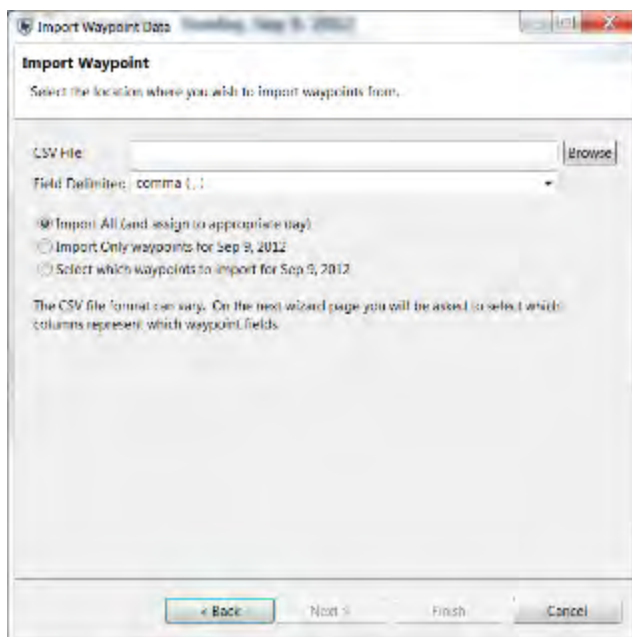
If you have a CSV that you want to import, use the below process. A sample CSV is not available in the support files.

- Click **Import waypoints**



- Select **CSV File option**
- Click **Next** and then **Browse** - use this to select the CSV file from which you want to import your waypoints

***Note:** A separate administrator utility is available is being beta tested for importing observation data in CSV. For further details contact info@smartconservationtools.org*



CSV File Configuration

Note: additional guidance can be found in Appendix 2

X- Column - select the text from the first row of the file (header or value), which represents the column where the X coordinate values are stored

Y- Column - select the text from the first row of the file (header or value), which represents the column where the Y coordinate values are stored

Date - select the text from the first row of the file (header or value), which represents the column where the date values are stored

Time - select the text from the first row of the file (header or value), which represents the column where the time values are stored. Valid time formats are as follows:

1. HH:mm (24-hour time, no seconds given)
2. HH:mm:ss (24-hour time with seconds)
3. hh:mm am (12-hour time, no seconds followed by one of: "am", "pm", "AM" or "PM")
4. hh:mm:ss pm (same as above with seconds)
5. HH:mm GMT-08:00 (24-hour time, with a GMT + or - timezone)
6. HH:mm:ss GMT+03:00 (same as above with seconds)

Optional Columns

Waypoint ID - Select the text that represents the waypoint id you would like to use. Left blank the system will select the next highest number in the patrol-leg-day as the id.

Comments Field - Select the text that represents the comments you wish to be added to the waypoint. Left blank, the comments field in SMART will be blank.

Data Options

Coordinate Projection - Select what projection your X and Y coordinate data is stored in.

Date Format - The format your dates from the Date column are stored in. You may type into this field to describe your format if it does not match one of the listed formats.

Skip first row... - Check this box if you have a header row at the top of your data.

Setting Tracks

Tracks show a mapped visualization of the patrol's route and enable SMART to make calculations based on the length of the patrol. Most GPS units collect Track information, and SMART has the ability to import Tracks in the same way as waypoints were imported. SMART can also calculate Tracks based on the available waypoint location and waypoint times.

Patrol SMART 200001

Patrol Day: Sunday, Sep 9, 2012

Start Time: 8:38:58 AM End Time: 9:37:08 AM Rest Minutes: 0 Total Patrol Time: 2h 3m
Under Shift & End Times: Total Active Patrol Time: 2h 3m

Distance Travelled (km): 0 **Set Track...** (highlighted with a red box)

Observations / Waypoints: [http://www.patrolsmart.com](#)

Waypoint ID	X Coordinate	Y Coordinate	Time	Observation	Comment	Attachments	Last Updated	Last Updated by
1	11.815032207	0.370541499	8:38:58 AM	(None)	09 SEP 12 08:38:58	(None)	May 24, 2019 1:17:27 PM	smart smart
2	11.815311771	0.382631808	8:40:08 AM	(None)	09 SEP 12 08:40:08	(None)	May 24, 2019 1:17:27 PM	smart smart
3	11.787400959	0.309731158	8:40:19 AM	(None)	09 SEP 12 08:40:19	(None)	May 24, 2019 1:17:27 PM	smart smart
4	11.787415198	0.309732408	8:50:02 AM	(None)	09 SEP 12 10:50:02	(None)	May 24, 2019 1:17:27 PM	smart smart
5	11.712346054	0.330501849	10:02:21 AM	(None)	09 SEP 12 11:00:21	(None)	May 24, 2019 1:17:27 PM	smart smart
6	11.746627595	0.318957259	10:06:01 AM	(None)	09 SEP 12 11:10:01	(None)	May 24, 2019 1:17:27 PM	smart smart
7	11.713612176	0.322081898	10:06:04 AM	(None)	09 SEP 12 11:20:04	(None)	May 24, 2019 1:17:27 PM	smart smart
8	11.709570901	0.319282019	10:07:17 AM	(None)	09 SEP 12 11:30:17	(None)	May 24, 2019 1:17:27 PM	smart smart
9	11.702082558	0.305721844	10:07:08 AM	(None)	09 SEP 12 11:37:08	(None)	May 24, 2019 1:17:27 PM	smart smart

[Add Waypoint](#) [Delete Waypoint\(s\)](#) [Move Waypoint\(s\)](#)

- Click Set Track ...

Import Track Data

Import Track

Select the location where you wish to import tracks from.

Import tracks from:

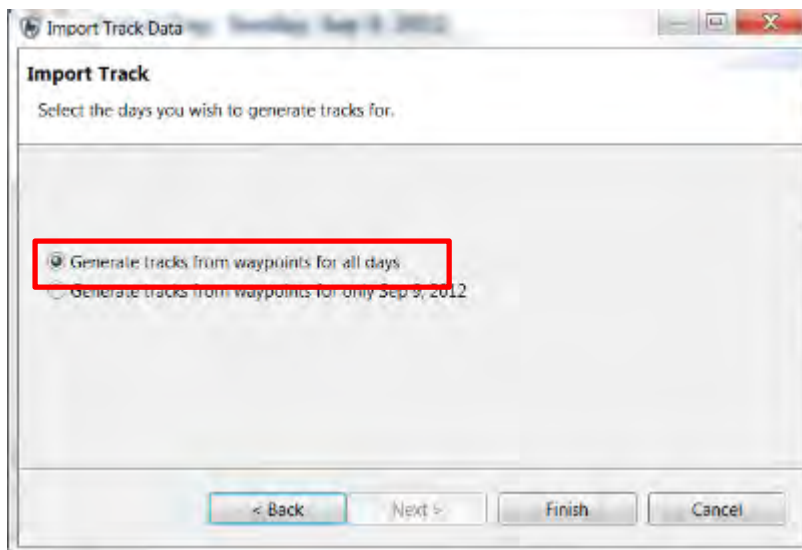
☐ GPS Device

☐ GPX File

☒ Generate from Waypoints (highlighted with a red box)

< BACK Next > Finish Cancel

- Select Generate from waypoints
- Click Next



*Note: It is at this screen where you can choose to have SMART to **calculate** the Track based on the previously imported waypoints, if no GPS track data is available.*

- Select **Generate tracks from waypoints for all days**
- Click **Finish**
- A confirmation pop-up window will be shown when the task has completed, click **OK**

The **Distance Travelled (km)** field will now be populated

Entering Observations

By this point, you should have configured your Conservation Area with an appropriate data model. You will now enter your patrol observation data into SMART based on that data model.

Patrol SMART_000001

Patrol Day: Sunday, Sep 9, 2012

Start Time: 3:33:53 AM End Time: 5:37:08 AM Rest Minutes: 0 Total Patrol Time: 2h 3m
 Update Start & End Times Total Active Patrol Time: 2h 3m

Distance Travelled (km): 21.66 Set Track... View TrackPoints...

Observations / Waypoints: Import Waypoints...

Waypoint ID	X Coordinate	Y Coordinate	Time	Observation	Comment	Attachments	Last Updated	Last Updated By
1	11.855052207	-0.376542499	3:33:53 AM	(None)	09-SEP-12 9:33:53	(None)	May 24, 2019 2:13:06 PM	smart smart
2	11.825351771	-0.382635808	3:40:08 AM	(None)	09-SEP-12 9:40:08	(None)	May 24, 2019 1:17:27 PM	smart smart
3	11.787460959	-0.369753158	3:49:19 AM	(None)	09-SEP-12 9:49:19	(None)	May 24, 2019 1:17:27 PM	smart smart
4	11.787415193	-0.369752403	4:50:02 AM	(None)	09-SEP-12 10:50:02	(None)	May 24, 2019 1:17:27 PM	smart smart
5	11.755346954	-0.336953849	5:00:21 AM	(None)	09-SEP-12 11:00:21	(None)	May 24, 2019 1:17:27 PM	smart smart
6	11.746627595	-0.313957259	5:10:01 AM	(None)	09-SEP-12 11:10:01	(None)	May 24, 2019 1:17:27 PM	smart smart
7	11.733612176	-0.322081838	5:20:04 AM	(None)	09-SEP-12 11:20:04	(None)	May 24, 2019 1:17:27 PM	smart smart
8	11.709576901	-0.319280019	5:30:17 AM	(None)	09-SEP-12 11:30:17	(None)	May 24, 2019 1:17:27 PM	smart smart
9	11.702082558	-0.306723844	5:37:08 AM	(None)	09-SEP-12 11:37:08	(None)	May 24, 2019 1:17:27 PM	smart smart

- Double-Click the **Observation** cell for Waypoint 1
- Click the **square button** (highlighted pink above) on the right to bring up the observation data model

You are now going to enter observations. Observations normally come from data sheets provided by rangers. For training purposes, we will provide you with examples enter.

Waypoint Observations - Waypoint ID: 0

Observation Categories
 Select the category(ies) of observation made at the waypoint. More than one category can be selected here.

type filter text

- Data Model
 - Human Activity
 - People - direct observation
 - People - indirect sign
 - Camp**
 - Weapons and/or seized
 - Transportation
 - Timber
 - NTFPs
 - Domestic Animals
 - Fine
 - Infrastructure & Roads
 - Pollution
 - Wildlife
 - Wildlife - direct observation
 - Wildlife - indirect sign
 - Carcass
 - Trophies seized
 - Bushmeat
 - Exclusion

Camp (Human Activity)

< Back Next > Finish Cancel

For the first waypoint (a **hunting camp** that was burned down by the patrol team)

- Double-click on **Camp** OR click > in the center to add it to the right-hand window
- Click **Next**

Waypoint Observations - Waypoint ID: 1

Observation Details
Enter the observation attributes for Camp - Human Activity. Add multiple rows if required.

Camp Page 1 of 1

Threat: Hunting [huntingcollectingterrestrialanimals]
 Status: Active
 Camp Capacity: Small
 Number of Drying Racks: 1
 Action Taken Camp: Destroyed
 Attachments: [Add]

[Update Observation] [Add Observation]

Camp Observations:

Threat	Status	Camp Capacity	Number of Drying Racks	Action Taken Camp	Attachments

[Edit] [Delete]

[< Back] [Next >] [Finish] [Cancel]

- Enter the observation details as follows:

Threat = **Hunting**

Note: you can start typing 'hunting' directly in the text box, select 'Hunting' from the drop down list, and then click Enter

Status = **Active**

Camp Capacity = **Small**

Number of Drying Racks = **1**

Action Taken Camp = **Destroyed**

Note: To navigate between the different observation attributes, use the tab key. To select from the drop down list for each attribute, use the left/right arrows and click Enter on the selection

- Click **Add Observation**
- Click **Next**

Waypoint Observations - Waypoint ID: 1

Summary

Review the observation data entered. Press 'Next' to enter another observation, use the Edit link to modify observations and the Delete link to remove observations. Once complete, press 'Finish'.

Camp - Human Activity [Delete](#) [Edit](#)

Threat	Status	Camp Capacity	Number of Drying Racks	Action Taken Camp	Attachments
Hunting	Active	Small	1.0	Destroyed	

< Back Next > **Finish** Cancel

You can now preview the observation data to check it

- If you want to make edits click **Edit in the upper right corner**
- Click **Finish**

The **Patrol Summary** window now shows, Camp (1) in the Observation column, corresponding with Waypoint 1. Now you are going to fill in the observation data for the remaining waypoints

***Note:** The default value for all waypoints in SMART is 'none', which is equivalent to the 'Position' point in MIST.*

Waypoint 2 – Direct observation of an adult male elephant

- Double-click in the observation cell for Waypoint 2
- Click the **square button** on the right to bring up the observation data model
- Under **Wildlife**, double-click on **Wildlife – Direct Observation**
- **Next**
- Threat = '**None**'
- In the **Species** window, start to type '**Elephant**'
- Select '***Loxodonta africana (African Elephant)***'
- **Number of Adult Males = 1**
Action Taken Live Animals = **Observed only**
- Leave the other attributes blank
- Click **Finish**
- Click **Yes** to save.

Waypoint 3 – Two hunters arrested by the patrol

- Double-click in the observation cell for Waypoint 3
- Click the **square button** on the right to bring up the observation data model
- Under Human Activity, double click on **People – direct observation**

- **Next**
- Threat = **Hunting**
- Number of People = **1**
- Armed? = **Unarmed**
- Place of Origin = **Village A**
- Sex = **Female**
- Action Taken People = **Arrested**
- Leave the other attributes blank
- Click **Finish**
- Click **Yes** to save.

Waypoint 4 – Large and active hunting camp with 3 drying racks. Destroyed by the patrol.

- Follow the steps under Waypoint 1

Waypoint 5, 6 – Position points

- Leave as default option ‘none’

Waypoint 7 – A hunter (male, Village B) given a verbal warning by the patrol

- Follow the steps under Waypoint 3

Waypoint 8 & 9 – Position point

- Leave as default option ‘none’
- Go to the second patrol day by selecting the date tab for Sep 10, 2012

Waypoint 10 – Position point

- Leave as default option ‘none’

Waypoint 11 – Fresh poached elephant carcass. Tusks still present and seized by the patrol

In SMART you are able to enter multiple observations, such as observing a carcass AND seizing the trophies, for a single waypoint.

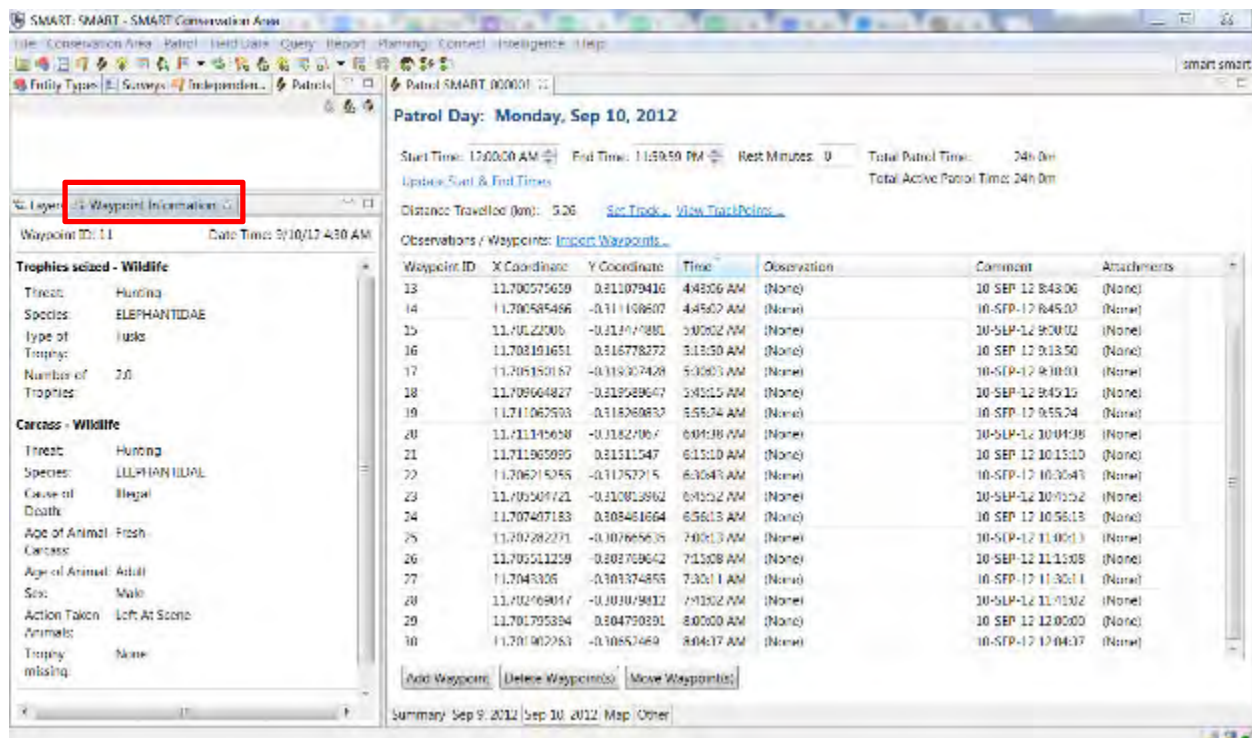
For this waypoint (11), you will enter multiple observations (observation of a carcass and seizure of trophies – in this case tusks)

- Double-click in the observation cell, then the square button, to open the data model
- Under Wildlife, double click on **Carcass** and **Trophies Seized** to add them both to the right-hand window
- Click **Next**
- First, we’ll enter the details for the carcass

- Threat = **Hunting**
 - Species = **ELEPHANTIDAE** (start typing directly into the text filter to bring up the options – note with the standard data model you can add species such as *Loxodonta africana* or higher taxonomic groups like **ELEPHANTIDAE**)
 - Cause of Death = **Illegal**
 - Age of Animal Carcass = **Fresh**
 - Age of Animal = **Adult**
 - Sex = **Male**
 - Action Taken Animals = **Left at scene**
 - Trophy Missing = **None**
 - Select **Add observation**
 - **Next**
- Now you are going to enter the details for the two trophies that were found by the patrol and seized
 - Threat = **Hunting**
 - Species = **ELEPHANTIDAE**
 - Type of Trophy = **Tusks**
 - Number of Trophies = **2**
 - Select **Add observation**
 - Click **Finish**

You will now see two observations entered under Waypoint 11

Waypoint ID	X Coordinate	Y Coordinate	Time	Observation	Comment	Attachments	
10	11.70201961	-0.306531144	09:21:39	(None)	10-SEP-12 8:21:39	(None)	
11	11.701140599	-0.308386395	09:30:07	Carcass (1); Trophies seized (1)	10-SEP-12 8:30:07	(None)	
12	11.700291764	-0.310740955	09:39:40	(None)	10-SEP-12 8:39:40	(None)	



Select Waypoint 11 and check the details of the observation in the left-hand bottom corner of the patrol window under **Waypoint Info**

Waypoint 12 – Position point

- Leave as default option ‘none’

Waypoint 13 – A group of chimpanzees observed, composed of 1 male, 4 females and 2 juveniles

- Follow the steps under Waypoint 2 (selecting Species = **Chimpanzee**)

Waypoint 14 – Position point

- Leave as default option ‘none’

Waypoint 15 – 15 set snares (wire cables) seized by patrol

- In the observation cell, you can take a shortcut to the data model by starting to type ‘snare’ directly in the observation window

Observations / Waypoints: [Import Waypoints...](#)

Waypoint ID	X Coordinate	Y Coordinate	Time	Observation	Comment
10	11.70201961	-0.306531144	4:21:39 AM	(None)	10-SEP-12
11	11.701140599	-0.308386395	4:30:07 AM	Trophies seized (1); Carcass (1)	10-SEP-12
12	11.700291764	-0.310740955	4:39:40 AM	(None)	10-SEP-12
13	11.700575659	-0.311079416	4:43:06 AM	Wildlife - direct observation (1)	10-SEP-12
14	11.700585466	-0.311198607	4:45:02 AM	(None)	10-SEP-12
15	11.70122006	-0.313474881	5:00:02 AM	Trap	10-SEP-12
16	11.703191651	-0.316778272	5:13:50 AM	Data Model	
17	11.705150167	-0.319307428	5:30:03 AM	Human Activity	
18	11.709664827	-0.319589647	5:45:15 AM	Weapons and gear seized	
19	11.711062593	-0.318269832	5:55:24 AM	Traps and snares	
20	11.711145658	-0.31827067	6:04:38 AM		
21	11.711965995	-0.31511547	6:15:10 AM		

- Double-click **Traps and snares** from the drop-down list
- Click **Enter**
- Click '**Next**' in the data model window (the observation Snares is already added)
 - Threat = **hunting**
 - Number of weapons or gear = **15**
 - Type of Trap = **Wire Snare**
 - Is active = **Yes**
 - Click **Finish** then **Yes**

Waypoint 16 – Position point

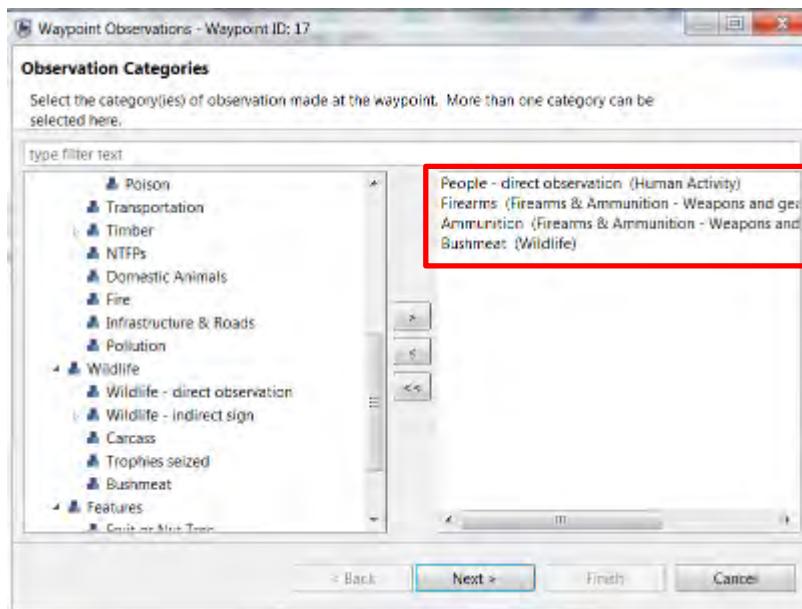
- Leave as default option 'none'

Waypoint 17 – A poacher arrested by the patrol. The patrol also seized a military weapon, ammunition for the weapon, and 15kg of fresh buffalo bushmeat from the poacher

You are going to enter 4 observations under Waypoint 17:

1. **Human activity – People – direct observation** (for the poacher who was arrested)
2. **Human activity – Weapons and gear seized – Firearms & Ammunition – Firearms** (for the military firearm seized)
3. **Human activity – Weapons and gear seized – Firearms & Ammunition – Ammunition** (for the ammunition seized)
4. **Wildlife - bushmeat** (for the fresh buffalo meat seized)

- Double-click in the observation cell and open the data model
- Add all the four categories listed above in the right-hand window



- Enter the details for each observation
- **Finish**

Waypoint 18 & 19 – Position point

- Leave as default option ‘none’

Waypoint 20 – Confiscation of 25m³ of illegally harvested wood (Ebony)

- Start to type **Timber** directly in the observation cell and select **Cut Pieces** from the drop down list.

Waypoint ID	Longitude	Latitude	Time	Observation
20	11.711145658	-0.31827067	11:04:38 AM	ti
21	11.711965995	-0.31511547	11:15:10 AM	
22	11.706215255	-0.31257215	11:30:43 AM	
23	11.705504721	-0.310813962	11:45:52 AM	
24	11.707497183	-0.308461664	11:56:13 AM	
25	11.707282271	-0.307665635	12:00:13 PM	
26	11.705511259	-0.303769642	12:15:08 PM	
27	11.7043305	-0.303374855	12:30:11 PM	
28	11.702469047	-0.303079812	12:41:02 PM	
29	11.701795394	-0.304790391	1:00:00 PM	

- **Enter**
- Click ‘Next’ to go directly to the details of the observation
 - Threat = **Logging & Wood Harvesting** (you can start typing directly in the text filter)

- Action Taken Items = **Confiscated**
- Age of Sign = **Fresh**
- Timber Tree Species = **Ebony**
- Click **Finish** then **Yes**

Waypoint 21 – Position point

- Leave as default option ‘none’

Waypoint 22 – A fresh gorilla nest observed by the patrol

- Type ‘**Nest**’ directly in the observation cell to bring up the drop-down list: select **Wildlife - Indirect Sign – Nest** and click **Enter**
- For the observation details:
 - Threat = **None**
 - Species = **Gorilla**
 - Age of Sign = **Fresh**
- Click **Finish** then **Yes**

Waypoint 23 – Position point

- Leave as default option ‘none’

Waypoint 24 – A bottle of 1m³ of honey collected from the forest seen by the patrol

- Double-click in the observation cell and open the data model
- Add **Human Activity – NTFPs**
- Threat = **NTFP collection**
- Enter the remaining details as necessary

Waypoint 25 – Position point

- Leave as default option ‘none’

Waypoint 26 – A fresh spent gun cartridge seen by the patrol

- Double-click in the observation cell and open the data model
- Add ‘**Human Activity – Weapons & Gear Seized – Firearms & Ammunition – Spent Cartridges**’
- Enter the remaining details as necessary

Waypoint 27 – Position point

- Leave as default option 'none'

Waypoint 28 – A bushfire (12 ha burnt) set to flush out animals for hunting, observed by the patrol

- Double-click in the observation cell and open the data model
- Add **'Human Activity – Fire'**
- Enter the remaining details as necessary

Waypoint 29 – Position point

- Leave as default option 'none'

Waypoint 30 – An illegal fisherman given a verbal warning by the patrol and his fishing net confiscated

- Double-click in the observation cell and open the data model
- Add **Human Activity – People – Direct Observation AND Human Activity – Weapons and Gear Seized – Fishing Tools**
- Enter the details as follows:

Waypoint Observations - Waypoint ID: 30

Summary
Review the observation data entered. Press 'Next' to enter another observation, use the Edit link to modify observations and the Delete link to remove observations. Once complete, press 'Finish'.

Fishing Tools - Weapons and gear seized - Human Activity [Delete](#) [Edit](#)

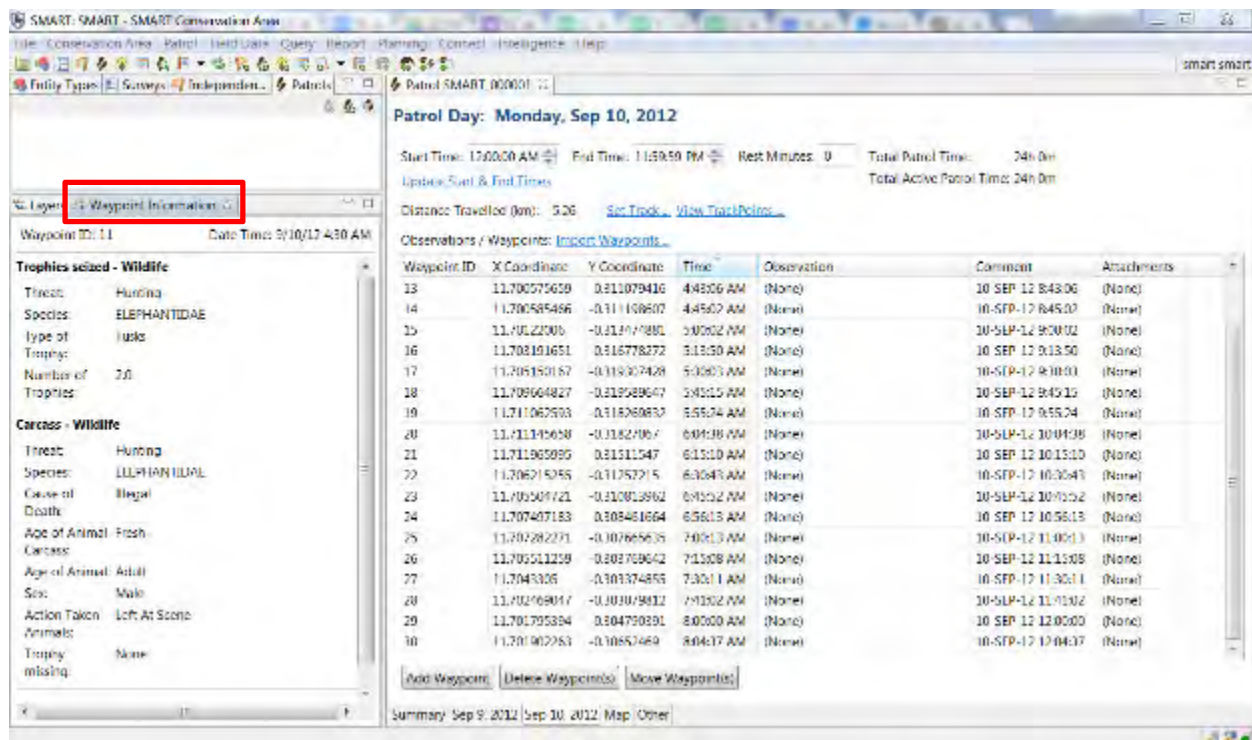
Threat	Number of weapons or gear	Type of Fishing Equipment	Mesh Size	Length of Net meters	A
Fishing & Harvesting Aquatic Res...	1.0	Net	12.0	14.0	

People - direct observation - Human Activity [Delete](#) [Edit](#)

Threat	Number of People	People Armed	Place of Origin	Sex	Action Taken People	Name o
Fishing & Harvesting Aquatic Res...	1.0	Unarmed	Village A	Male	Verbal Warning	


- Click **Finish** then **Yes**

You can preview all the observations you have entered by selecting the waypoint of interest and viewing the **'Waypoint Info'** in bottom left-hand corner of the patrol window

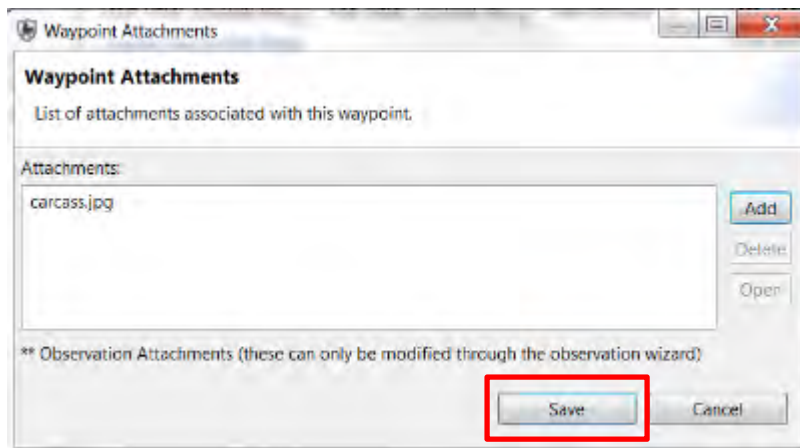


Adding Attachments

Attachments of any file type can be added to each waypoint via the observation window.

Observation	Comment	Attachments
(None)	10-SEP-12 8:21:39	(None)
Trophies seized (1); Carcass (1)	10-SEP-12 8:30:07	(None) 
(None)	10-SEP-12 8:39:40	(None)
Wildlife - direct observation (1)	10-SEP-12 8:43:06	(None)
(None)	10-SEP-12 8:45:02	(None)

- Double-click the **Attachment** cell for Waypoint ID 11
- Click the square **icon** to launch the file attachment process

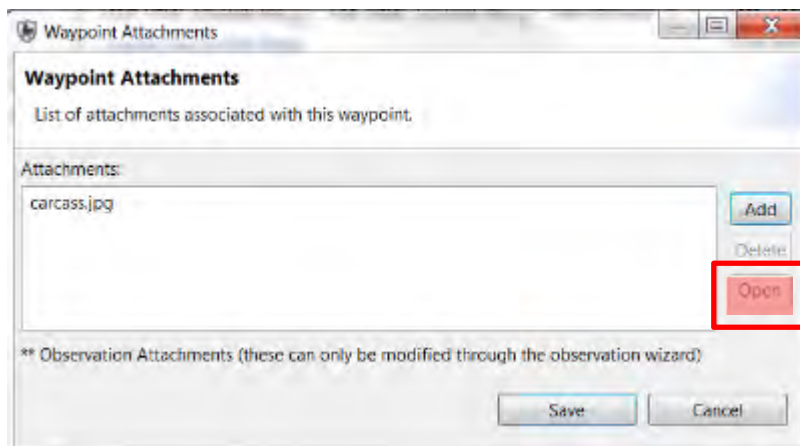


- Click **Add**
- Browse to the folder **Module 3**
- Select the file **carcass.jpg**
- Click **Open** and then **Save**

Note: Including attachments increases the size of the database. Be selective with the pictures added to an observation.

Viewing Attachments

Attachments in SMART are opened by other applications that are installed on your computer.

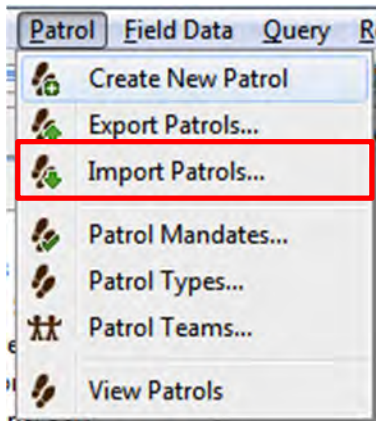


- Double click the square **icon** again to Open the Waypoint dialog box
- Click on **carcass.jpg**
- Click **Open**

Importing Patrols

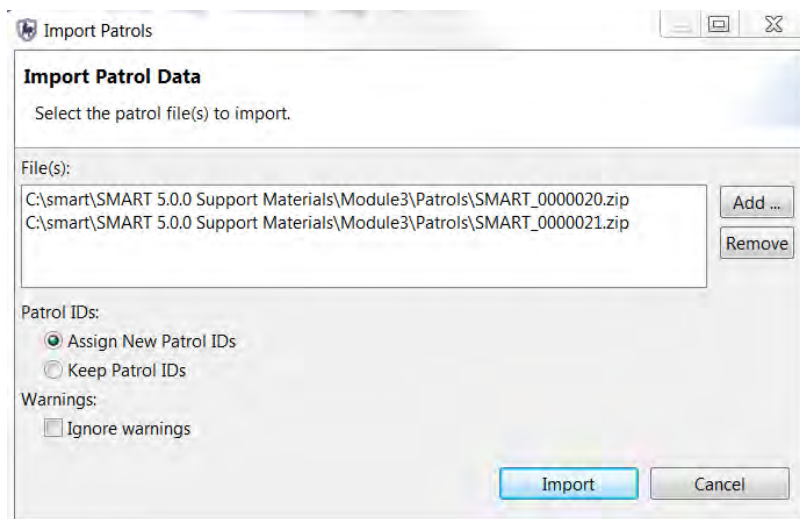
Now that you have worked through the process of creating patrols, you will learn how to import patrols. Patrol exports/imports allows multiple computers to be used to enter in the patrol

information while allowing one or more computers to function as the central computer that imports all of the patrols.



- From the menu select **Patrol > Import Patrol**
- Click **Add**
- Browse to the folder **Module 3\Patrols** (either on your USB key or in the files you downloaded from the website)
- Select the two patrols **SMART_0000020** and **SMART_0000021**.

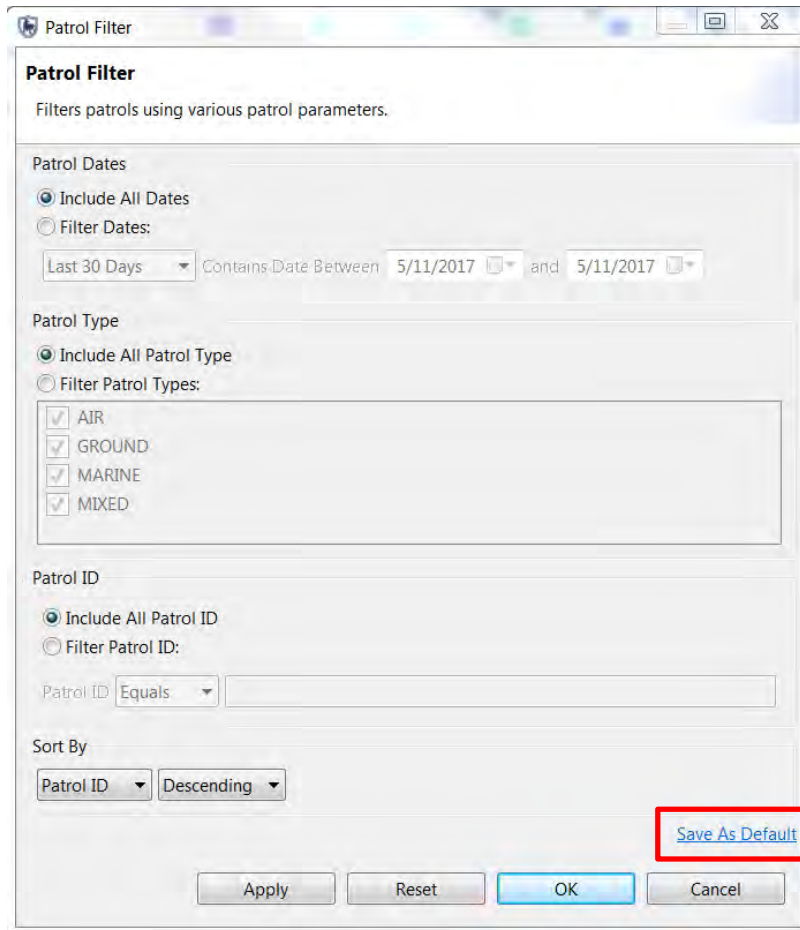
Note: For this exercise, do not change the given patrol ID number. However, this can be adjusted in the future.



- Click **Open** and then **Import** and then **OK**

After a successful import, you should see more patrols in the Patrol Perspective window.

- To view all patrols, select the **Patrol Filter icon** (see above icon) and specify '**Include All Dates**' since, by default, only the last 30 days are visible.

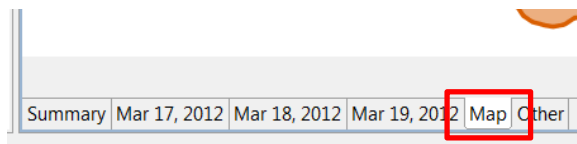


- Personalized filter settings can be saved by selecting the **Save As Default** option

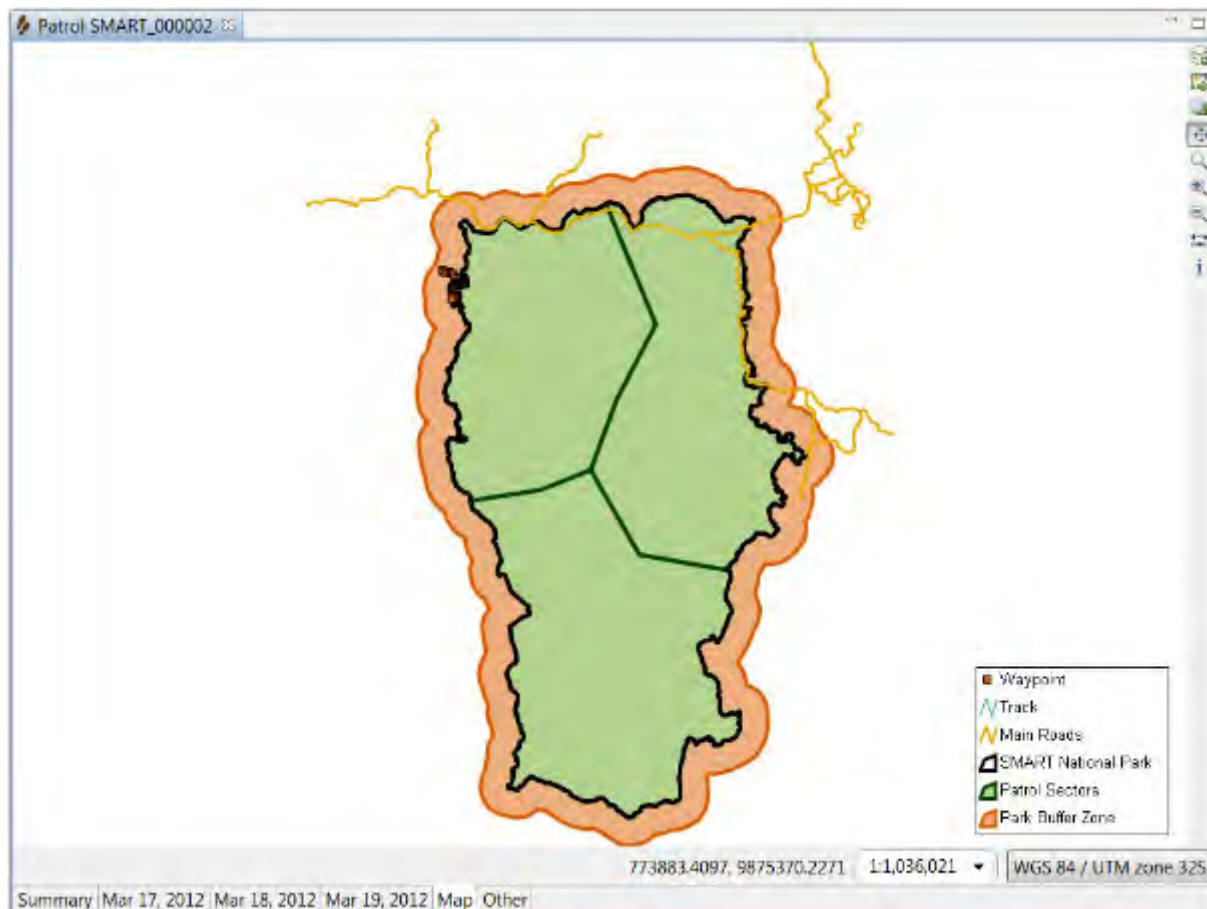
Patrol Perspective - Map

The initial map perspective is only one area where the mapping layers can be accessed. There are mapping windows in the Patrol and Query Perspectives, which should all appear the same now that you have set a Basemap for the session.

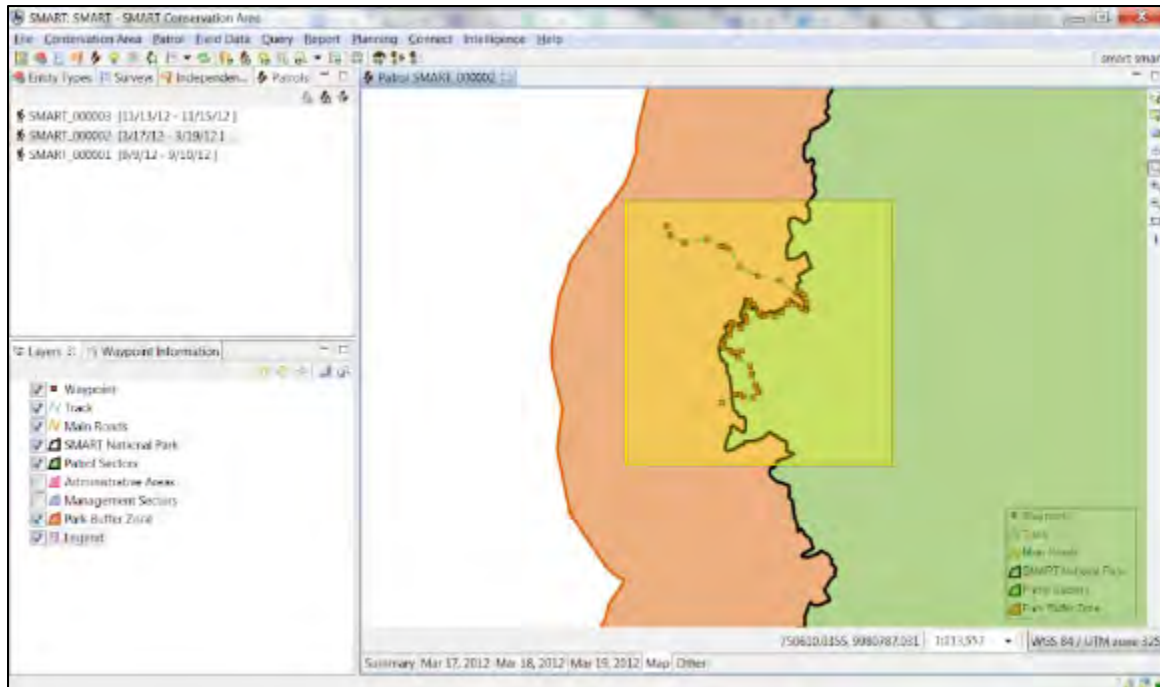
- In the Patrol List View double-click the patrol **SMART_000002** (you may have to change the patrol filter to look for patrols from all dates)




- At the bottom of the screen select the **Map** tab

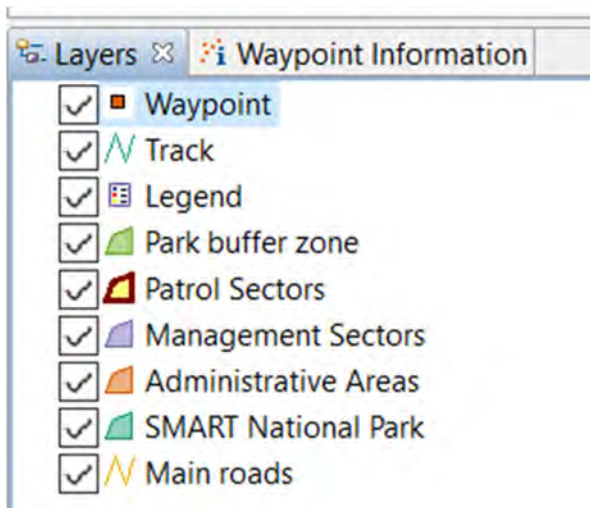


Note: In the bottom left-hand Layers window, you may have to move the waypoints and track to the top of the legend to view it properly

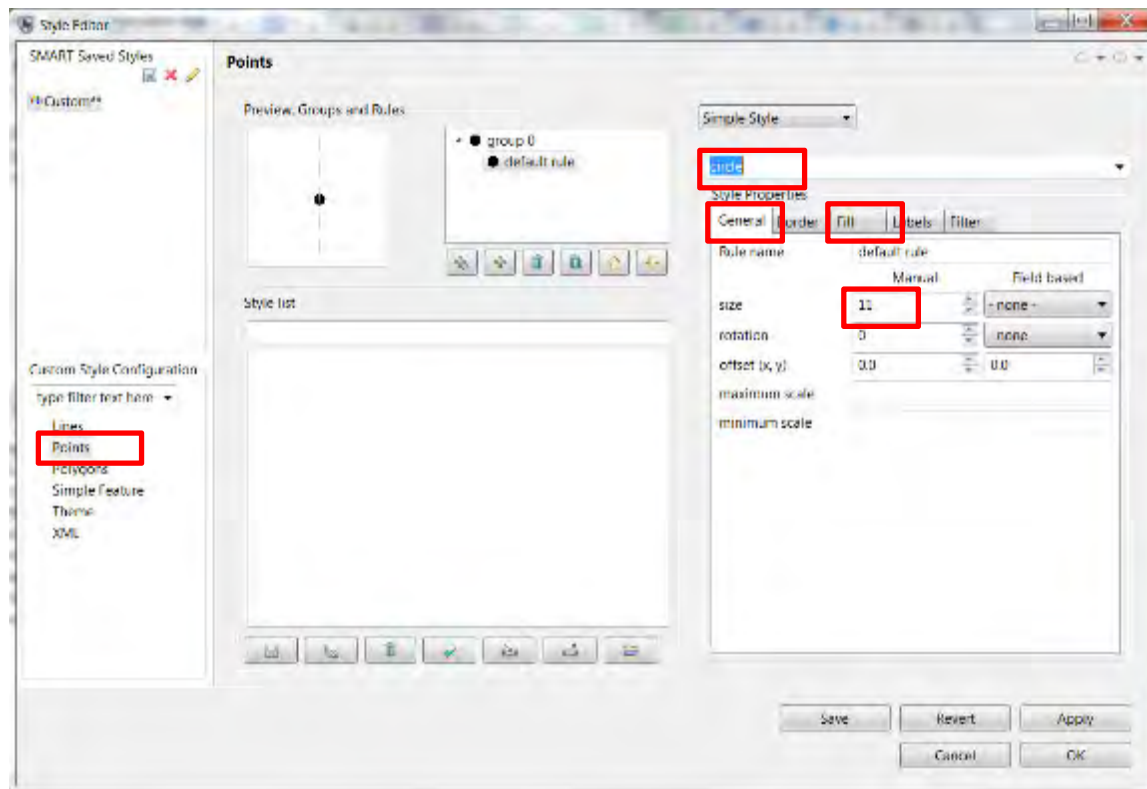


- Using the Zoom icon  on the right side of the map draw a box around the circle of waypoints for the patrol

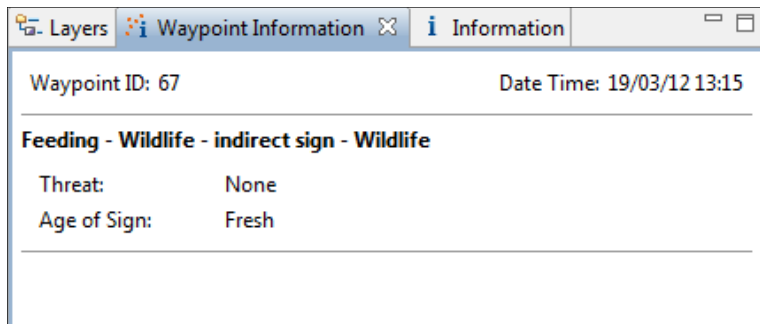
In the lower left Layers window you will see the legend for the boundary layers as well as two new layers (Waypoint and Track)



As with the boundary layers the Waypoint and Track layers can be styled and labelled.



- Select the layer **Waypoint**
- Click the **Style Editor** icon
- On the left select **Points**
- From the dropdown (above Style Properties) select **circle**
- In the General tab of Style Properties set **size to 11**
- In the Fill tab set color to **black**
- In the Labels tab
 - **enable labelling**
 - Set Field based labels to **observation**
- Click **Apply**, then **OK**



Note: At any time during a session, the SMART windows can be resized, undocked, and repositioned. If you wish to reset the SMART application back to its default window, placement you will need to click the double green arrows just below the main menu.



- Click the **window reset icon** to return to the default settings
- Click **Yes**


You should still be zoomed into the points and track for the patrol SMART_000002.

- To return to the full extent click the **zoom to map extents icon** 

Adding New Layers

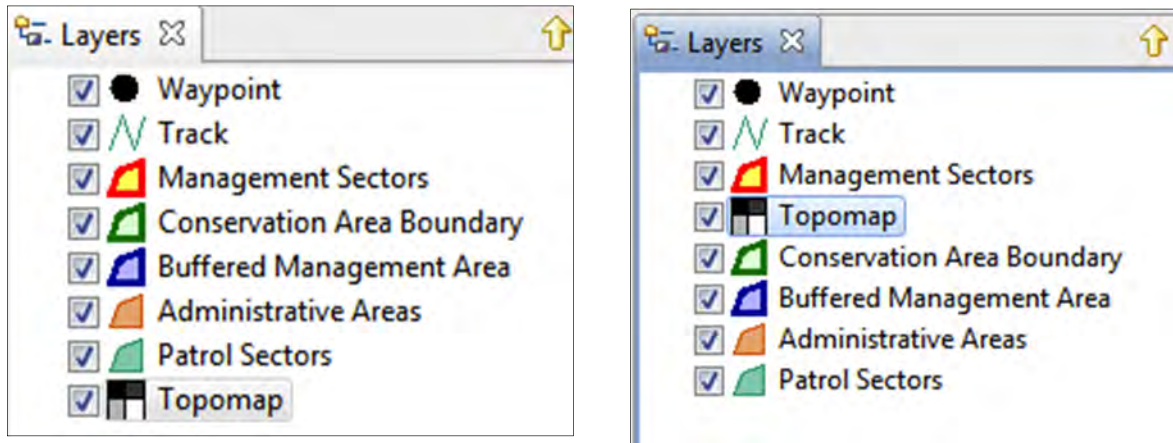
*Note: To bring in your default basemap into the patrol perspective click on the **Sets the basemaps icon** in the upper right part of the SMART application. Once loaded select the map you want to use and click on **Load**.*



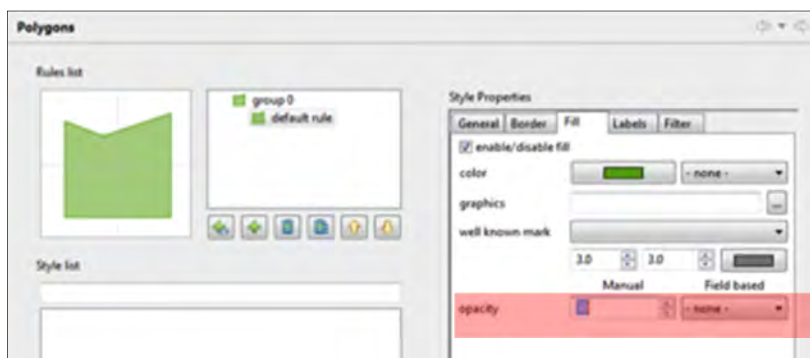
- In the upper right part of the SMART application click the **add a layer to the map icon** 
- Select **Files**
- Click **Next**
- Open the folder **Module 3**
- Select the file **Topomap**
- Click **Open** and wait for the file to load.

Note: There is a known bug associated with uDig that may not allow the topomap to load. This is being explored.

After the import process has finished the layer will appear at the bottom of the Layers list. Use the arrow in the top right corner of the image below to move the layer up.



Note: For better viewing options. Select Patrol Sectors, Open Style Editor and under Polygons and Fill reduce the opacity value to 30



FIELD PRACTICAL : Data Collection for Multi-Leg Patrols

In this module, you will gain experience in recording observations, transferring GPS waypoints into SMART, and entering field observations.

You will be using the **SMART – EXAMPLE Conservation Area** for this exercise
(*Username/Password: smart/smart*)

Note: this module is not intended to be a tutorial on the usage of your GPS device.

This will include:

- A field exercise to collect GPS data and record observations for a multi-leg patrol;
- Creating new patrols based on the field exercise;
- Transferring waypoint data directly into SMART; and,
- Entering in observations collected during the field exercise;

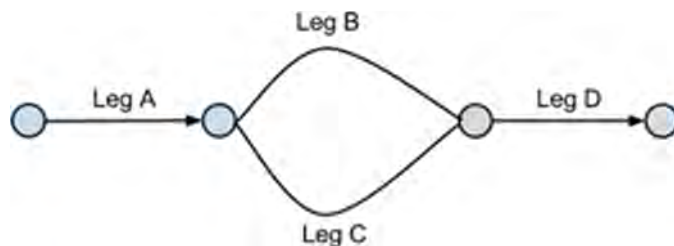
Multi-Leg Patrols

SMART has the ability to track multi-leg patrols. A multi-leg patrol occurs when a patrol group splits up into smaller groups. Each of the smaller groups can have its own patrol leader, patrol transport type and patrol pilot (if available). Groups can be recombined at a later date.

A multi-leg patrol is tracked as a single patrol in SMART with Legs identifying the components within the patrol.

In this exercise, you will divide up into 3 patrol teams.

In this example, for each patrol team, all the patrol members are together on foot for the first leg (Leg A). The patrol then splits into two – half the team continue on foot (Leg B) and half the team continue by vehicle (Leg C). The two then meet up again to finish the patrol together by vehicle (Leg D).



For each leg, you collect GPS points and record observation as for a normal patrol. You will need a GPS and a data collection form.

For each observation and for each change in patrol leg, you need to:

- Mark a waypoint (keep the default waypoint number on the GPS).

- Record the observation and waypoint number on the data form.

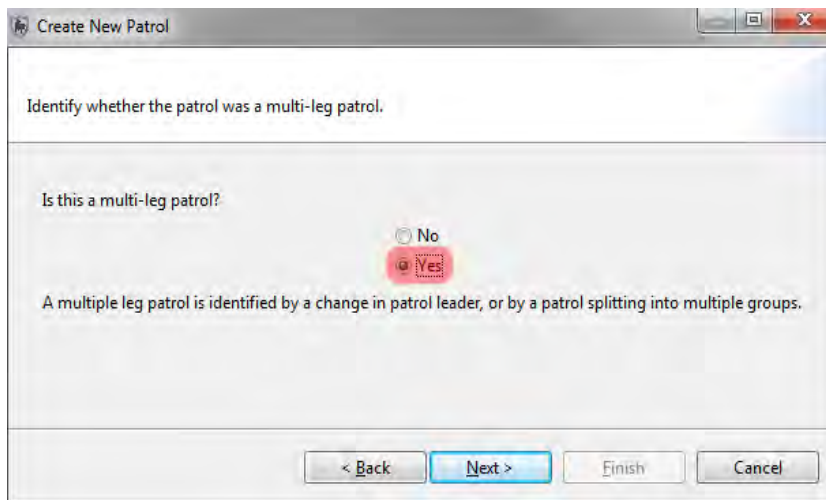
Note: When you begin your 'patrol' set your GPS to also record an automatic tracklog and set the time interval to record every 5 minutes. For Garmin 60Cxx models, do NOT save the active track.

When you are back from your patrol follow the steps below.

Creating a Multi-Leg Patrol

The process for creating a multi-leg patrol is very similar to the previous example. The initial steps in setting up the patrol framework are the same until the creation of the patrol leg divisions.

- Click on **Create New Patrol**
- Enter the **type, transport, team, station** and **patrol mandate** that you wish (for the **transport type** select the **transport** for the first leg)
- Select **today's date** for the start and end of the patrol
- Select your **team** (include the whole team)
- Select a **team leader** (for the first leg)
- Click **Yes** for a multi-leg patrol



- Click **Next**

At this point, you are going to create a patrol split for the second leg. Other options are also possible (change of leader, change of transport).

Patrol Legs

Setup Patrol Legs. Patrol legs are identified by changes in the patrol leader or the patrol splitting into multiple groups. Use the buttons below to add, remove, or edit legs.

Patrol Start: 06-May-2013 Patrol End: 06-May-2013

Leg	Start Date	End Date	Transport Type	Leader
1	06-May-2013 00:00:00	06-May-2013 23:59:59	Foot	Achille Nsafou [SMART20]

Change of Transport Change of Leader **Patrol Split** Remove Leg Edit Leg

< Back Next > **Finish** Cancel

- Select **Patrol leg 1**
- Click on **Patrol split**

Change of transport – Change transport type during patrol

Change of leader – Change patrol leader during patrol

Patrol split – Patrol splits into two (each has their own leader and transport type)

Edit leg – Change settings (e.g. name of leg)

You should use the following screenshot as reference to what features need to be changed when defining a multi-leg patrol.

Date and time of patrol split

Date of split: **Today's date**

Time of split: **Time the group split into two after the first leg**

Date groups rejoined: **Today's date**

Time groups rejoined: **Time the group rejoined for the last leg**

Settings - Group A

Transportation type: **Foot**

Members: **Include only the members of the group on this leg**

Group A leader: **Select a leader**

Settings – Group B

Transportation type: **Vehicle**

Members: **Include only the members of the group on this leg**

Group B leader: **Select a leader**

The screenshot shows the 'Patrol Split' dialog box. It has a title bar with a small icon and the text 'Patrol Split'. The main area is titled 'Select information for the patrol split.' and contains several input fields and lists. At the top, there are two red-bordered boxes. The first box contains 'Date of Split: 06 May 2013' with a calendar icon. The second box contains 'Time of Split: ☐ Start of Day ☒ Custom: 10:30:00' with a time picker. Below these are two more red-bordered boxes. The third box contains 'Date Groups Joined: 06 May 2013' with a calendar icon. The fourth box contains 'Time Groups Joined: ☐ End of Day ☒ Custom: 15:24:59' with a time picker. On the left side of the dialog is a large empty rectangular box. On the right side, there are two sections. The first section is for 'Group A' and contains a red-bordered box for 'Transportation Type: Foot', a 'Members:' label, a list of members with arrows (Achille Nsafou [SMART2], Alain Lushimba [SMART1], Cedric Sepulchre [SMART]), and a red-bordered box for 'Group A Leader: Edgar Ambass'. The second section is for 'Group B' and contains a red-bordered box for 'Transportation Type: Vehicle', a 'Members:' label, a list of members with arrows (Emma Stokes [SMART11], Fortune Iyenguet [SMART], Herbert Ekodeck [SMART]), and a red-bordered box for 'Group B Leader: Emma Stokes'. At the bottom are 'OK' and 'Cancel' buttons.

- Click **OK** when you have finished

Create New Patrol

Patrol Legs

Setup Patrol Legs. Patrol legs are identified by changes in the patrol leader or the patrol splitting into multiple groups. Use the buttons below to add, remove, or edit legs.

Patrol Start: 06-May-2013 Patrol End: 06-May-2013

Leg	Start Date	End Date	Transport Type	Leader
1	06-May-2013 00:00:00	06-May-2013 10:30:00	Foot	Achille Nsafou [SMART20]
1- Group A	06-May-2013 10:30:00	06-May-2013 15:24:59	Foot	Edgar Ambassa Ongono [S...
1- Group B	06-May-2013 10:30:00	06-May-2013 15:24:59	Vehicle	Emma Stokes [SMART11]
1- End	06-May-2013 15:24:59	06-May-2013 23:59:59	Foot	Achille Nsafou [SMART20]

[Change of Transport](#)
[Change of Leader](#)
[Patrol Split](#)
[Remove Leg](#)
[Edit Leg](#)

[< Back](#)
[Next >](#)
[Finish](#)
[Cancel](#)

- Click **Finish** to complete the multi-leg patrol

The summary screen of the patrol will allow for future edits, and also provides access to the tabs that bring up the waypoint and track imports.

Patrol_ARUSHA_000001

Mandate: [edit](#)

Team: [edit](#)

Station: [edit](#)

Members:

- [Leader] Achille Nsafou [SMART20]
- Alain Lushimba [SMART18]
- Cedric Sepulchre [SMART13]
- Denis Lambert [SMART16]
- Dieudonne Ekotouba [SMART15]
- [Leader] Edgar Ambassa Ongono [SMART25]
- [Leader] Emma Stokes [SMART11]
- Fortune Iyenguet [SMART22]
- Herbert Ekodeck [SMART17]
- Hilde Vanleeuwe [SMART23]
- Nianga Leckosso [SMART21]
- Rebecca Atencia Fernandez [SMART19]
- Ruffin Ambahe Delarue [SMART24]

Objective: [edit](#)

Comment: [edit](#)

This is a multi-leg patrol. To change the patrol members or transport type use the edit button below in the Patrol Data section.

Patrol Data

Start Date: 06 May 2013 End Date: 06 May 2013 [edit](#)

Leg	Day	Start Time	End Time	Distance	Hours	Transport	Leader
1	06-May-2013 Mon	00:00:00	10:30:00	0	10h 30m	Foot	Achille Nsaf...
1- Group A	06-May-2013 Mon	10:30:00	15:24:59	0	4h 55m	Foot	Edgar Amba...
1- Group B	06-May-2013 Mon	10:30:00	15:24:59	0	4h 55m	Vehicle	Emma Stoke...
1- End	06-May-2013 Mon	15:24:59	23:59:59	0	8h 35m	Foot	Achille Nsaf...

Summary 06 May 2013 Map Other

- Click the tab **with today's date** to access the waypoint dialog.

After accessing the day where the multi-leg patrol took place, SMART will have two separate dialogs for importing waypoints, tracks and the related observations. The process to complete the observations for a multi-leg patrol would be the same as a regular patrol but you will need to populate each leg individually. In populating the last patrol, you gained experience importing waypoints and creating observations.

***Note:** Multi-leg patrols require waypoints and tracks to be imported separately.*

Patrol Day: Monday, 06-May-2013

Leg: 1

Start Time: 00:00:00 End Time: 10:30:00 Rest Minutes: 0 Total Hours Patrolled: 10h 30m

Distance Travelled (km): 0 [Set Track...](#) [View TrackPoints...](#)

Observations / Waypoints: [Import Waypoints...](#)

Waypoint ID	Longitude	Latitude	Time	Observation	Comment	Attachments

[Add Waypoint](#) [Delete Waypoint\(s\)](#) [Move Waypoint\(s\)](#)

Leg: 1- Group A

Start Time: 10:30:00 End Time: 15:24:59 Rest Minutes: 0 Total Hours Patrolled: 4h 55m

Distance Travelled (km): 0 [Set Track...](#) [View TrackPoints...](#)

Observations / Waypoints: [Import Waypoints...](#)

Waypoint ID	Longitude	Latitude	Time	Observation	Comment	Attachments

Summary 06-May-2013 Map Other

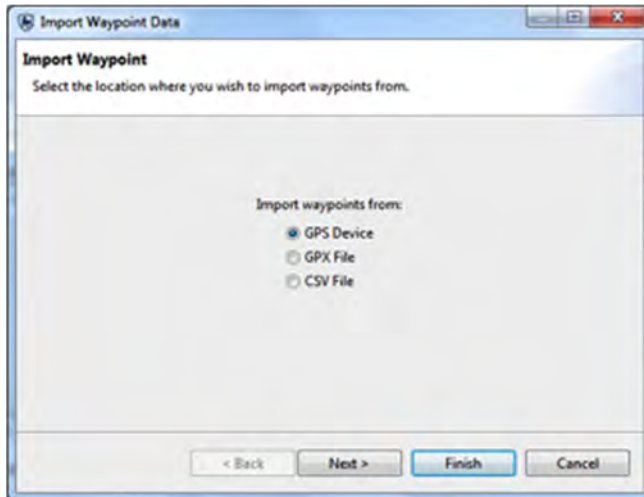
GPS Waypoint Import

The sections to follow will depend on which GPS device you are using. The immediate section is for users of the **Garmin 60CSx**. If you are using the Garmin **GPSmap 62**, please refer to the section for that device. If your device is different than the two listed, you should be aware of which section is appropriate for your GPS device.

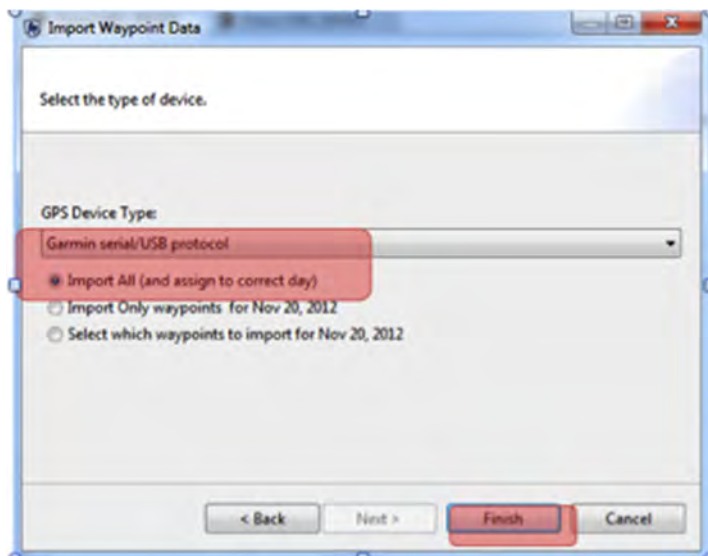
***Note:** GPS units that functions as a mass storage device should use the section for the Garmin GPSmap 62.*

Importing Waypoints using the Garmin 60CSx

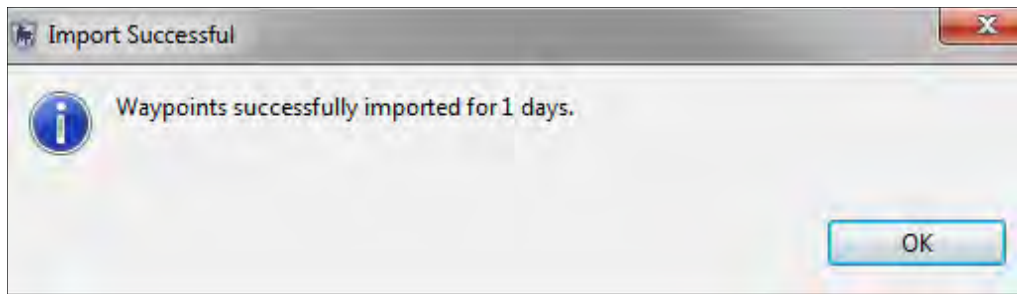
This unit does not function like an external storage device. To access the waypoint and track information in the Garmin 60CSx, you will need to select **GPS Device**.



- Select **GPS Device**
- Click **Next**



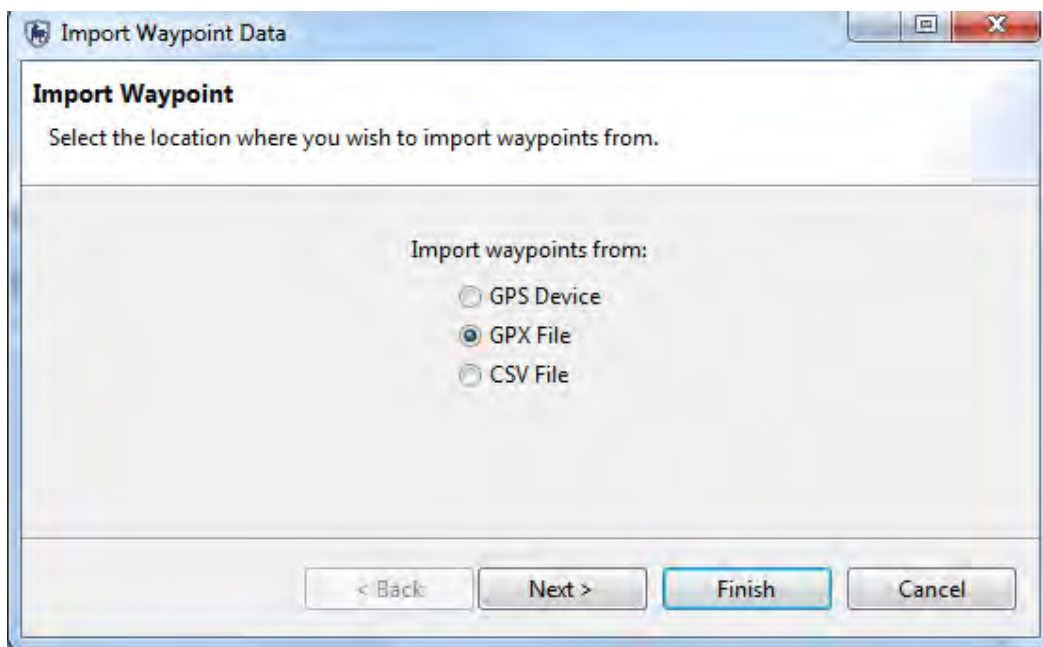
- Select **Garmin serial/USB protocol**
- Select **Import All (and assign to correct day)**
- Click **Finish**



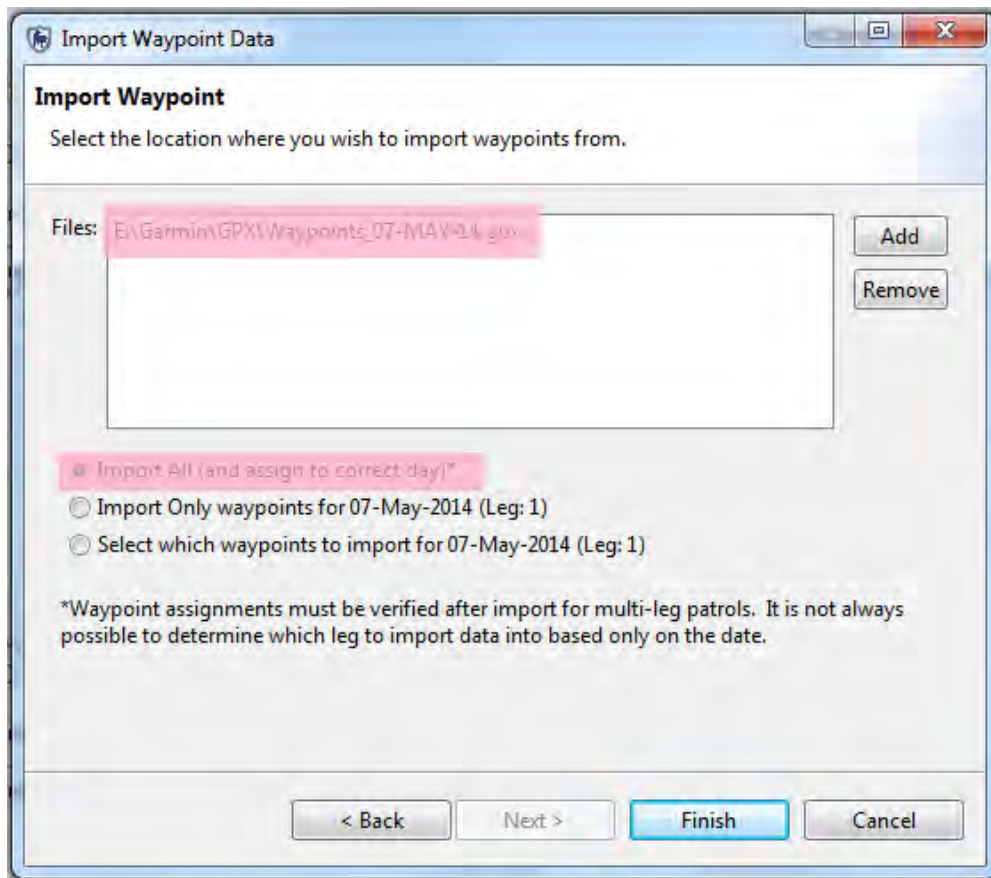
- Click **OK**

Importing Waypoints using the Garmin GPSmap 62

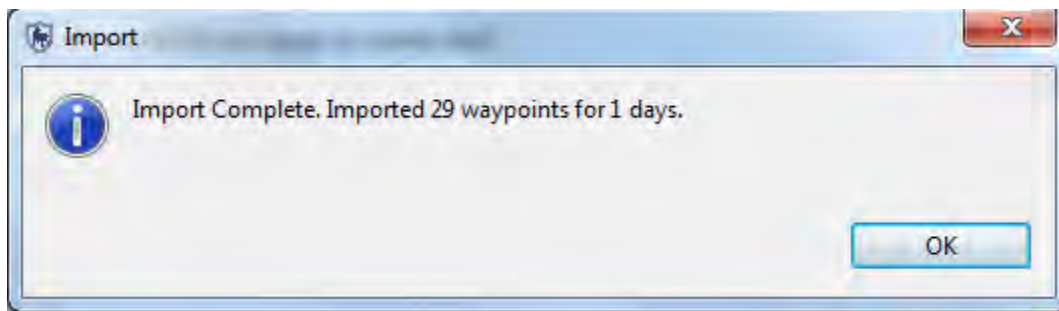
The Garmin GPSmap 62 functions a little differently than the Garmin 60CSx and requires a few more steps before the data can be imported into SMART. The Garmin GPSmap 62 behaves like an external storage device and requires you to select the **GPX File** option when importing waypoints.



- Select **GPX File**
- Click **Next**
- Click **Add**
- Browse to the folder on your GPS called **Garmin\GPX**
- Select the file **Waypoints_<today's date>.gpx**
- Click **Open**



- Select **Import All (and assign to correct day)**
- Click **Finish**



- Click **OK**

A successful import will bring up the all waypoints collected during the field exercise.

Distance Travelled (km): 0 [Set Track...](#) [View TrackPoints...](#)

Observations / Waypoints: [Import Waypoints...](#)

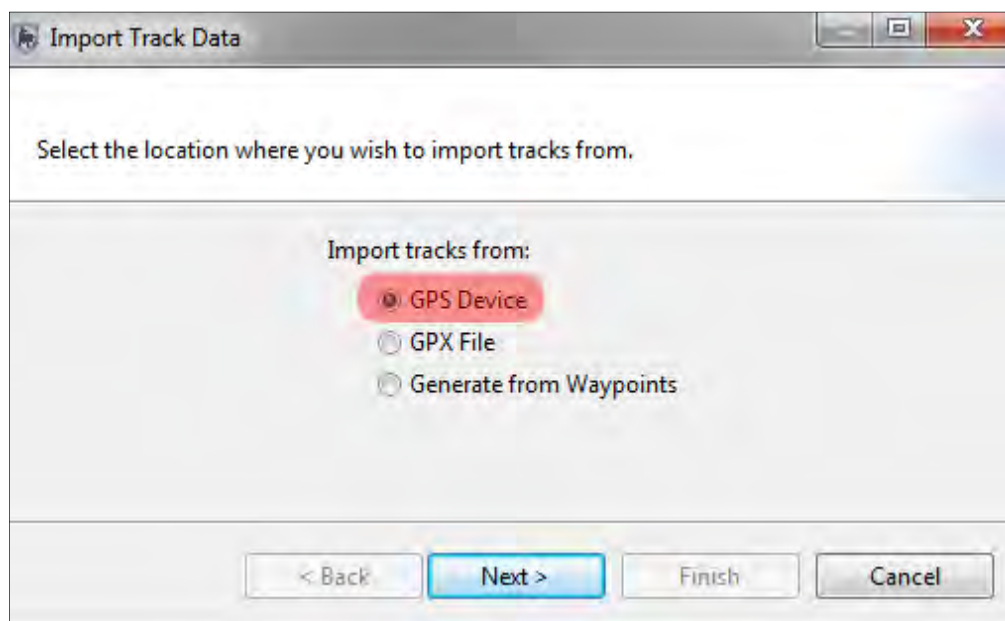
Waypoint Id	Longitude	Latitude	Time	Observation	Comment	Attachments
1	28.3694017525556	-25.7834109965774	10:21:01 AM	(None)		(None)
2	28.3700238982436	-25.78358519737	10:25:59 AM	(None)		(None)
3	28.3704220714839	-25.7845308588158	10:35:59 AM	(None)		(None)
4	28.3700238982436	-25.7850783470212	10:37:59 AM	(None)		(None)
5	28.3691280084529	-25.7851032328487	10:38:59 AM	(None)		(None)
6	28.3688791501777	-25.7844064296782	10:41:59 AM	(None)		(None)
7	28.3690035793153	-25.7838091698177	10:42:59 AM	(None)		(None)
8	28.3693989687173	-25.7834120370018	10:45:59 AM	(None)		(None)

Importing Tracks using the Garmin 60CSx

Now that the waypoints are in SMART, you will need to import the GPS tracks.

Start Time: 10:30:00 End Time: 15:24:59 Rest Minutes: 0 Total H

Distance Travelled (km): 0 [Set Track...](#) [View TrackPoints...](#)



The dialog box titled "Import Track Data" contains the instruction "Select the location where you wish to import tracks from." Below this, there are three radio button options: "GPS Device" (which is selected and highlighted with a red oval), "GPX File", and "Generate from Waypoints". At the bottom of the dialog, there are four buttons: "< Back", "Next >" (highlighted with a blue border), "Finish", and "Cancel".

- Click **Set Track**
- Select **GPS Device**
- Click **Next**

Import Track Data

Select the type of device.

GPS Device Type:

Garmin serial/USB protocol

☒ Import All (and assign to correct day)

☐ Import Only tracks for Aug 13, 2012

☐ Select which tracks to import for Aug 13, 2012

< Back Next > Finish Cancel

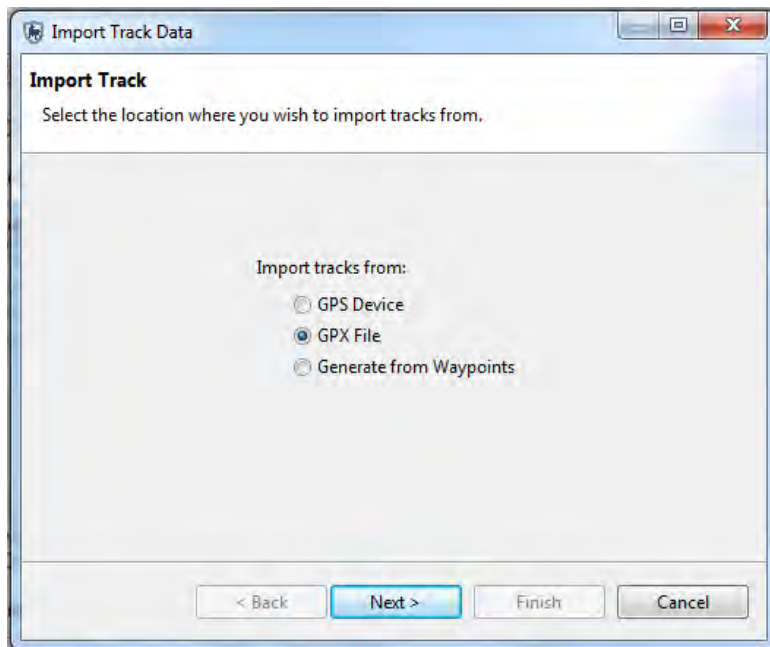
- Select **Garmin serial/USB protocol**
- Select **Import All (and assign to correct day)**
- Click **Finish**

Importing Tracks using the GPSmap 62

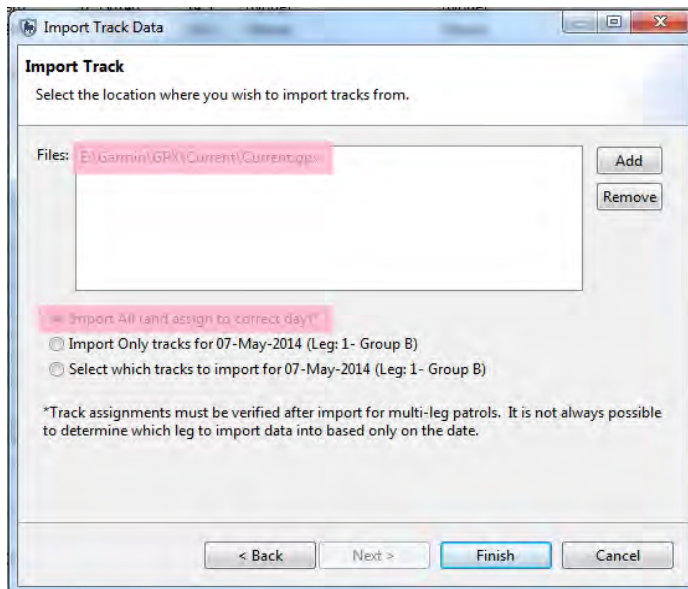
Now that the waypoints are in SMART, you will need to import the GPS tracks.

Start Time: 10:30:00 End Time: 15:24:59 Rest Minutes: 0 Total H

Distance Travelled (km): 0 **Set Track ...** View TrackPoints ...




- Click **Set Track**
- Select **GPX File**
- Click **Next**
- Click **Add**
- Browse to the folder on your GPS unit called **Garmin\GPX\Current**
- Select the file **current.gpx**
- Click **Open**



- Select **Import All (and assign to correct day)**
- Click **Finish**

Entering Observations for Waypoints

The next step of the exercise is to populate the waypoints with observations within SMART. You will now use your field notes to populate the patrol data with the correct observations.

Waypoint Id	Longitude	Latitude	Time	Observation	Comment	Attachments
1	28.3694017525556	-25.7834109965774	10:21:01 AM	(None) 		(None)
2	28.3700238982436	-25.78358519737	10:25:59 AM	(None)		(None)
3	28.3704220714839	-25.7845308588158	10:35:59 AM	(None)		(None)
4	28.3700238982436	-25.7850783470212	10:37:59 AM	(None)		(None)
5	28.3691280084529	-25.7851032328487	10:38:59 AM	(None)		(None)
6	28.3688791501777	-25.7844064296782	10:41:59 AM	(None)		(None)
7	28.3690035793153	-25.7838091698177	10:42:59 AM	(None)		(None)
8	28.3693989687173	-25.7834120370018	10:45:59 AM	(None)		(None)

- Start by clicking on the **icon** in the upper right of the observation cell for waypoint 1 to activate the observation form.
- Enter the observations from your data sheet
- Follow steps in Module 3.

<End of Module 3 – Patrols>

MODULE 4: Analysis – Queries and Summaries

Objective

This Training Module will introduce you to the Queries Perspective in SMART. This feature in SMART is a powerful tool that lets the user perform a wide variety of different analyses. In this training module, we will look at the following functionality:

- Creating a simple observation queries
- Creating a simple patrol queries
- Understanding and using the query wizard
- Creating compound queries using patrol filters
- Creating queries using data model filters
- Creating queries using spatial filters
- Understanding & changing query properties
- Saving & deleting queries
- Exporting & importing queries
- Creating simple summaries
- Creating complex summaries
- Creating gridded queries

Detailed Steps

In this Module, you will start exploring some very powerful functions that allow for simple or complex queries and summaries to be developed and exported. Queries and summaries are tools used to extract patrol and observation information from the database. They each produce their own type of results and have different workflows to produce those results.

Definitions

Query

A data query displays raw records that are selected using filters. No summarizing (totals, etc.) is done. This allows users to view the raw patrol and observation data. Queries can be viewed in tables or on a map.

Example: Show me all waypoints where human activity was observed

Waypoint Date: All Dates [query properties...](#)

Number of Observations: 16 | Number of Incidents: 15

Source	Waypoint ID	Waypoint Date	Waypoint Time	X	Y	Comment	Observation C...	Observation C...
PATROL	3	09-Sep-2012	12:49:19	11.787460959	-0.369753158	09-SEP-12 9:49...	Human Activity	People - direct...
PATROL	7	09-Sep-2012	14:20:04	11.733612176	-0.322081838	09-SEP-12 11:2...	Human Activity	People - direct...
PATROL	17	10-Sep-2012	12:30:03	11.705150167	-0.319307428	10-SEP-12 9:30...	Human Activity	People - direct...
PATROL	30	10-Sep-2012	15:04:37	11.701902263	-0.30652469	10-SEP-12 12:0...	Human Activity	People - direct...
PATROL	10	17-Mar-2012	10:03:46	11.2823	-0.1917	17-Mar-12 10:...	Human Activity	People - direct...
PATROL	10	17-Mar-2012	10:03:46	11.2823	-0.1917	17-Mar-12 10:...	Human Activity	People - direct...
PATROL	14	17-Mar-2012	10:53:15	11.2981	-0.1983	17-Mar-12 10:...	Human Activity	People - direct...

Data Query

All data queries or patrols queries can be defined in SMART based on all observational data sources in the database. Queries based on patrol data can also be created that use attributes in addition to data model items as filters.

- **Patrol Query** - Returns the patrols that were involved in the particular query. No observation information is retrieved from the database.
 - **Patrol Observation Query** - Returns all the patrol attributes as well as all the data model categories and attribute information associated with the observation.
 - **Patrol Incident Query** - Returns all the patrol attributes associated with the incident as well as the incident location and time details
- **Observation Query** - Returns the observations that were involved in the particular query.
- **Incident Query** - Incident filters will return all observations at any incident that matches the filter.
- **Gridded Query (All Data Gridded Query or Patrol Gridded Query)** - Spatial query that returns the observation or patrol effort values in the form of a grid.

Summary

A summary provides an overview of the raw data and allows for grouping into different categories. Items that can be summarized are values such as total number of patrols, the total distance travelled, the total number of snare observations, etc. Groupings are categories such as management sectors, patrol types, patrol mandates, stations, teams, etc. Summaries can only be viewed as tables.

Example: Show me the total number of snares observed in each management sector for each month in 2012

Waypoint Date: Custom ... 01/01/2012 And 31/12/2012 [summary properties...](#)

	06/2012	07/2012	08/2012	09/2012	10/2012	11/2012	12/2012
	Count Observatio	Count Observatio	Count Observatio	Count Observatio	Count Observatio	Count Observatio	Count Observatio
1							
2							
3				1.0		1.0	

Query and Summary Components

SMART queries and summaries are a logical expressions used to filter the entries in the database.

SMART filters include:

- Date
- Patrol
- Data Model
- Area

Operators are used to alter the logic of the query to allow SMART users to be able to build more complex queries.

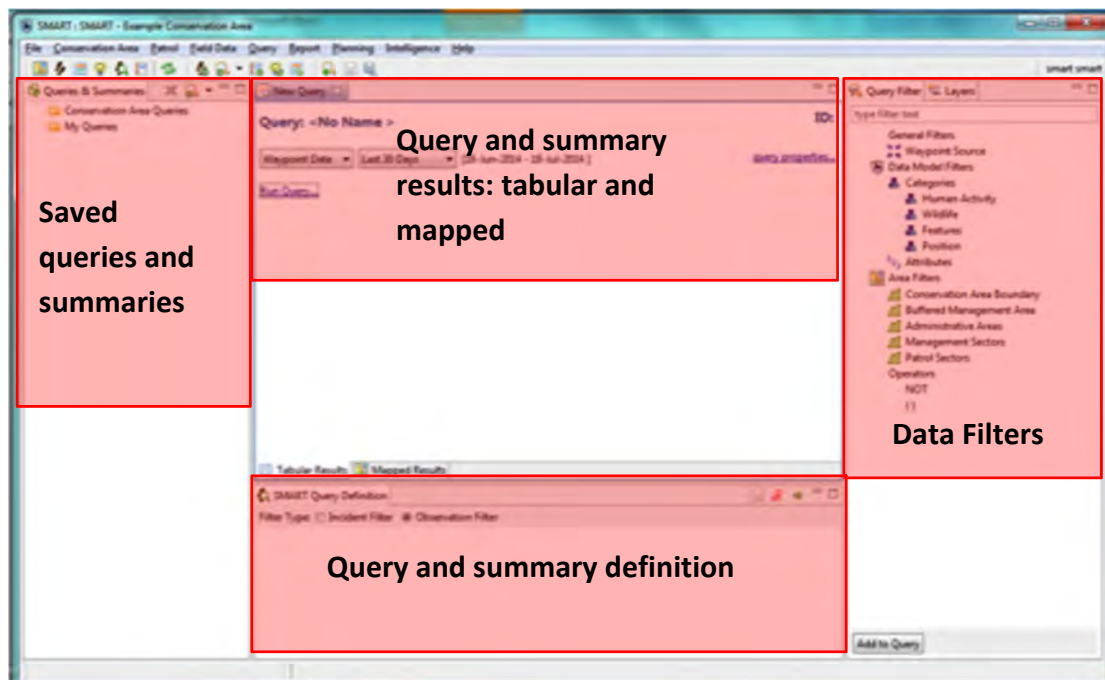
Operators include:

- AND
- OR
- NOT
- Brackets: ()
- Contains
- Not Contains
- Equals: =
- Less Than: <
- Greater Than: >
- Less Than or Equal to: <=
- Greater Than or Equal to: >=
- Less Than or Greater Than (Not Equal to): <>



- Click on the **Query Perspective** icon

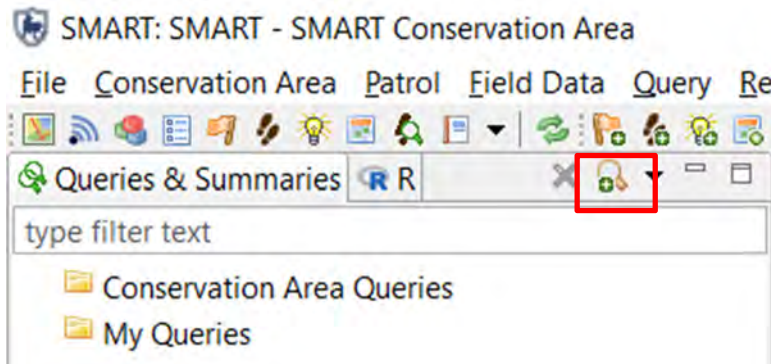
Once a new query has been created the below window will appear.



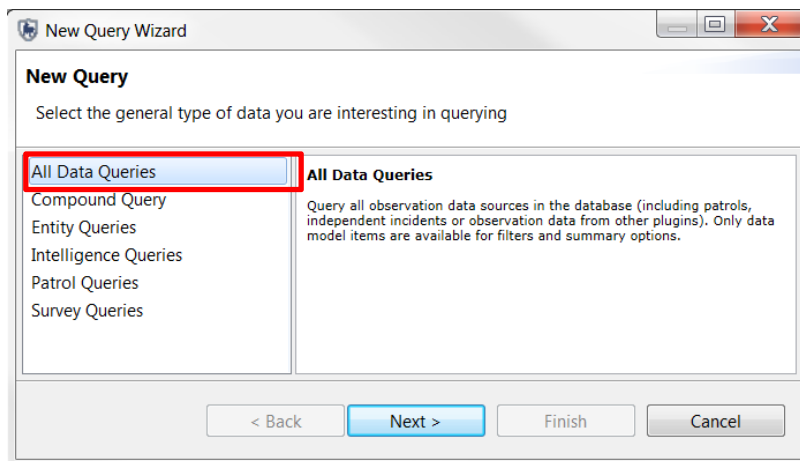
Date: <input type="text" value="Waypoint Date"/> <input type="text" value="Last 30 Days"/>	Filters the date of the query
Query: <No Name Query>	Used to change the name of the query
query properties...	Changes the name of the query. Filters the fields returned in the query results
<input type="button" value="Tabular Results"/> <input type="button" value="Mapped Results"/>	Switches between tabular results and mapping results
Saved Queries/Summaries Conservation Area Queries My Queries	Folders of saved queries
Patrol Filters	Used to filter the results based on patrol information
Data Model Filters	Used to filter the results based on categories and attributes in the data model
Area Filters	Used to filter the results based on the spatial boundaries of the Conservation Area
Operators () NOT	Operators of NOT and Brackets () used to change the logic of the query
Run Query... &	Launches the query
	Clears the query
	Saves the query

Creating a Simple Observation Query for All Data

For this example, you will build a simple query to extract which observations were made by a specific team. In the exercise you will use the 'New Query Wizard' which helps guide the user as to which query should be used to extract the information that is required.

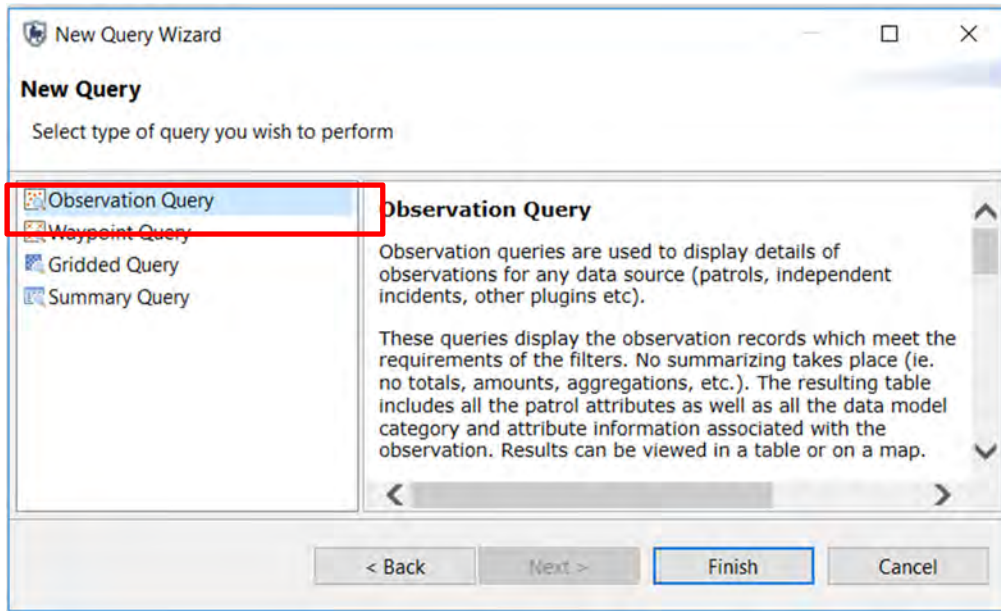


- Click on the **Create a new query** icon to open the New Query Wizard

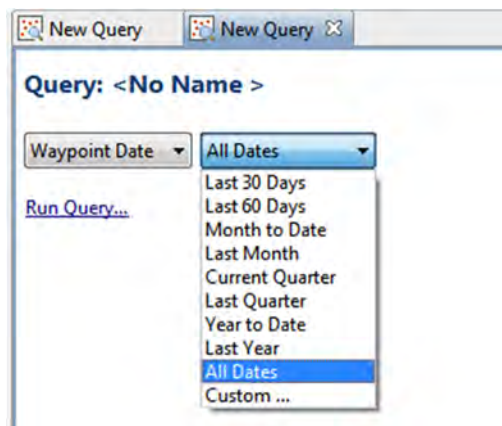


- Select **All Data Queries** and click **Next**

You can now select the type of query you wish to perform. When you click on a query type a description of that query appears.

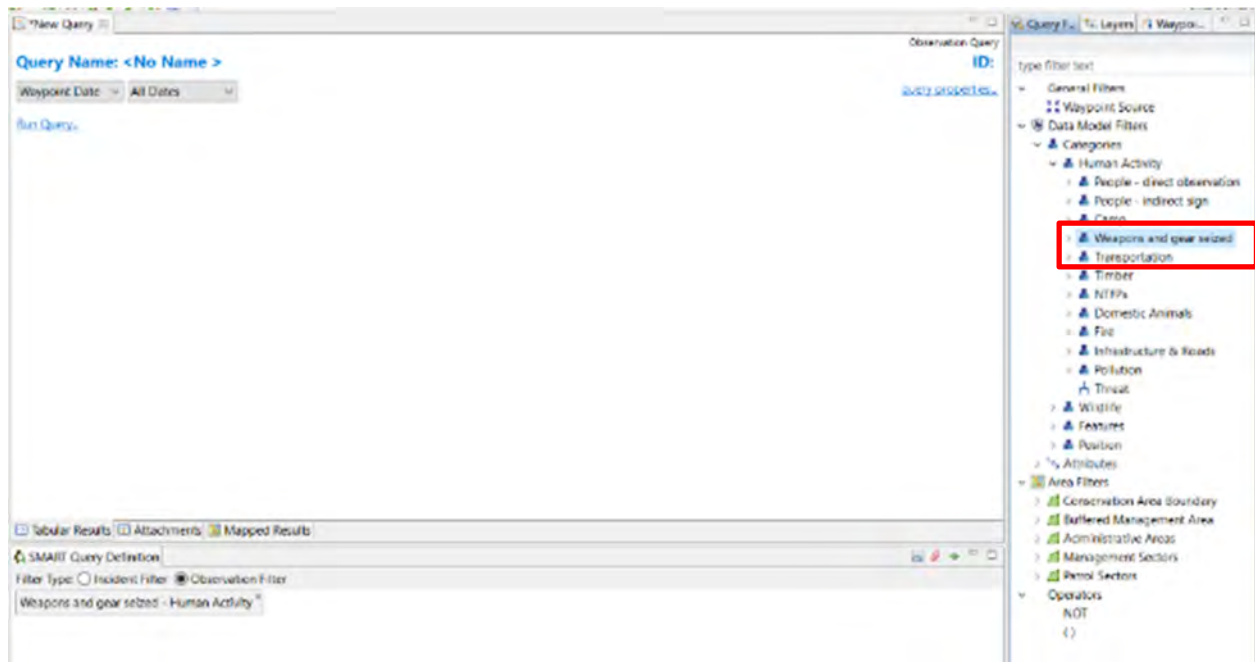


- Select **Observation Query**
- Click **Finish**

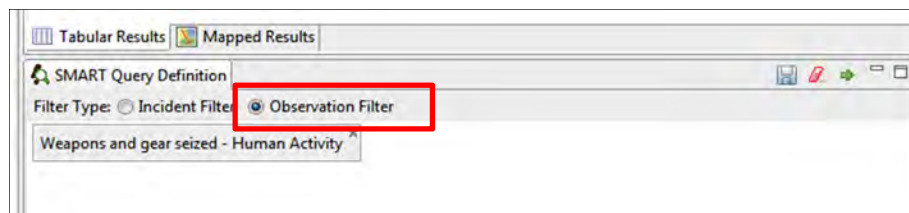


- In the main query window change the date setting to **All Dates**

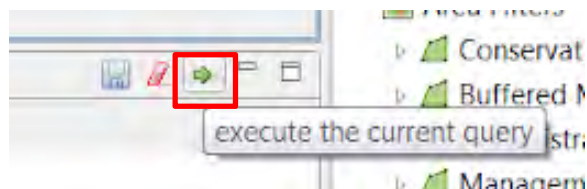
***Note:** The default for the query dates are for the last 30 days. For these exercises, you should change the setting to **All Dates** unless instructed otherwise.*



- To build a query about all observations of weapons, double-click on **Weapons and gear seized** under Data Model Filters on the right-hand bar, it will then appear under SMART Query Definition in the lower window



- Make sure that **Observation Filter** is selected under filter type



- To the right of the lower window, click on the green arrow to **Run Current Query**

Query Name: <No Name > Observation Query ID: [query properties...](#)

Waypoint Date: ▼ All Dates ▼

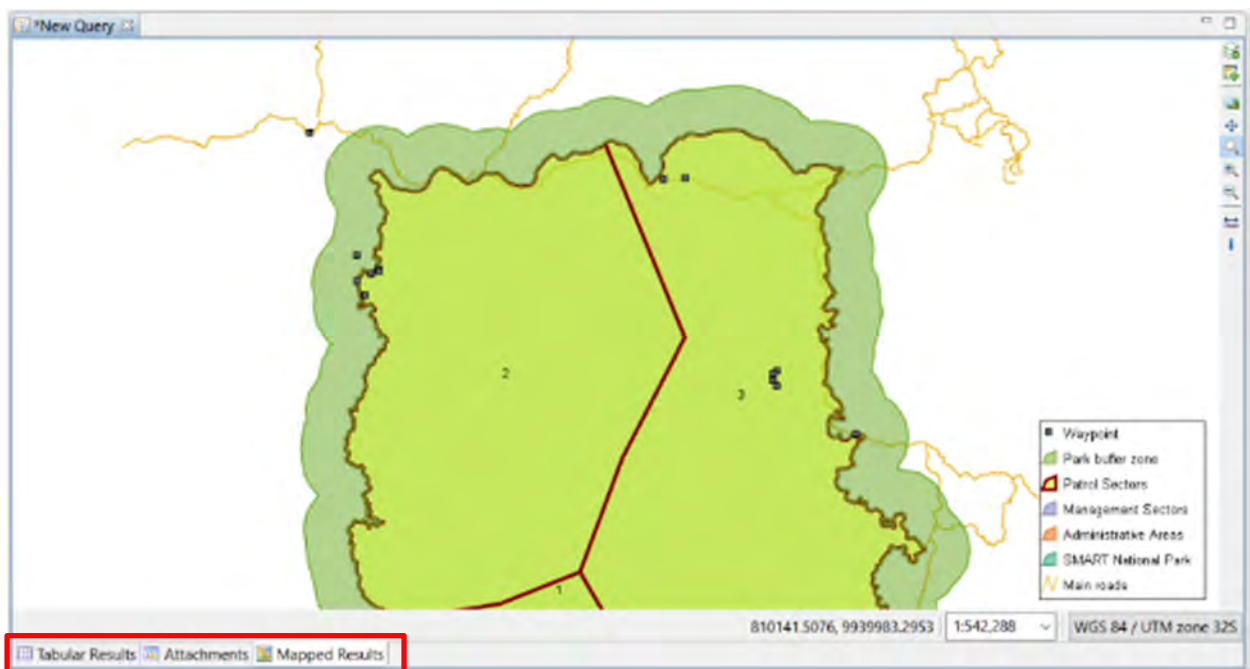
Number of Observations: 17 | Number of Incidents: 14

Source	Waypoint ID	Waypoint D...	Waypoint Ti...	X	Y	Comment	Last Modifi...	Last Modifi...	Observatio...	Observatio...	Observatio...
PATROL	26	Sep 10, 2012	5:15:08 AM	11.7055112...	-0.3037696...	10-SEP-12 ...	May 24, 20...	smart smart	Human Act...	Weapons a...	Firearms & ...
PATROL	45	Nov 15, 2012	4:48:45 PM	11.7858772...	-0.36862663	15-NOV-12...	May 24, 20...	smart smart	Human Act...	Weapons a...	Cutting Too...
PATROL	17	Sep 10, 2012	3:30:03 AM	11.7051501...	-0.3193074...	10-SEP-12 ...	May 24, 20...	smart smart	Human Act...	Weapons a...	Firearms & ...
PATROL	17	Sep 10, 2012	3:30:03 AM	11.7051501...	-0.3193074...	10-SEP-12 ...	May 24, 20...	smart smart	Human Act...	Weapons a...	Firearms & ...
PATROL	36	Nov 15, 2012	3:15:06 PM	11.6121708...	-0.1067316...	15-NOV-12...	May 24, 20...	smart smart	Human Act...	Weapons a...	Traps and s...
PATROL	5	Mar 17, 2012	9:12:00 AM	11.2773	-0.186	17-Mar-12 ...	May 24, 20...	smart smart	Human Act...	Weapons a...	Traps and s...
PATROL	16	Nov 14, 2012	11:45:05 AM	11.2291209...	-0.0605591...	14-NOV-12...	May 24, 20...	smart smart	Human Act...	Weapons a...	Firearms & ...
PATROL	16	Nov 14, 2012	11:45:05 AM	11.2291209...	-0.0605591...	14-NOV-12...	May 24, 20...	smart smart	Human Act...	Weapons a...	Firearms & ...
PATROL	72	Mar 19, 2012	2:14:53 PM	11.2858	-0.2269	19-Mar-12 ...	May 24, 20...	smart smart	Human Act...	Weapons a...	Traps and s...
PATROL	34	Mar 18, 2012	11:21:16 AM	11.2917	-0.205	18-Mar-12 ...	May 24, 20...	smart smart	Human Act...	Weapons a...	Firearms & ...
PATROL	34	Mar 18, 2012	11:21:16 AM	11.2917	-0.205	18-Mar-12 ...	May 24, 20...	smart smart	Human Act...	Weapons a...	Firearms & ...
PATROL	58	Mar 19, 2012	10:15:03 AM	11.2775	-0.2124	19-Mar-12 ...	May 24, 20...	smart smart	Human Act...	Weapons a...	Equipment
PATROL	1	Nov 13, 2012	3:59:57 PM	11.5898806...	-0.1083511...	13-NOV-12...	May 24, 20...	smart smart	Human Act...	Weapons a...	Firearms & ...
PATROL	30	Sep 10, 2012	6:04:37 AM	11.7019022...	-0.30652469	10-SEP-12 ...	May 24, 20...	smart smart	Human Act...	Weapons a...	Fishing Tools
PATROL	24	Mar 18, 2012	9:15:46 AM	11.2997	-0.2002	18-Mar-12 ...	May 24, 20...	smart smart	Human Act...	Weapons a...	Fishing Tools
PATROL	15	Sep 10, 2012	3:00:02 AM	11.70122006	-0.3134748...	10-SEP-12 ...	May 24, 20...	smart smart	Human Act...	Weapons a...	Traps and s...
PATROL	27	Mar 18, 2012	10:00:00 AM	11.3001	-0.2028	18-Mar-12 ...	May 24, 20...	smart smart	Human Act...	Weapons a...	Traps and s...

< >

☒ Tabular Results ☐ Attachments ☐ Mapped Results

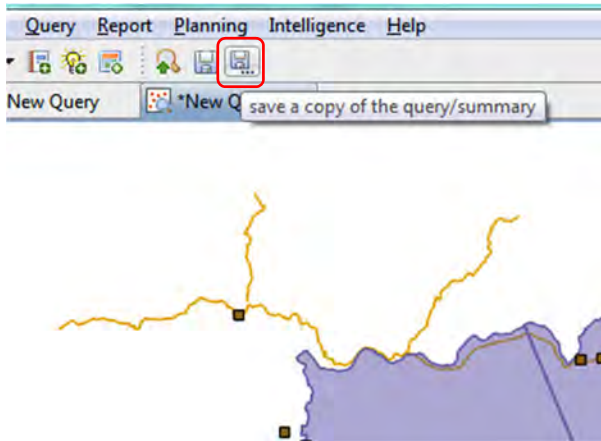
You can see query results as either a TABLE or MAP



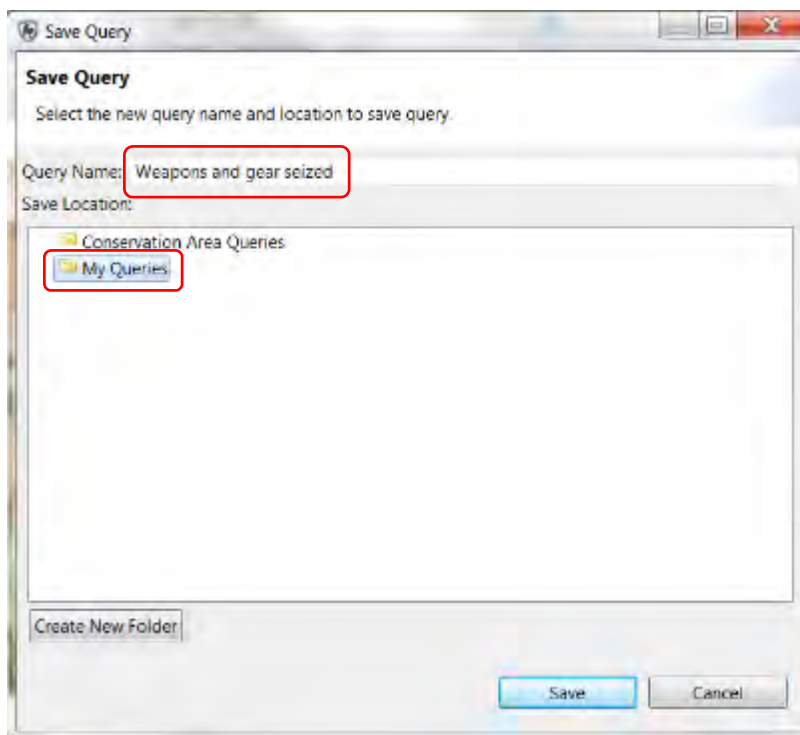
- To switch between **Tabular** and **Mapped** results, click on the tabs shown

Note: The process of customizing the map's appearance and settings are the same in the Mapped Results windows as in other windows.

Saving a Query

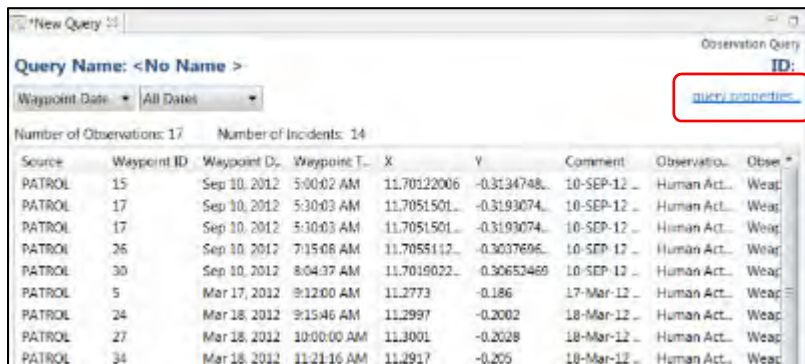


- Click on the icon ‘save a copy of the query/summary’



- Enter **Weapons and gear seized** as the Query Name
- Select **My Queries**
- **Save**

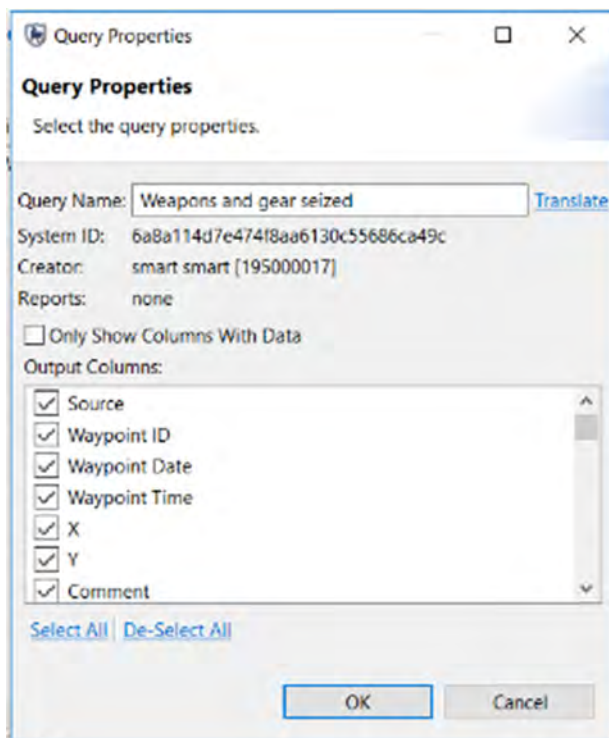
Query properties



Number of Observations: 17 Number of Incidents: 14

Source	Waypoint ID	Waypoint Date	Waypoint Time	X	Y	Comment	Observation	Observed
PATROL	15	Sep 10, 2012	5:00:02 AM	11.70122006	-0.3134748	10-SEP-12	Human Act.	Weap
PATROL	17	Sep 10, 2012	5:30:03 AM	11.7051501	-0.3193074	10-SEP-12	Human Act.	Weap
PATROL	17	Sep 10, 2012	5:30:03 AM	11.7051501	-0.3193074	10-SEP-12	Human Act.	Weap
PATROL	26	Sep 10, 2012	7:15:08 AM	11.7055112	-0.3037696	10-SEP-12	Human Act.	Weap
PATROL	30	Sep 10, 2012	8:04:37 AM	11.7019022	-0.30652469	10-SEP-12	Human Act.	Weap
PATROL	5	Mar 17, 2012	9:12:00 AM	11.2773	-0.186	17-Mar-12	Human Act.	Weap
PATROL	24	Mar 18, 2012	9:15:46 AM	11.2997	-0.2002	18-Mar-12	Human Act.	Weap
PATROL	27	Mar 18, 2012	10:00:00 AM	11.3001	-0.2028	18-Mar-12	Human Act.	Weap
PATROL	34	Mar 18, 2012	11:21:16 AM	11.2917	-0.205	18-Mar-12	Human Act.	Weap

- On the Tabular Results tab, click on **query properties...**



Query Properties

Select the query properties.

Query Name: [Translate](#)

System ID: 6a8a114d7e474f8aa6130c55686ca49c

Creator: smart smart (195000017)

Reports: none

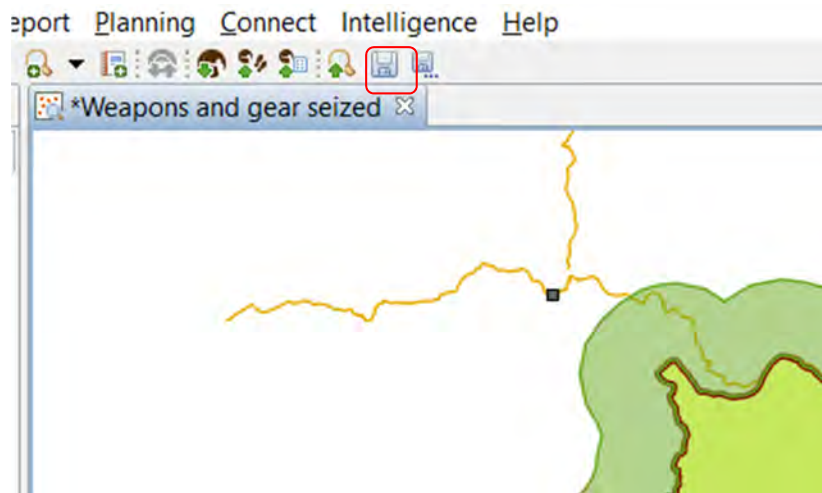
☐ Only Show Columns With Data

Output Columns:

- ☒ Source
- ☒ Waypoint ID
- ☒ Waypoint Date
- ☒ Waypoint Time
- ☒ X
- ☒ Y
- ☒ Comment

[Select All](#) [De-Select All](#)

- You can select/de-select the fields you want to display in the query table
- When you're finished, click **OK**



- **Save any changes**

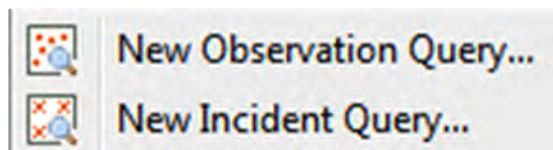
You will now see 'Weapons and gear seized' under My Queries in the Saved Queries/Summaries tab.

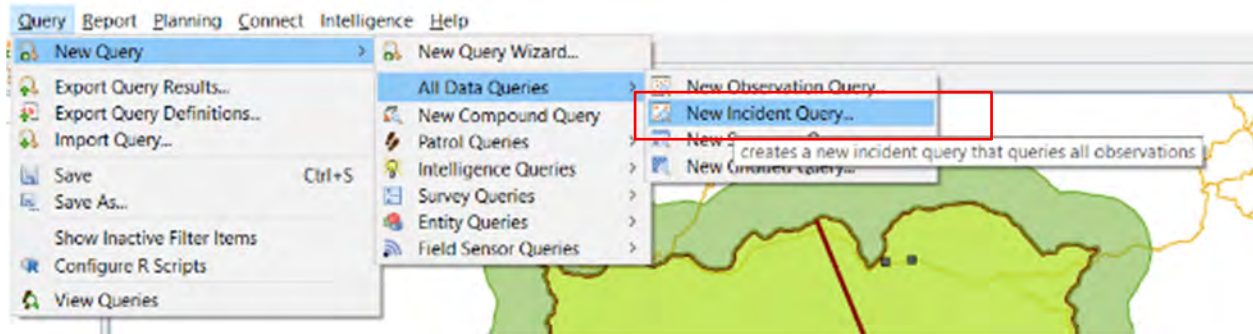
Incident Query

Incident vs. Observation

An observation is a single item observed and consists of exactly one category from the data model and all its associated attributes. An incident is a collection of observations that occurred at the same point and same time (a Waypoint). You will now run an incident query for 'Weapons and gear seized' for comparison.

***Note:** you can also tell the difference between what types of query you are running by the icons see below.*





- Select **Query > New Query > All Data Queries > New Incident Query...**
- Select **All Dates** in the drop down
- In the data model double click on **'Weapons and gear seized'**
- Run the query using the green arrow

Query Name: <No Name >

Waypoint Date: All Dates

Number of Incidents: 14

Source	Waypoint ID	Waypoint D...	Waypoint Ti...	X	Y	Comment	Last Modifi...	Last Modifi...
PATROL	26	Sep 10, 2012	5:15:08 AM	11.7055112..	-0.3037696..	10 SEP 12 ..	May 24, 20..	smart smart
PATROL	45	Nov 15, 2012	4:48:45 PM	11.7858772..	-0.36852663	15-NOV-12..	May 24, 20..	smart smart
PATROL	17	Sep 10, 2012	3:30:03 AM	11.7051501..	-0.3193074..	10-SEP-12 ..	May 24, 20..	smart smart
PATROL	36	Nov 15, 2012	3:15:06 PM	11.6121708..	-0.1067316..	15-NOV-12..	May 24, 20..	smart smart
PATROL	5	Mar 17, 2012	9:12:00 AM	11.2773	-0.186	17-Mar-12 ..	May 24, 20..	smart smart
PATROL	16	Nov 14, 2012	11:45:05 AM	11.2291209..	-0.0605591..	14 NOV 12..	May 24, 20..	smart smart
PATROL	72	Mar 19, 2012	2:14:53 PM	11.2858	-0.2269	19-Mar-12 ..	May 24, 20..	smart smart
PATROL	34	Mar 18, 2012	11:21:16 AM	11.2917	-0.205	18-Mar-12 ..	May 24, 20..	smart smart
PATROL	58	Mar 19, 2012	10:15:03 AM	11.2775	-0.2124	19-Mar-12 ..	May 24, 20..	smart smart
PATROL	1	Nov 13, 2012	3:59:57 PM	11.5896806..	-0.1083511..	13-NOV-12..	May 24, 20..	smart smart
PATROL	30	Sep 10, 2012	6:04:37 AM	11.7019022..	-0.30652469	10 SEP 12 ..	May 24, 20..	smart smart
PATROL	24	Mar 18, 2012	9:15:46 AM	11.2997	-0.2002	18-Mar-12 ..	May 24, 20..	smart smart
PATROL	15	Sep 10, 2012	3:00:02 AM	11.70122006	-0.3134/48..	10-SEP-12 ..	May 24, 20..	smart smart
PATROL	27	Mar 18, 2012	10:00:00 AM	11.3001	-0.2028	18-Mar-12 ..	May 24, 20..	smart smart

Tabular Results Attachments Mapped Results

SMART Query Definition

Filter Type: Incident Filter Observation Filter

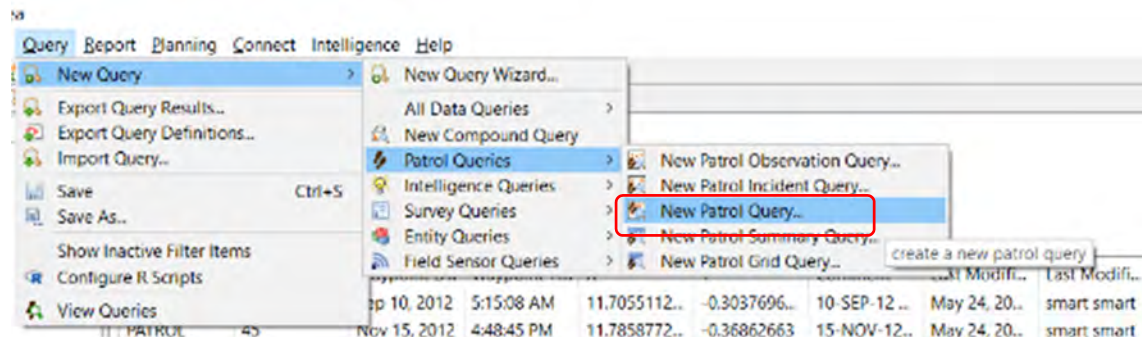
Weapons and gear seized - Human Activity

In the results window, the number of incidents is shown. In this example, there are fewer incidents than observations, as multiple observations of weapons and gear seized were found at one waypoint.

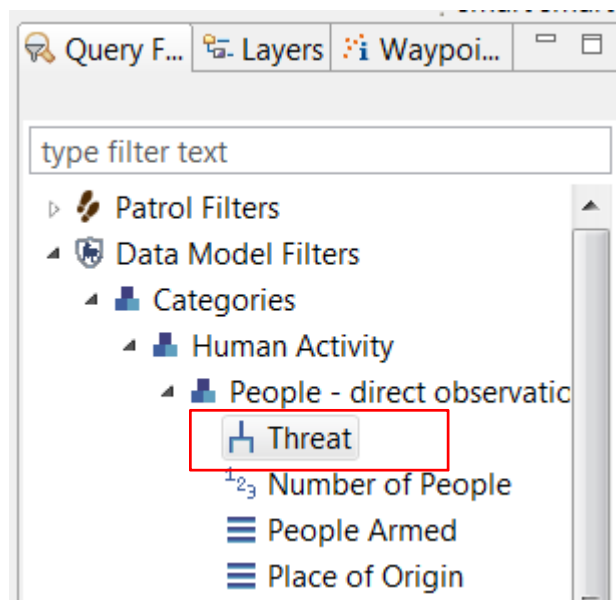
Patrol Query

Now we will run a basic Patrol Query, which displays the patrols that match the given query filters. The process of building a Patrol Query is the same as the Observation Query but the results will also return information on patrols and which patrols were associated with an observation.

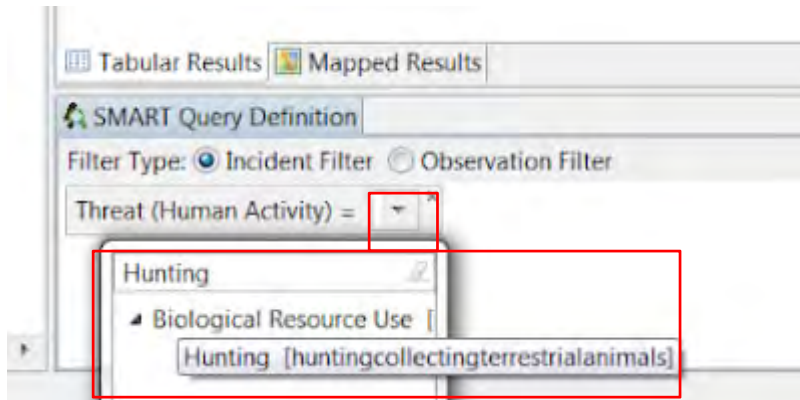
For this exercise, you will build a query to see which patrols encountered poachers.



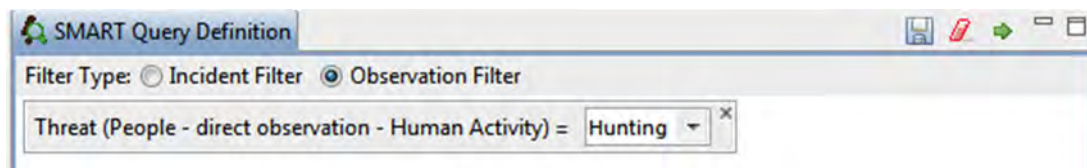
- Select **Query > New Query > Patrol Queries > New Patrol Query...**
- Select **All Dates**
- Save query as **Poacher encounters** under **My Queries**



- Using the query filters, find the category of **People – direct observations**
- Double-click on **Threat**

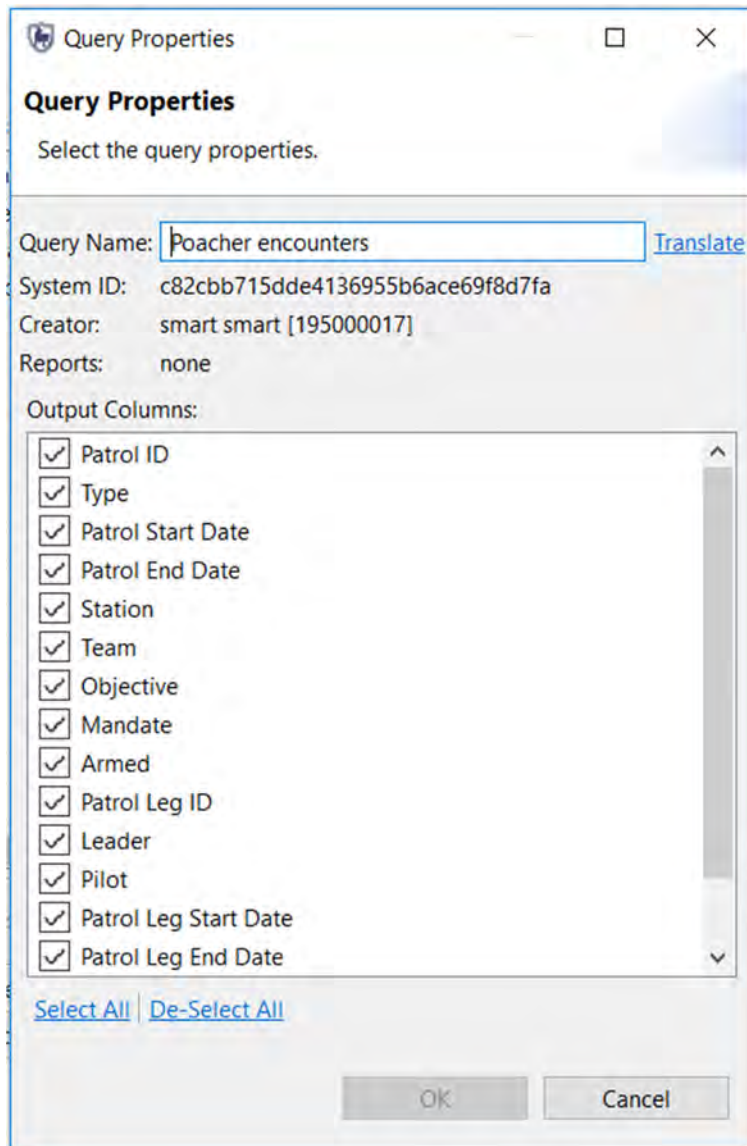


- Click on the dropdown next to the **Threat** filter in the **Query Definition** window
- Start typing **Hunting** in the window that appears and double-click on **Hunting** when it appears.



- Run the Query

In the Query Properties for a Patrol Query, you will see that the available fields are fields relating to patrols and not of the observations.



Query Properties

Select the query properties.

Query Name: [Translate](#)

System ID: c82cbb715dde4136955b6ace69f8d7fa

Creator: smart smart [195000017]

Reports: none

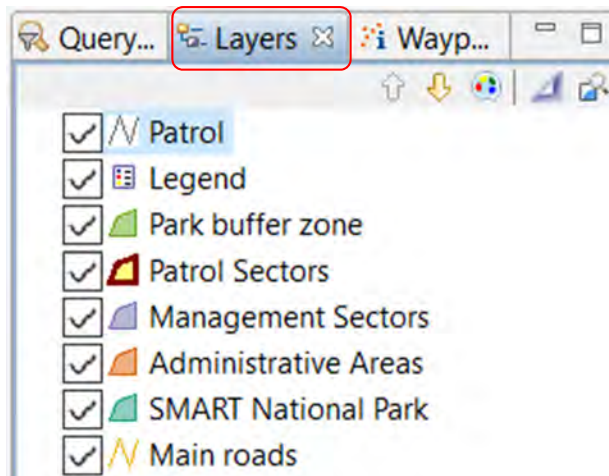
Output Columns:

- ☒ Patrol ID
- ☒ Type
- ☒ Patrol Start Date
- ☒ Patrol End Date
- ☒ Station
- ☒ Team
- ☒ Objective
- ☒ Mandate
- ☒ Armed
- ☒ Patrol Leg ID
- ☒ Leader
- ☒ Pilot
- ☒ Patrol Leg Start Date
- ☒ Patrol Leg End Date

[Select All](#) | [De-Select All](#)

In the Mapped Results view, the Tracks of the various patrols are returned and mapped. No waypoint information is returned.

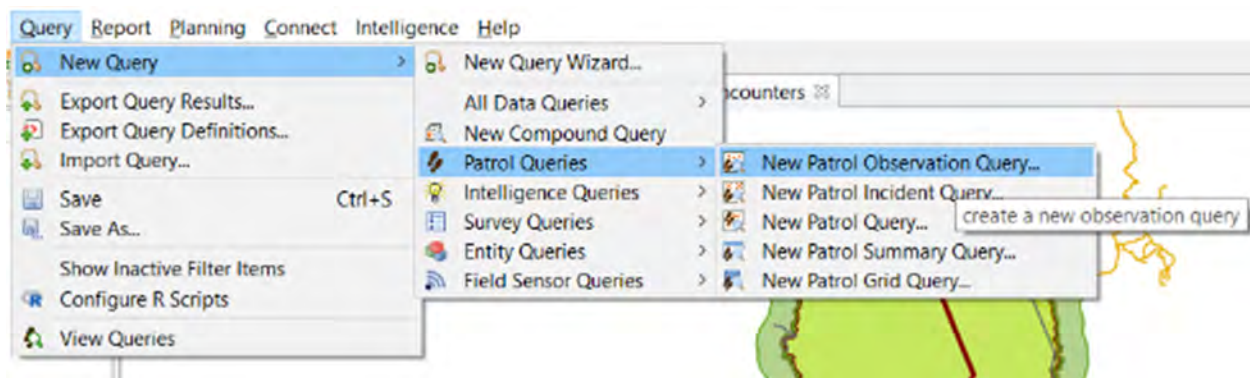
Note: Your results will likely not show the patrol tracks as a thick black line. The color and thickness of the line can be edited using the same tools as the other layers (by selecting the Layers tab on the right-hand side)



Patrol Observation and Incident Queries

In the previous example, you ran a patrol query which extracted only information about patrols and not observations. Next, we will run a patrol query which will extract observation data as well.

- **Select Query > New Query > Patrol Queries > New Patrol Observation Query**



- Run the same query in the previous example
- **People- direct observation- Threat - Hunting**
- Review both the tabular and mapped results

In the Query Properties for this query, you will see that the available fields are fields relating to patrols and observations. You can also try running the same query but as a Patrol Incident Query.

Conservation Area Queries and My Queries

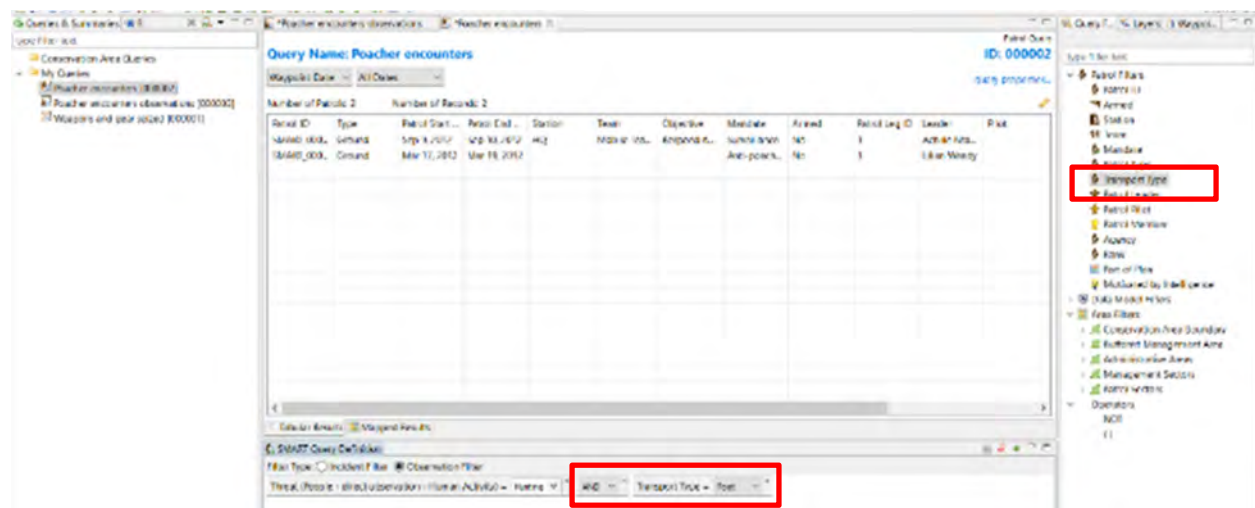
The two main areas to save queries are Conservation Area Queries and My Queries.

- **Conservation Area Queries** - Accessible by all user accounts except for Data Entry, but only Admin and Manager user levels can save and make edits.
- **My Queries** - Accessible only by the user account that created them. All accounts except for Data Entry can save and make edits.

Note: Queries and Summaries saved under My Queries will only be accessible to Reports saved under My Reports. Queries and Summaries saved under Conservation Area Queries will only be accessible to anyone generating a report. Reports will be covered in Module 5.

Creating Compound Queries using Patrol Filters

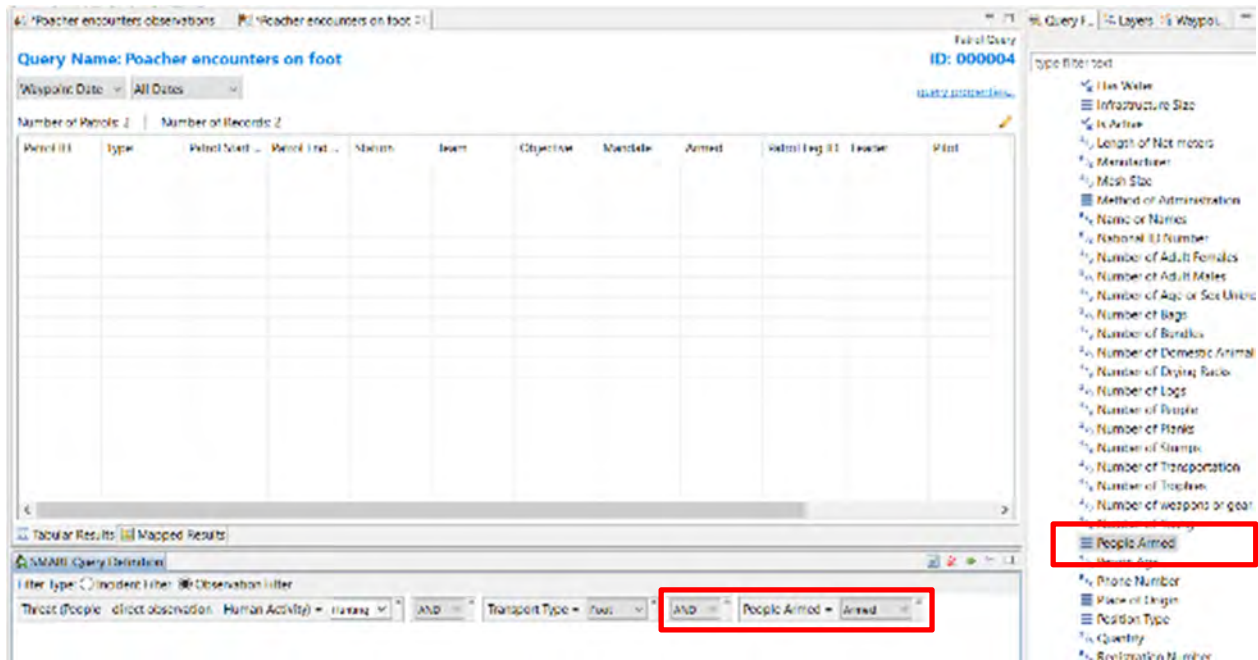
In the previous example, you extracted data relating to patrols which encountered humans engaged in hunting. For the next example, you will create a compound query to further filter the results by finding only patrols conducted on foot, where humans were encountered.



- Double-click on **Poachers encounters** to open that query
- Double-click **Transport Type** under **Patrol Filters** in the Query Filter window on the right to add it to the query.
- In the **Transport Type** drop-down list, select **Foot**
- Select **All Dates**
- Run the Query
- Save a copy of the Query as **Poaching encounters on foot**
- Save under **My Queries**

Using Attributes in a Compound Query

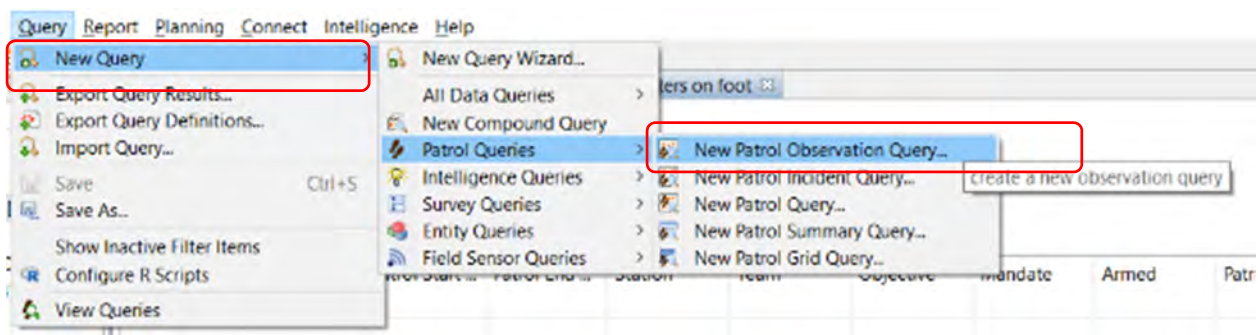
If you want to keep building on the query, you can continue to add additional categories or attributes to the query.



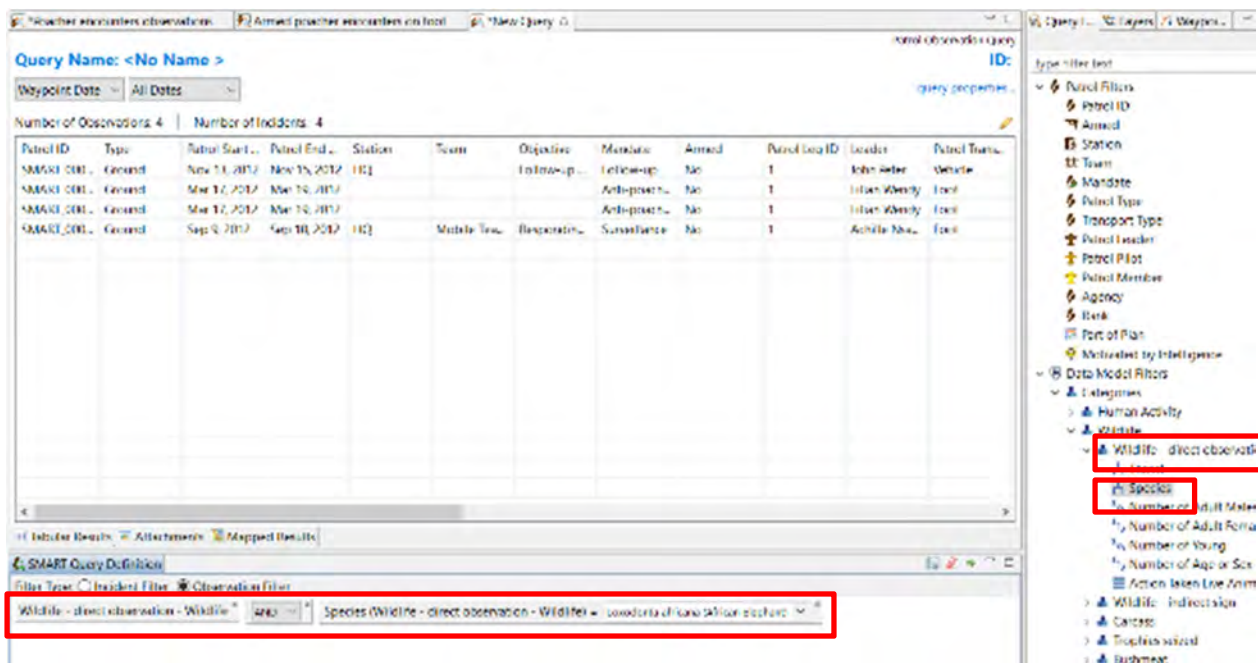
- Open the **Poaching encounters on foot** query
- Under Data Model Filters, go to **Attributes**
- Scroll down to find **People Armed**
- Double click on it to add the attribute to the query definition
- Select **Armed** under the dropdown
- Run the query and save it as a new query under My Queries with a new name

Using Query Properties

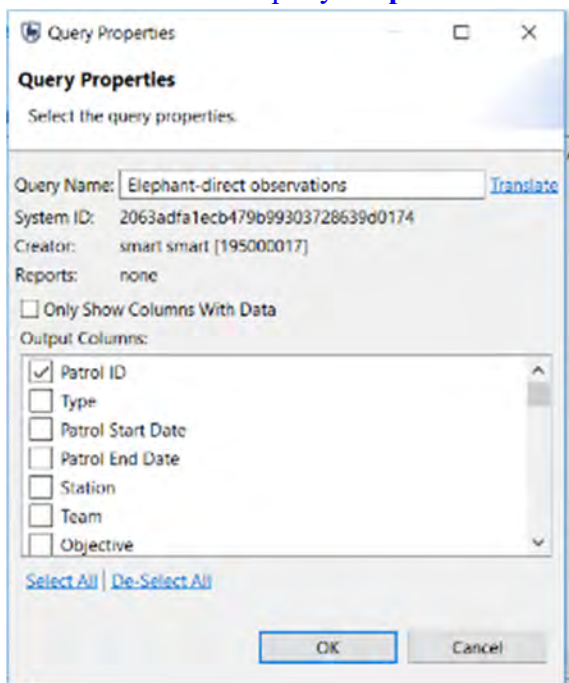
The next query will return all direct observations of elephants and the associated patrol information.



- Select **Query > New Query > Patrol Queries > New Patrol Observation Query...**
- Select **All Dates**



- In the Data model filters, go to **Categories** and double-click on: **Wildlife – Direct Observation** and **Species**
- Enter '**elephant**' in the text filter window on Species and select **Loxodonta africana**
- Run the Query
- Rename the query **Elephant-direct observations** and save the query under my queries



- In the **Query Properties**, De-select all and then select only
 - **Patrol ID**
 - **Mandate**
 - **Observation Category 0**
 - **Observation Category 1**
 - **Species**
- Click **OK**
- Sort data by **Patrol ID** by clicking on the column header

Query Name: Elephant-direct observations

Waypoint Date: All Dates:

Number of Observations: 4 | Number of Incidents: 4

Patrol ID	Mandate	Observatio...	Observatio...	Species
SMART_000...	Surveillance	Wildlife	Wildlife - d...	Loxodonta ...
SMART_000...	Anti-poach...	Wildlife	Wildlife - d...	Loxodonta ...
SMART_000...	Anti-poach...	Wildlife	Wildlife - d...	Loxodonta ...
SMART_000...	Follow-up	Wildlife	Wildlife - d...	Loxodonta ...

☒ Tabular Results
 ☐ Attachments
 ☐ Mapped Results

SMART Query Definition

Filter Type: ☐ Incident Filter ☒ Observation Filter

Wildlife - direct observation - Wildlife AND Species (Wildlife - direct observation - Wildlife) = Loxodonta africana (African Elephant)

Creating a Query Using Attributes

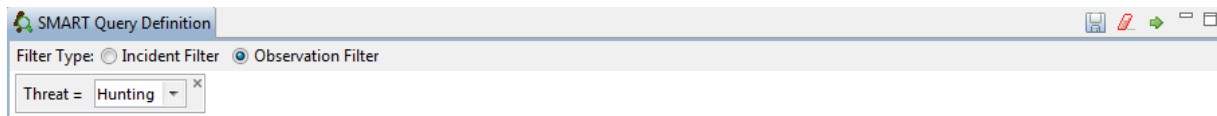
Patrol Queries based on attributes will return results across all categories in the entire data model for any observation where that attribute value was used. For this example, you will create a simple Data Model Attribute query to extract all observations where elephants were recorded (not just direct observations).

- Create a **New Observation Query**
- Under Data Model – Attributes, find and double-click on **Species**
- Enter **‘Elephant’** in the text filter and select **“Loxodonta”**

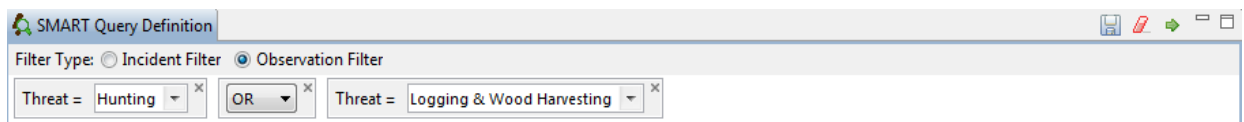
- Save as **Elephant - All observations** under My Queries
- Select **All Dates**
- **Run Query**
- Review the results

Compound Queries Using Operators

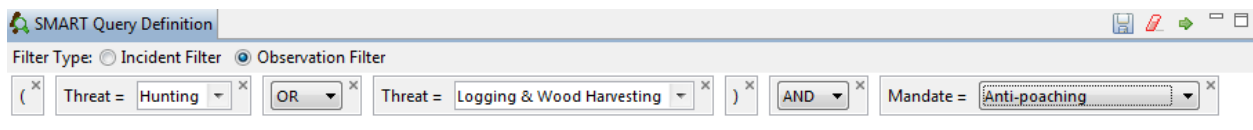
Using Operators allows for more complex queries to be built. The logic for Operators is the same in SMART as it would be when building a mathematical equation.



This query will return **only observations of Hunting**



This query will return **both observations of Hunting and observations of Logging & Wood Harvesting**



This query will return **observations of Hunting or Logging but only if they were made by Anti-poaching patrols**

Note: Once components in the Smart Query Window have been included, they can be repositioned by dragging and dropping or removed by clicking the "x" in the upper right of the feature.

Invalid Query

SMART will only allow valid queries to be run. If a query is incomplete or invalid, the green Run Current Query icon will be unavailable and there will be a Query error warning at the bottom of the screen.

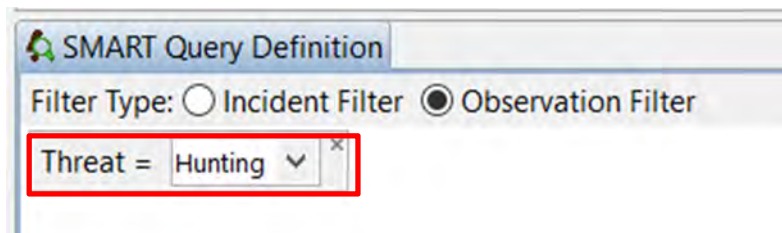


Creating Queries using Area Filters

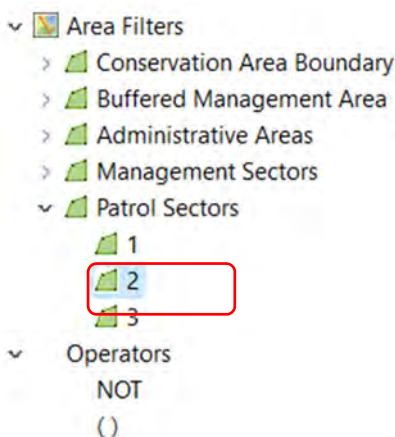
Area filters allow for results to be filtered using the administrative boundaries associated with the Conservation Area.

For this example, you will build a patrol observation query to extract all hunting observations in Patrol Sector 2.

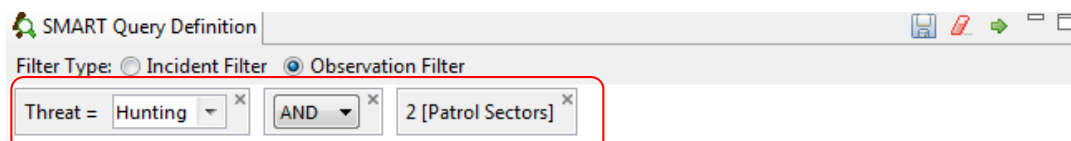
- Create a **New Patrol Observation Query**
- Double click on **Threat** in the list of attributes



- Enter '**hunting**' in the filter text window
- Select **hunting** and click **Enter**
- Select **All dates**
- Run Query and view **Mapped Results**



- Now add the **Patrol Sector 2** filter to the Query by double clicking on **Patrol Sector 2** under Area Filters




- Run the Query and view the results again under **Mapped Results**
- Save the Query under My Queries as **Hunting observations- Patrol Sector 2**

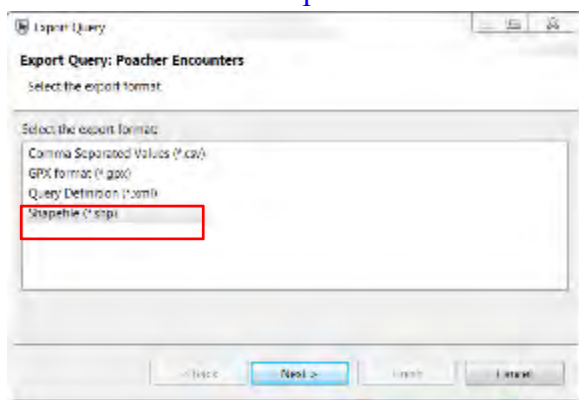
Note: Only the observation in Patrol Sector 2 are returned

Exporting Query Results

Exporting results as a Shapefile ****Available only for queries and not summaries****

A query export of the file type Shapefile will produce a Shapefile of the results that are viewable in the Mapped Results tab. This Shapefile can be used for creating new maps or to distribute to others or to import into ArcGIS

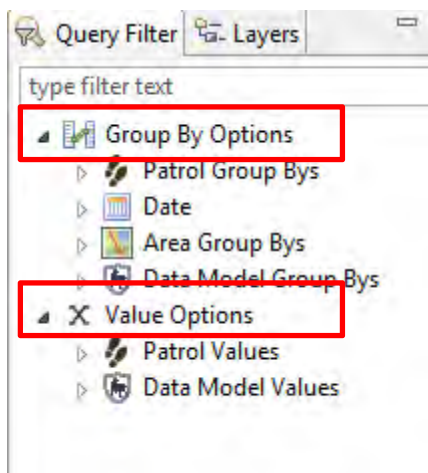
- Open the **Poaching Encounters** query, run the query with All Dates selected
- Click on the Export Icon  and select **Shapefile (*.shp)**



- Click on Next and save the shapefile in the Module 4 folder

Summaries

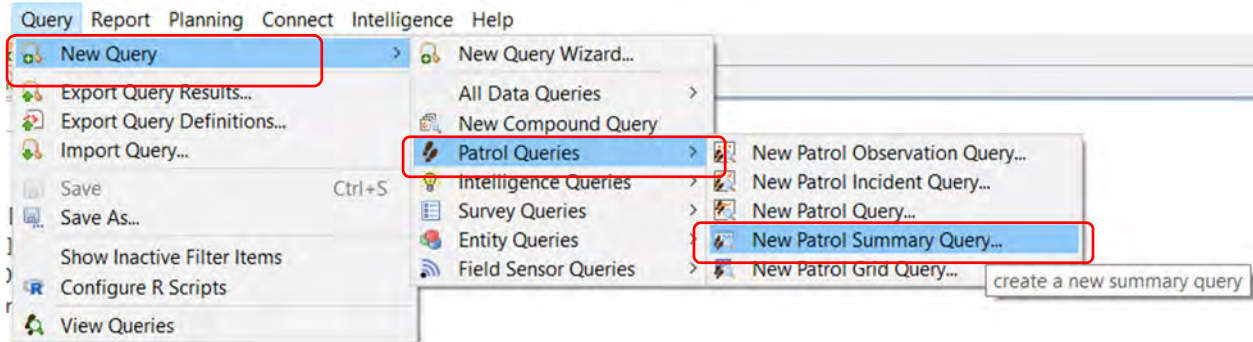
Summaries are built by placing Value Options and Group By Options into the Smart Query Definition windows. The Group By Options are used to provide an aggregation of the Value Options.



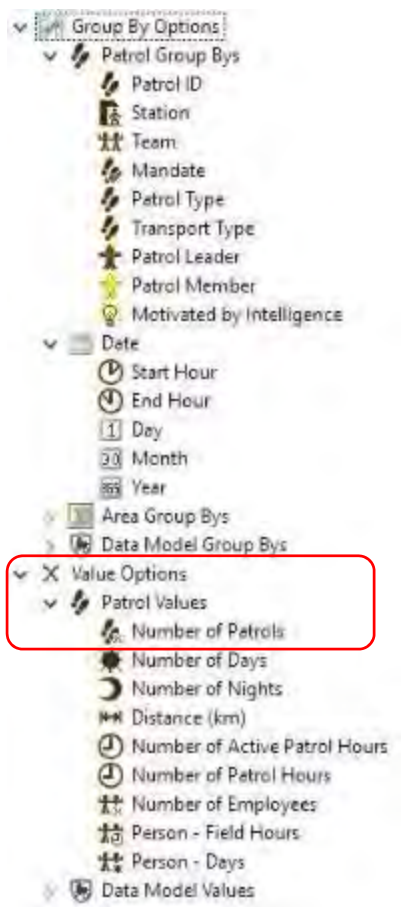
The simplest Summaries can be a single Value Option with no Group By Options, but there is no limit to how complex a summary can be. However, some combinations of Values and Group Bys are not permissible, and SMART will not allow the summary to be run until the error is resolved.

Simple Patrol Summaries

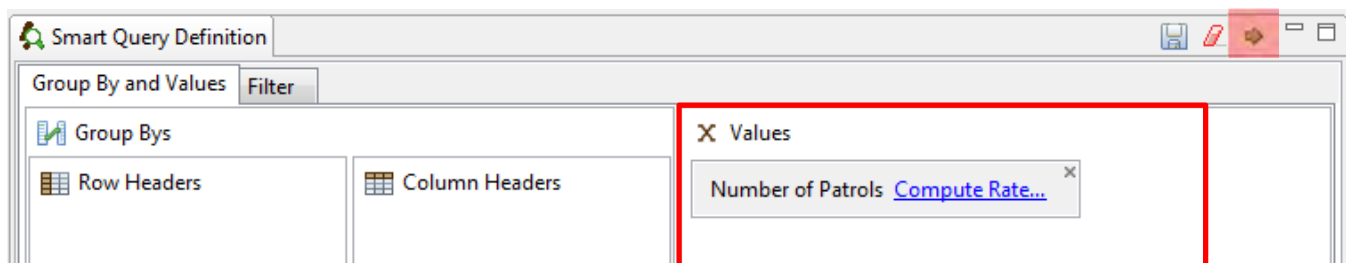
In this example, you will build a simple summary to calculate the total number of patrols entered into the system for this Conservation Area.



- Select **Query > New Query > Patrol Queries > Patrol Summary Query...**
- Select **All Dates**



- Under Patrol Values, double-click **Number of Patrols** to add it to the Summary Values window



- Run the Summary by using the green arrow

The SMART summary will display the total number of patrols for this Conservation Area

- Return to the Value Options and add **Distance (km)** to the query
- Add **Distance (km)** a second time to the query window

Building on the complexity of the summary, you will add the **computed value of Number of Patrols per Kilometer travelled**.

X Values

Number of Patrols [Compute Rate...](#)

Distance (km) [Compute Rate...](#)

Distance (km) [Compute Rate...](#)

- On the second Distance (km) click **Compute Rate ...**

Encounter Rate

Select the encounter rate to compute:

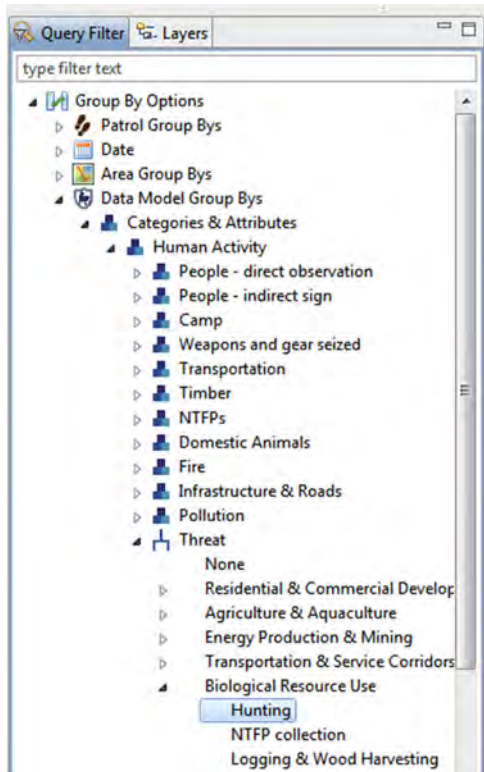
Encounter Rate Value: *

- Distance (km)
- Total Distance (km)
- Number of Active Patrol Hours
- Total Number of Active Patrol Hours
- Number of Patrol Hours
- Total Number of Patrol Hours
- Number of Days
- Total Number of Days
- Person - Days
- Total Person - Days
- Person - Field Hours
- Total Person - Field Hours
- Number of Patrols**
- Total Number of Patrols

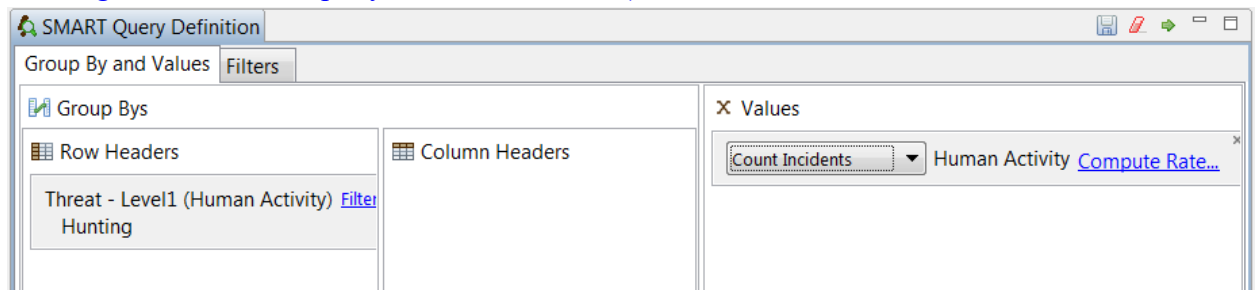
*Encounter rate values are calculated by distance by group. Select the encounter rate values from the drop-down menu. Select the encounter rate values.

MART Query Definition

- Select **Number of Patrols** from the pull down list
- Click **OK**
- Run query
- Save the Query as **Number of patrols per Km travelled**

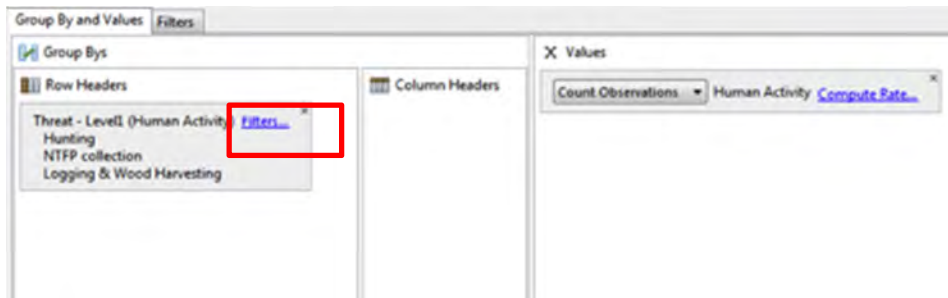


- Select **Group By Options > Data Model Group Bys > Categories & Attributes > Human Activity > Threat > Biological Resource Use > Hunting** (Double-click on Hunting to add it to the query definition window)

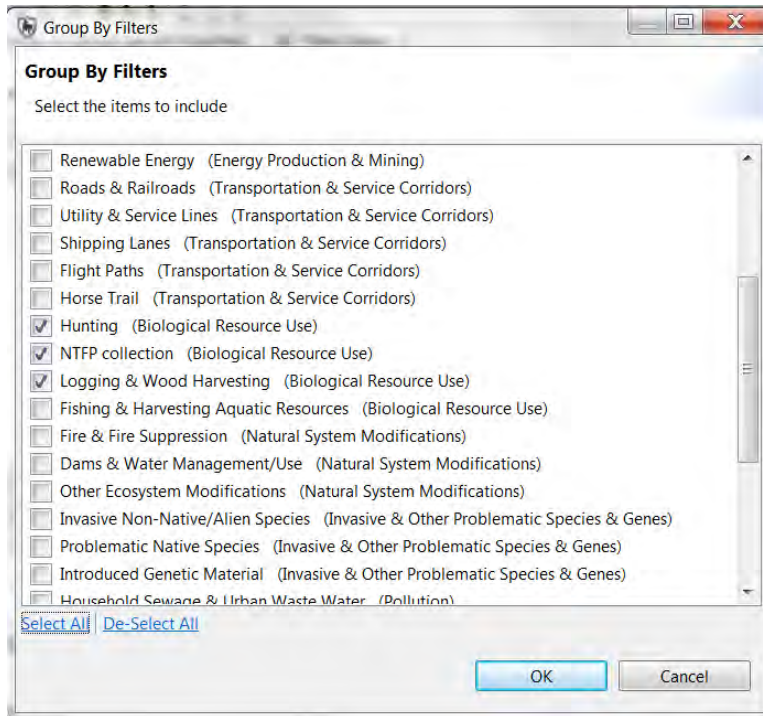


- Select **Value Options > Data Model Values > Count 'All Categories' > Count 'Human Activity'** and double-click to add it to the query
- Select **'Count Incidents'** (this will count the number of unique waypoints, rather than the number of observations)
- Select **All Dates**
- Run Query

Waypoint Date	All Dates
	Count Incidents Human Activity
Hunting	32.0



- Select the Filters option next to Human Activity



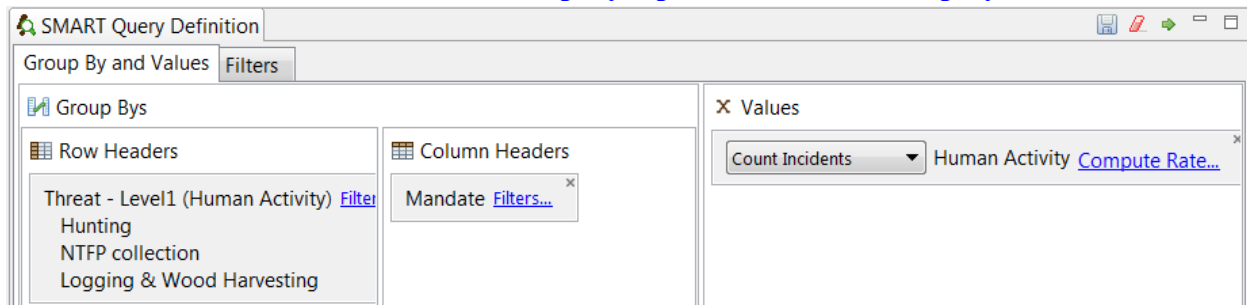
- Add other threats to hunting in the query window by selecting other threat categories in the filter window (NTFP collection and Logging & Wood Harvesting)
- Re-run the query

Waypoint Date	All Dates
	Count Inciden
Hunting	32.0
NTFP collectic	2.0
Logging & W	7.0

Now we will add a column header to the query to expand the summary.

- ▾ Group By Options
 - ▾ Patrol Group Bys
 - Patrol ID
 - Station
 - Team
 - Mandate**
 - Patrol Type
 - Transport Type
 - Patrol Leader
 - Patrol Member
 - Motivated by Intelligence
 - ▾ Date
 - ▾ Area Group Bys
 - ▾ Data Model Group Bys
 - ▾ Value Options

- Double-click **Mandate** in the **Group By Options > Patrol Group by**



- Drag Mandate under 'Column Headers' (By default 'Mandate will be added to the 'Row Header' window. To move it, simply select it and drag it under the 'Column Header' window)
- Re-run the query

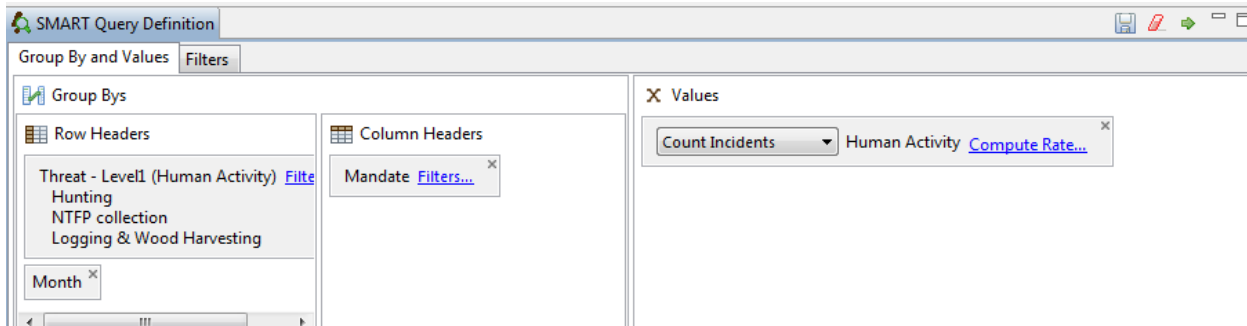
Waypoint Date ▾	All Dates ▾								
		Anti-poaching		Follow-up		Research and Monitoring		Surveillance	
		Count Incidents	Human Act	Count Incidents	Human Act	Count Incidents	Human Act	Count Incidents	Human Activity
Hunting		17.0		9.0				7.0	
Logging & Wood Han		4.0		2.0				1.0	
NTFP collection		1.0						1.0	

Grouping by Date

You can also group by date, which allows you to summarize observations by Start or End Hour, Day, Month or Year.

- Group By Options
 - Patrol Group Bys
 - Date
 - Start Hour
 - End Hour
 - Day
 - Month**
 - Year

- Select **Group By Options > Date > Month**
- Double-click to add to the query



- Re-run query

Query Name: Human Activity Incidents

ID: 000011


Waypoint Date ▾ All Dates ▾

[summary properties...](#)

		Anti-poaching	Follow-up	Research and	Surveillance
		Count Inciden	Count Inciden	Count Inciden	Count Inciden
Hunting	03/2012	17.0			
Hunting	04/2012				
Hunting	05/2012				
Hunting	06/2012				
Hunting	07/2012				
Hunting	08/2012				
Hunting	09/2012				6.0
Hunting	10/2012				
Hunting	11/2012		9.0		

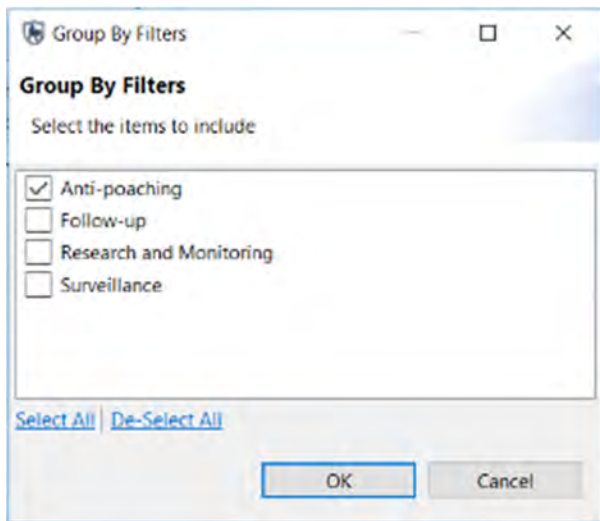
Filters

Filters provide a simple way to filter summary results

 Column Headers

Mandate [Filters...](#)

- Click on **Filters** next to Mandate



- Deselect all except **Anti-poaching**
- Click **OK**
- Re-run the query

Saving Summaries


Summaries are saved in the same way as queries.

- Save the summary query you just created as '**Number of threats by anti-poaching patrol**' under My Queries.

Exporting Summary Query Results

Comma Separated Values (CSV) table

A query export of the file type Comma Separated Values (CSV file) can be imported into other spreadsheet or database software (e.g. Excel), to recreate the results that are seen in the Tabular Results view.

- After you have run the summary query, click on the Query Export icon  and select **Comma Separated Values (*.csv)**.
- Save the file on your computer
- Locate the file and open with **Excel** to see the results.

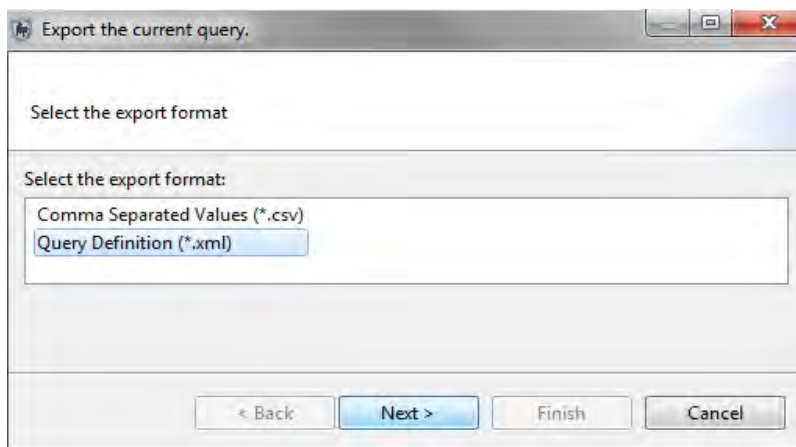
Exporting and Importing Query Templates

Once a query or summary is created, it can be exported out to an XML file that can be used by another Conservation Area. Importing pre-existing queries and summaries allows for standardization of analysis and reporting where data models shared common fields (this is covered in the next module).

Query Definition

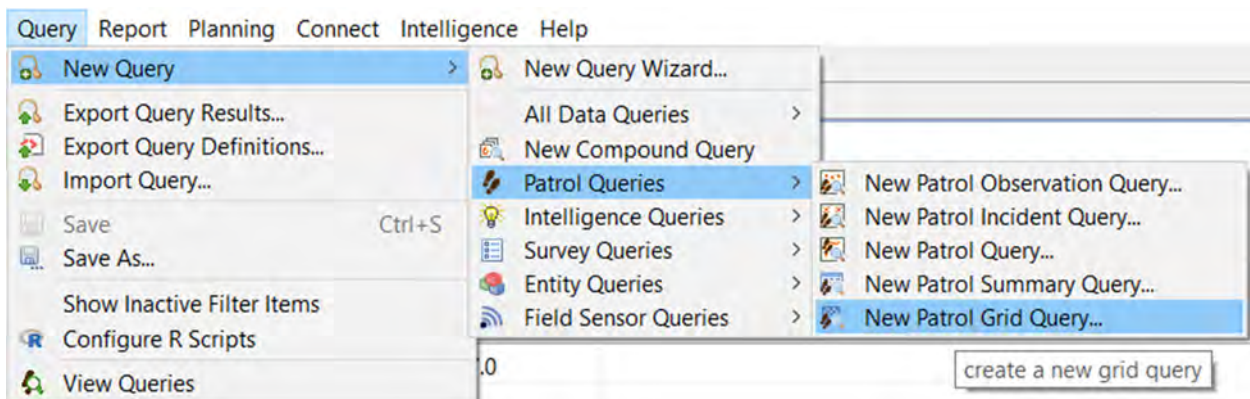
A query export of the file type Query Definition will produce an XML text file that can be distributed to others, allowing them to import the query into their Conservation Area.

Using the menu or the export query icon  you can export queries and summaries.



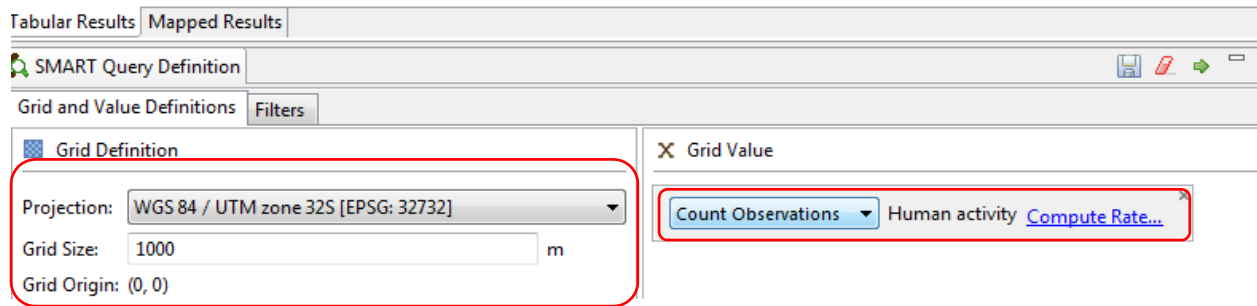
Creating a Gridded Query

Gridded Queries can be created for both All Data Queries and Patrol Queries. You will now create a Patrol Grid Query.



- In the menu select **New Patrol Grid Query**

- From the Data Model Values double-click **Count Human Activity** to add to query



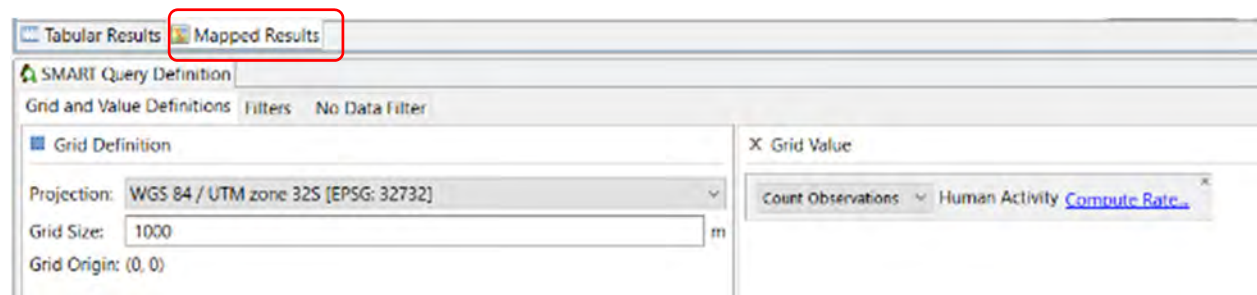
- Select **Count Observations**
- Ensure Projection = **WGS 84/UTM 32S**
- Change **grid size to 1000m**
- Select **All Dates** in the date filter
- Run query

Tabular Results

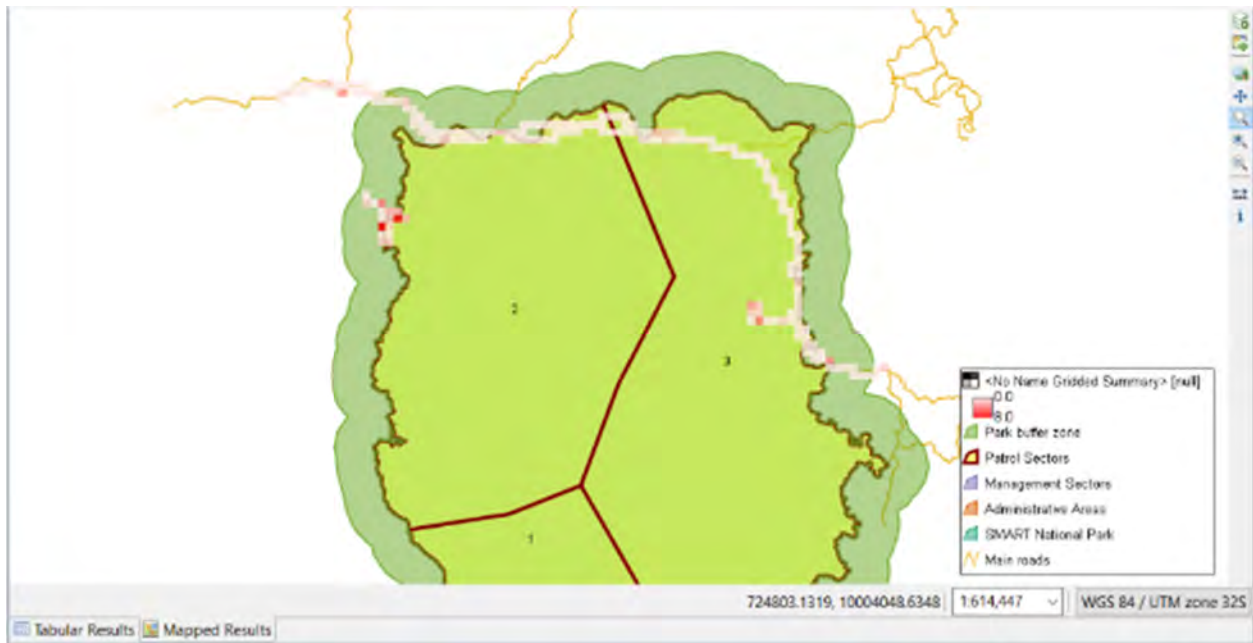
The default view of results is a tabular list. This table shows the grid coordinates and values of how many observations were found within each grid cell. The output includes all grid cells patrolled during that period, so if a grid cell was patrolled and no observations were made it will have a value of 0. The table also includes the denominator value (e.g. distance patrolled) if there is one selected (see encounter rates below). For most users, the Tabular Results will not be as important as the Mapped Results.

Mapped Results

As with other types of queries, the results can be viewed in tables or in a map. The results for this type of query are displayed as a raster or grid layer.

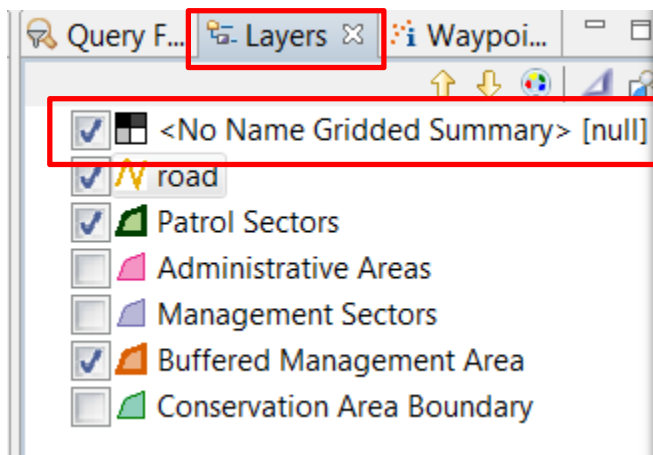


The Mapped Results screen now shows a number of grid cells of varying color where grid cells were patrolled and where observations from the query can be found. The color of each grid cell corresponds to the number of observations recorded within the cell.



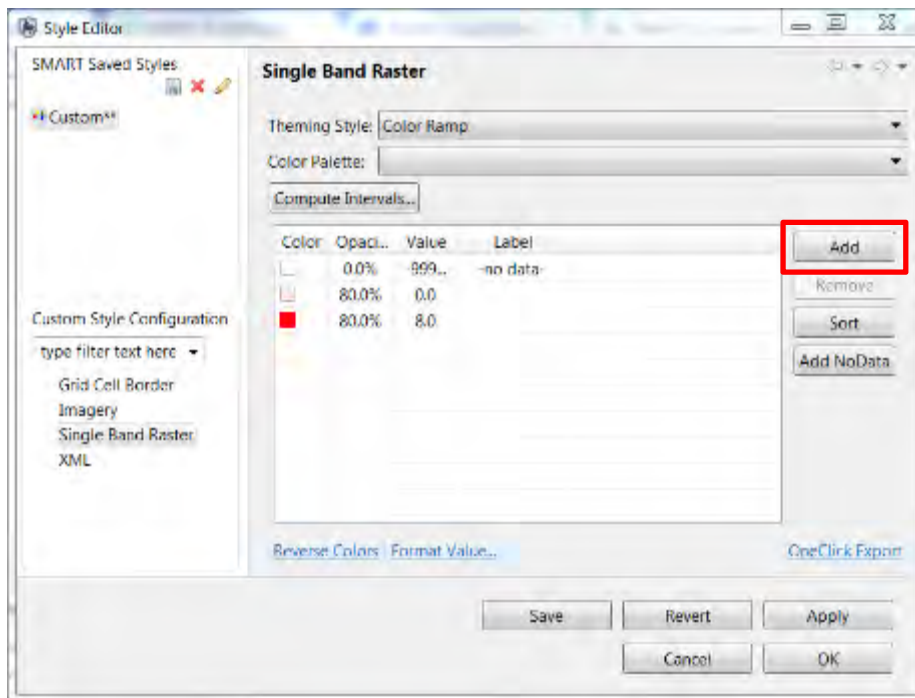
Change the Map Style of Gridded Queries

In the previous modules, you explored different options for changing the style of points, lines and polygon layers. Now, you are going to modify the style for a gridded query result layer.

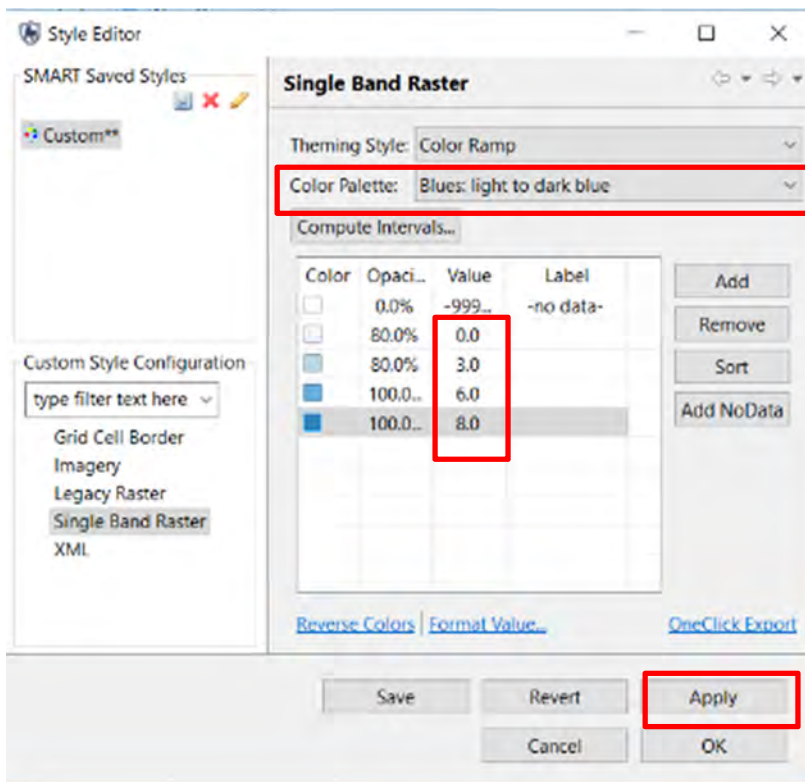


- Click on the **Layers** tab (next to the Query Filter on the window on the right).
- Select the layer **No Name Gridded Summary (null)**
- Click on the palette icon to **change the style of the layer Style**
- Select **Single Band Raster** (on the left-hand menu-bar)

Note: Don't modify the first line (0-9999 – no data).



- Click **Add** twice to add 2 more intervals



- Change the values for the intervals at four equal intervals between the minimum and maximum value. You can do this by manually changing the interval values or with the **Compute Intervals...** button.
- Under **Color Palette**, select the color ramp that you like
- Click **Apply**

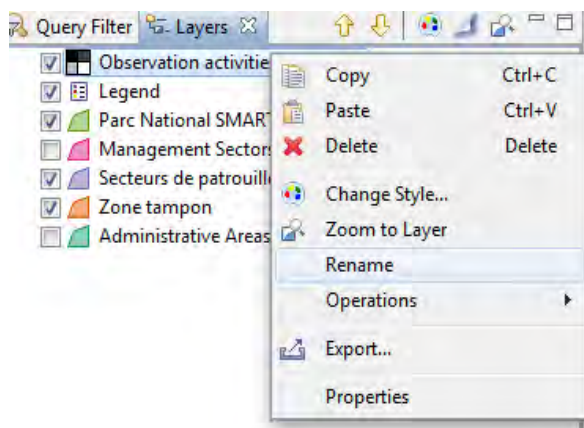
- Click **OK**

Add a legend

- Next to the map, click on the icon **add a layer to the map**
- Select **'Map decoration'**
- Click **Next**
- Check **'Legend'**
- Click **Finish**



- Load the Basemap **'SMART Map with Legend'** that you created in Module 2 by clicking on the map icon

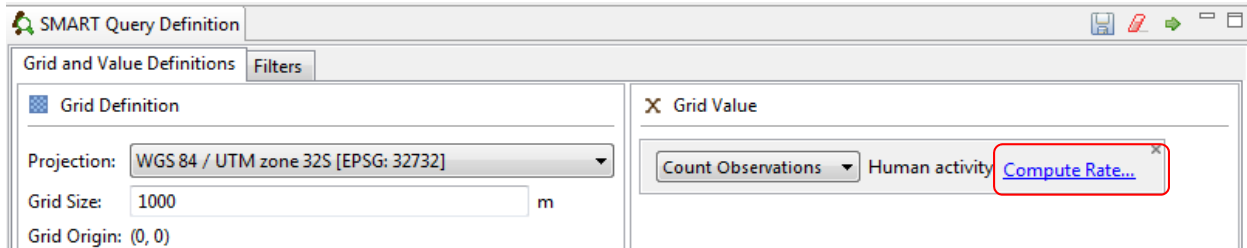


- In order to rename the query and how it appears in the legend, right-click on the query layer and selecting **'Rename'**

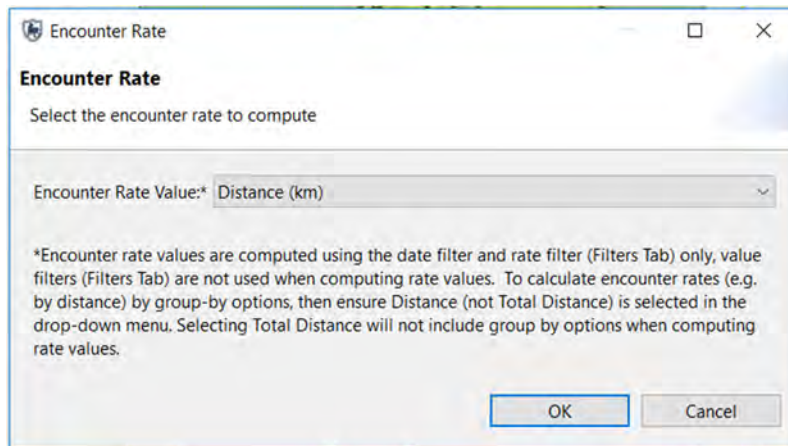
- Save the query as '**Human Activity Observations**' under **My Queries**

Encounter Rate Grids

You can also directly calculate encounter rates (e.g. number of observations/unit effort) in each grid cell.



- Click **Compute Rate** next to **Count Observations – Human Activity**



- Select **Distance (km)** and click **OK**

The query will now calculate the number of human observations/km patrolled.

- Run the query
- Save the query as **Encounter rate of human activities** under **My Queries**

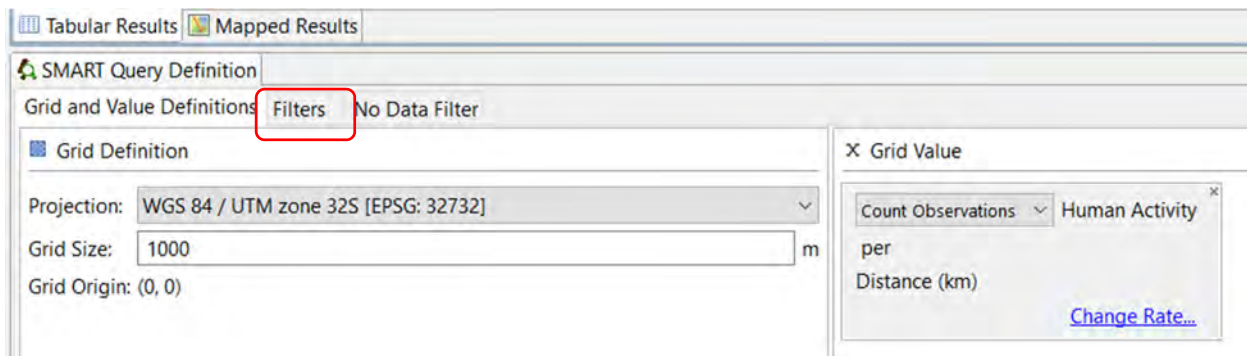
Filtering a Query

A filter can be applied to the gridded summary. For grids, there are two types of filters:

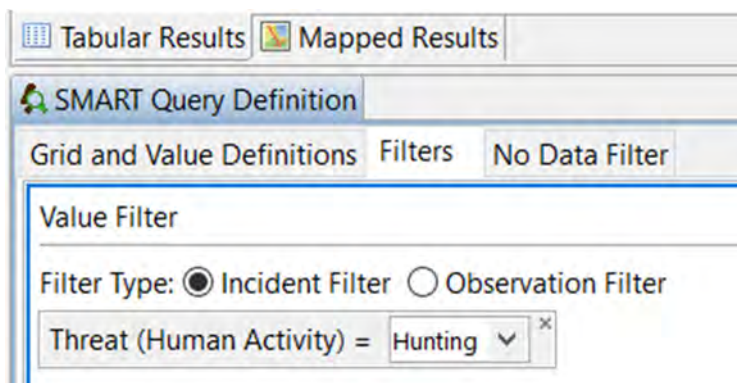
Value Filter: Filters the numerator/observations (i.e. number of human activity observations)

Rate Filter: Filters the denominator/unit of effort

- As an example- set up the gridded summary to calculate the **encounter rate of hunting observations** (i.e. only human activity observations filtered by hunting) **by km patrolled** (for all patrols, not just those where hunting was observed)



- Click on the **Filters** tab
- In the Data Model Filters list double-click on **Human Activity > Threat** to add this under the **Value Filter**

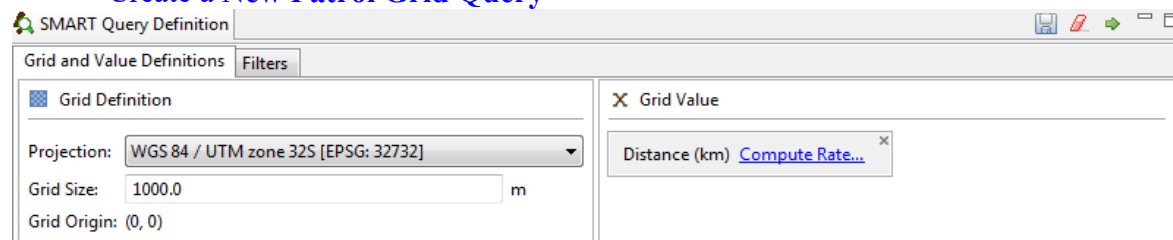


- Type **'hunting'**
- Select **Incident Filter**
- Leave Rate filter blank
- Run the Query
- Save as **'Hunting observations/km'** under **My Queries**

Patrol effort grids

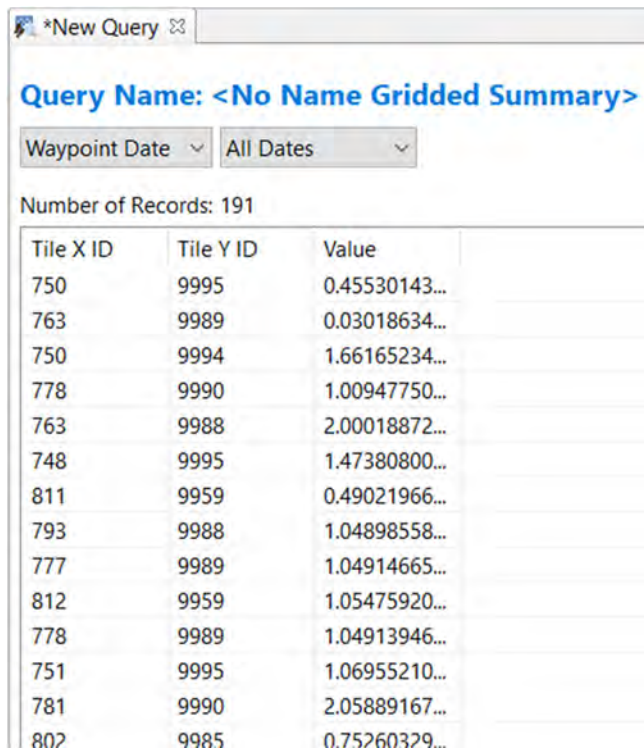
Grids can also be created for different measures of patrol effort (distance patrolled in each grid cells, number of patrol days in each grid cell).

- Create a New Patrol Grid Query



- Set Projection to **UTM 32S** and grid size to **1000m**
- From Patrol Values, select **Distance**
- Select **All Dates**

- Run Query



Tile X ID	Tile Y ID	Value
750	9995	0.45530143...
763	9989	0.03018634...
750	9994	1.66165234...
778	9990	1.00947750...
763	9988	2.00018872...
748	9995	1.47380800...
811	9959	0.49021966...
793	9988	1.04898558...
777	9989	1.04914665...
812	9959	1.05475920...
778	9989	1.04913946...
751	9995	1.06955210...
781	9990	2.05889167...
802	9985	0.75260329...

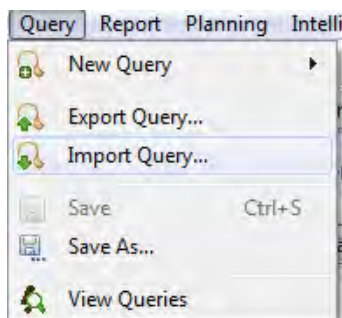
The tabular results show the distance patrolled in each grid cell

The mapped results shows patrolled coverage as a function of patrol distance patrolled in each grid cell

- Save the query as **Patrol Coverage by Distance** under **My Queries**

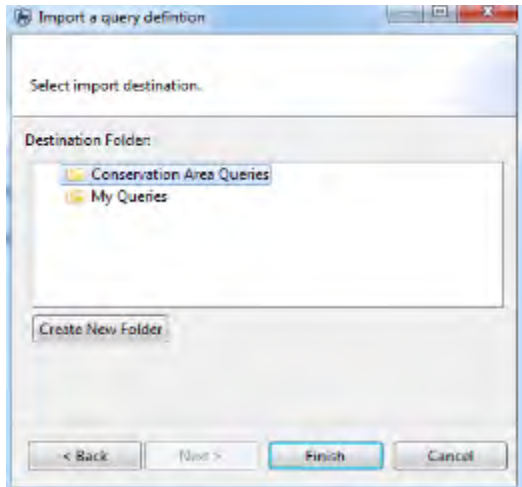
Importing Queries and Summaries

Queries and Summaries are imported into SMART using a previously exported query saved as an XML file. To demonstrate this, you will import a few queries and summaries into a custom folder in the Conservation Area Queries.



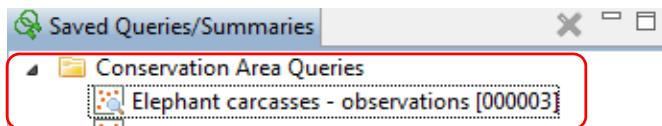
- From the menu select **Query > Import Query ...**
- Select **Import from File** and click **Next**

- Click **Add** and browse to folder **Module 4\ Queries**
- Select **Elephant carcasses - observations.xml**
- Click **Open**
- Click **Next**



- Select **Conservation Area Queries**
- **Finish**

Under **Conservation Area Queries**- you'll now see the new query (you might need to expand the arrow under Conservation Area Queries)

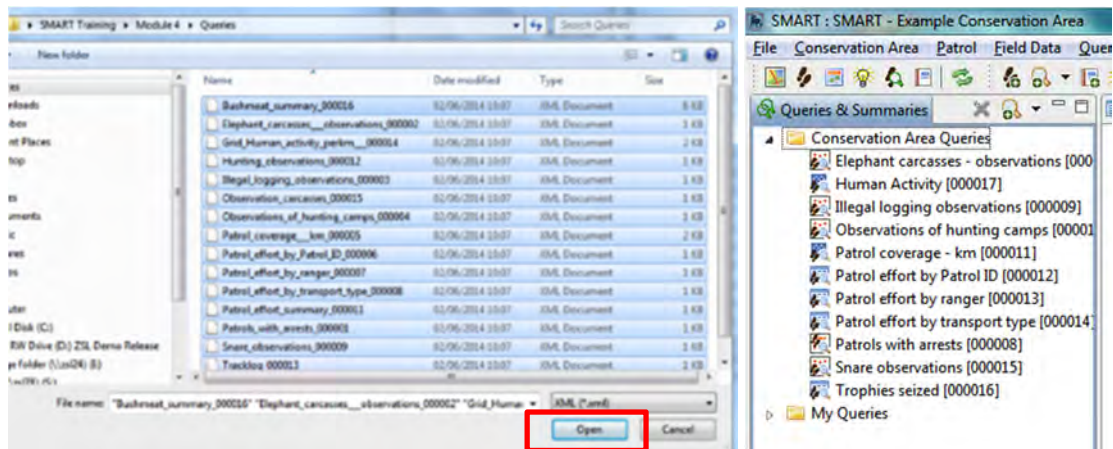


- Double-click on the query to see how it was created under the SMART query definition window
- Run the query (make sure All Dates is selected)

In the Query folder there are a number of queries and summaries you can import into SMART

- Import the rest of the queries under **Conservation Area Queries**, and run each to see the results.

***Note:** You can import all queries and summaries in the Query folder at once by selecting all and importing.*



Note: You will need some of these queries to create the Reports in the next module

<End of Module 4 – Queries and Summaries>

MODULE 5: Reports

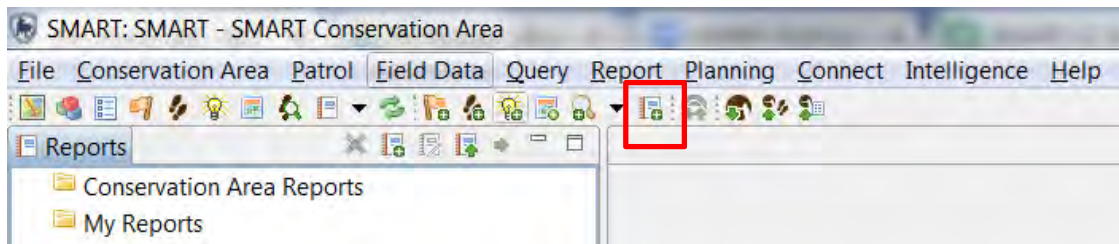
Objective

This module will guide you through the process of creating, editing and populating a SMART report. SMART reports are highly configurable and allow for a wide range of standardized reporting. The information on the reports can be dynamically generated based on the results of SMART queries and summaries. A major component of SMART is its mapping ability, and SMART reports allow maps to be included and customized to suit the report.

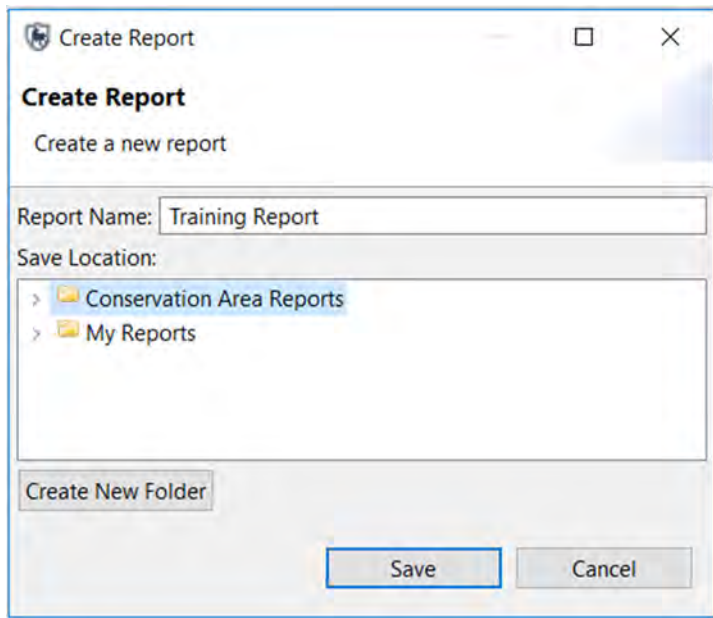
- Understanding the components of the report editor
- Configuring data access
- Creating master page templates
- Building a report
- Running a report
- Exporting reports

Detailed Steps

Generate a new report



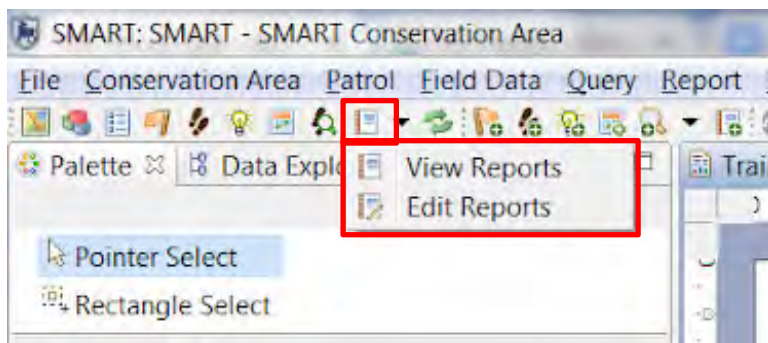
- From the menu select **New Report** via the button or **Report > New Report**



- For Report Name type **Training Report**
- Select the **Conservation Area Reports** folder as the location
- Click **Save**

Switching Between Report List and Report Editor

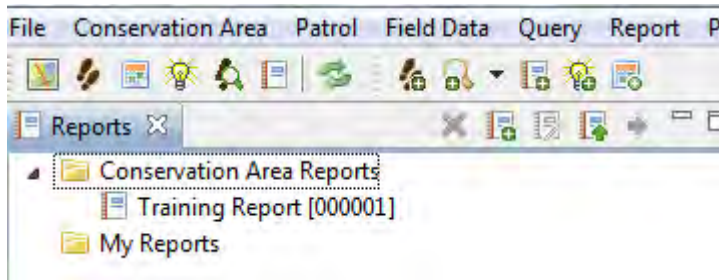
After creating the report, SMART will display the Report List screen and toolbars. To run, export, or manage reports you will need to use the Report List screen. The icon to return to the report list screen is available on the default SMART icon bar.








- To return to the Report List select the '**Open Report Perspective**' icon 

Report List Toolbar

The report toolbar has icons for creating, editing, running, exporting and deleting reports.



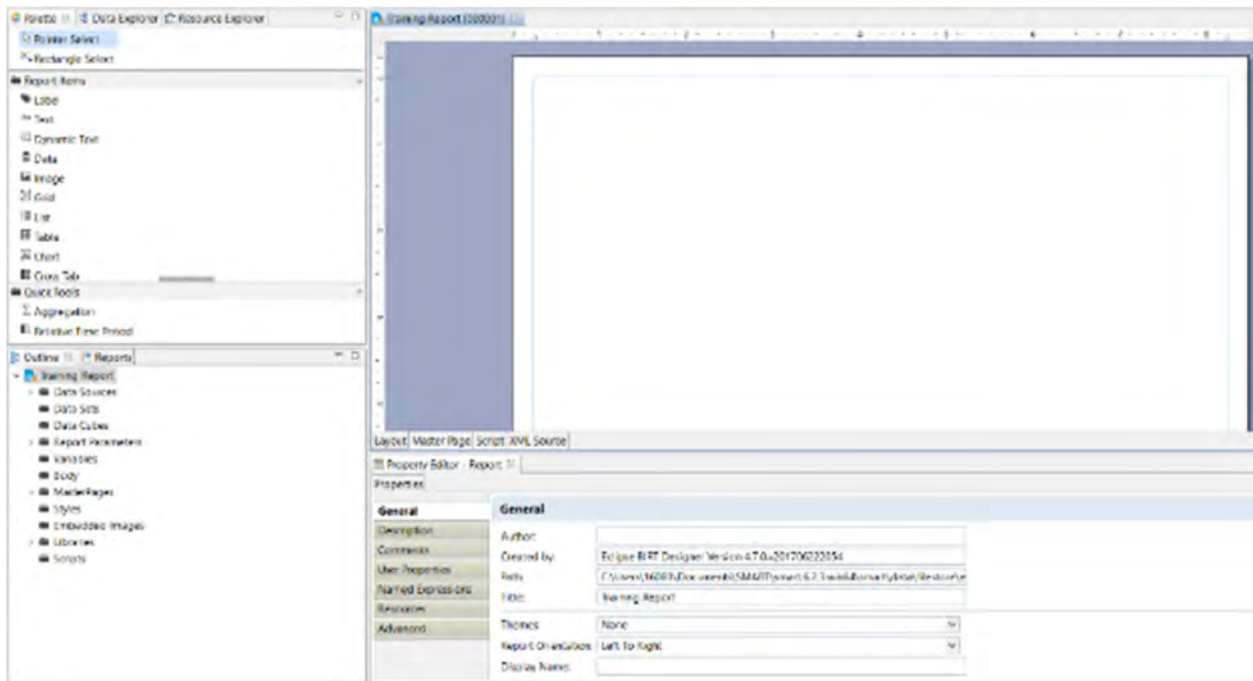
	Deletes the selected report(s)
	Creates a new report
	Edits the selected report(s)
	Runs and exports the selected report(s)
	Runs the selected report(s)

- To return to the Report editor, click on your report, then the **Edit Report icon**



Components of the Report Editor

The Report Editor consists of a few basic components, each of which has its own functionality and purpose. Below are some of the components that you will probably use most often:



Design Window

The Design Window is where the components of the report are organized. This window previews what the final report will look like, as reports are generally based on dynamic data. The window allows customization of the objects' layout, content, size and style.

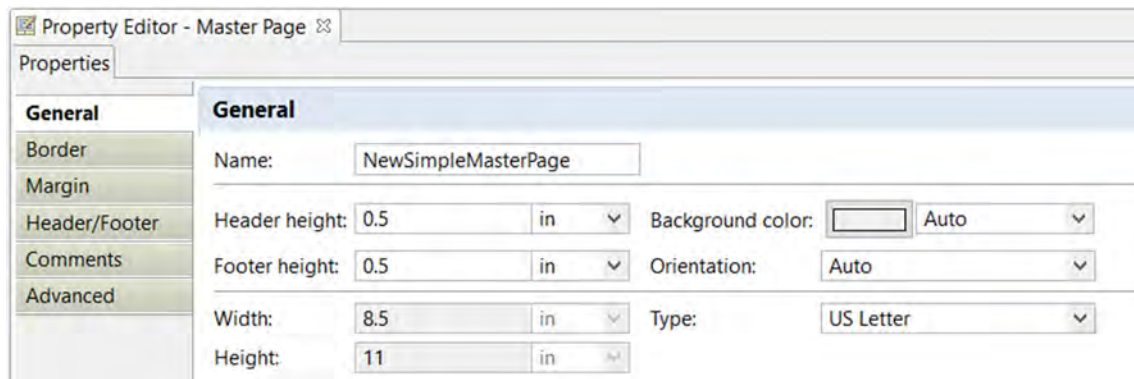
The **Layout and Master Page tabs** at the bottom are the most commonly used tabs. It is highly recommended not to make any edits in the Script or XML Source tabs, unless you are an advanced user who understands the risks of directly editing the code used to generate the report.

Property Editor

This window is used to edit the properties of the objects that have been loaded into the Design Window. The Property Editor options will change when you move between the Layout and Master Page tabs.

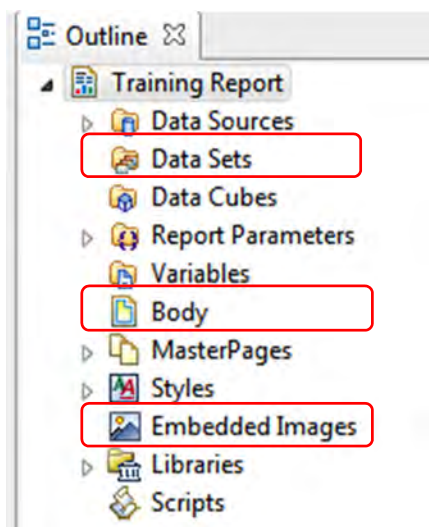
Report Properties (Master Page tab)

Used to specify general properties of the report's master page.



Outline

The Outline is used to organize the objects that are used to build your report. Objects and Elements are imported into the outline, allowing easy access to these components when reports are designed in the Design Window.



Data Sets

Data sets are linked to existing tables in the database (employees, stations, agencies and ranks, etc...) or to saved queries and summaries.

Body

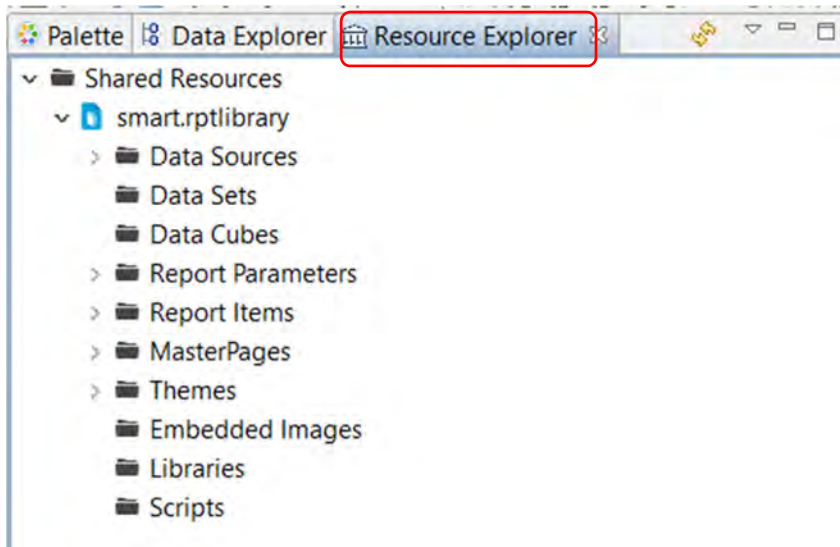
When objects of the report are brought into the Layout Editor these objects will be visible in the Body section. Objects can be selected directly in this folder, moved around, deleted or edited through exposed parameters.

Embedded Images

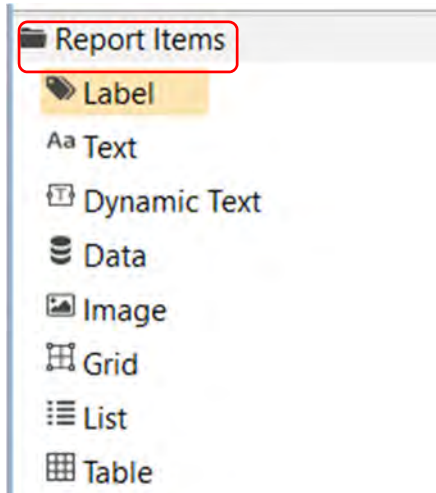
Any images to be included in the report must first be included in this folder.

Resource Explorer

The Resource Explorer is where the Shared Resources of the library are accessed. Here is where you can save common report elements that are used in multiple reports, for example logos.



Report Items



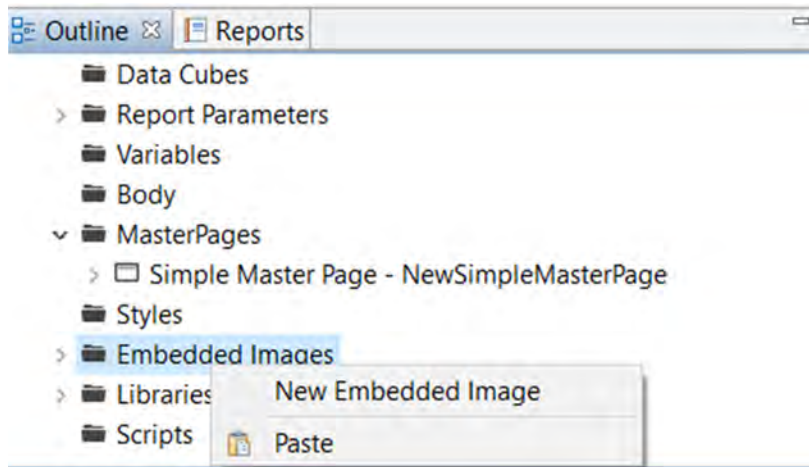
- **Label** - generally single line objects used for report titles or object labels.
- **Text** - open text boxes allowing for static text to be typed into the report.
- **Dynamic Text** - text based off custom or predefined variables or functions.
- **Data** - items in this data section have to be pre-loaded in the Outline or Library before they will appear.
- **Image** - items in the image section have to be pre-loaded in the Outline or Library before they will appear.
- **Grid** - grids allow for layout objects to be organized into rows and columns.
- **List** - insert flexible format presentation of data set rows in header/detail & footers.
- **Table** - insert column presentation of data set rows in header/detail & footers.

- **Chart** - insert charts into the report
- **Cross Tab** - inserts aggregated data in row and column format
- **Smart Map** - inserts maps into the report

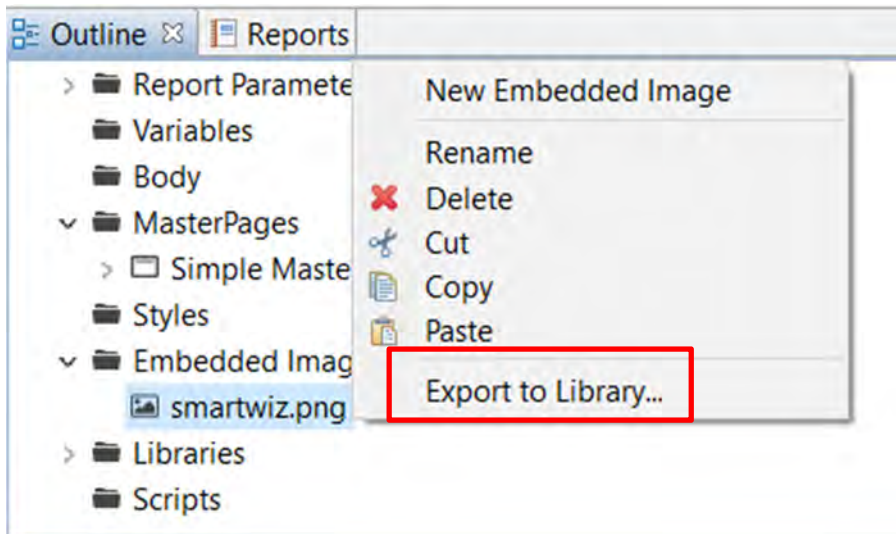
Configuring Data Access

In the first module, you configured the Conservation Area to have a number of predefined elements allowing for the creation of patrols. Before reports can be created using these elements, the data sources need to be added to your report. *The following steps will guide you through setting up access to tables, queries/summaries, and images.*

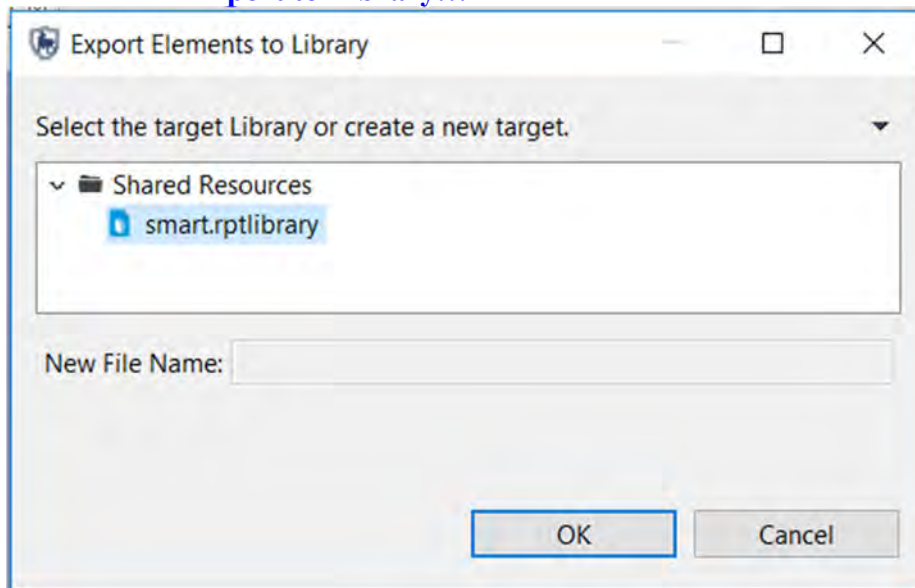
Adding Embedded Images



- Right-click on **Embedded Images** in the Outline
- Select **New Embedded Image**
- Browse to the folder **Module 5 \ Images**
- Select **smartwiz.png**
- Click **Open**



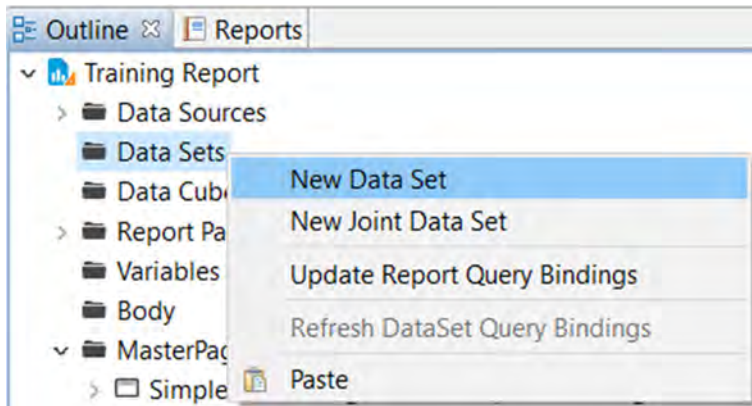
- Expand **Embedded Images** and right-click on **smartwiz.png**
- Select **Export to Library...**



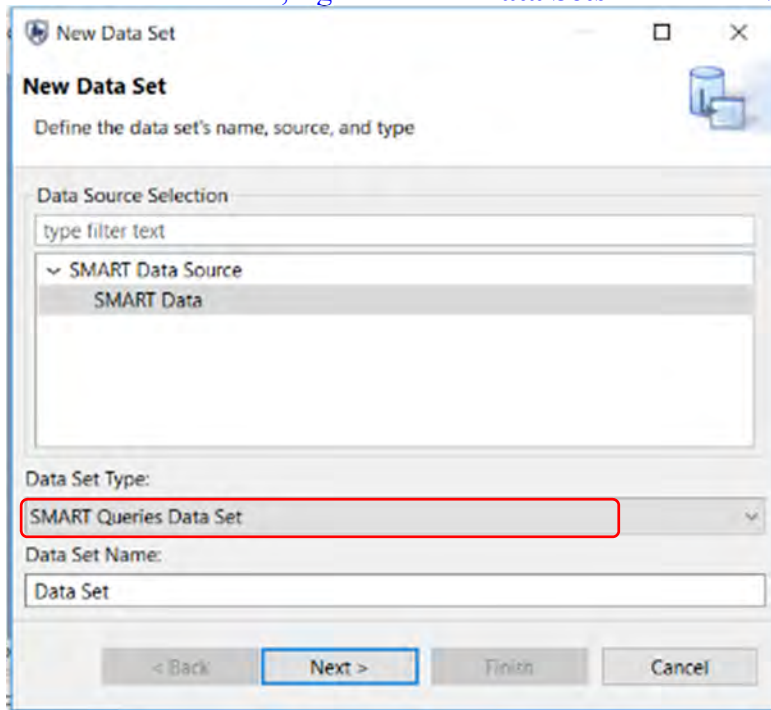
- Select **Shared Resources > smart.rptlibrary**
- Click **OK**

***Note:** This image will now be available for other reports you want to create (you won't have to add it again each time to have it available to add to the report)*

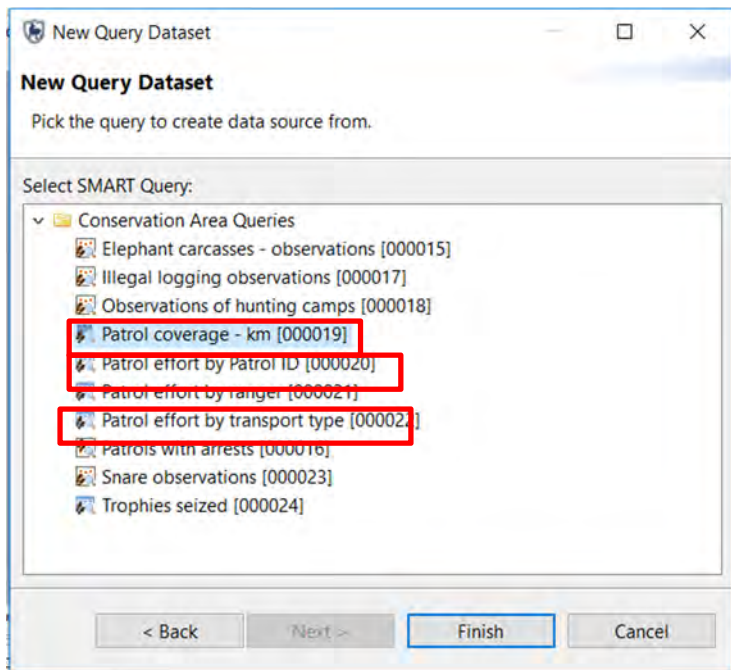
Adding Queries and Summaries



- In the Outline, right-click on **Data Sets** and select **New Data Set**



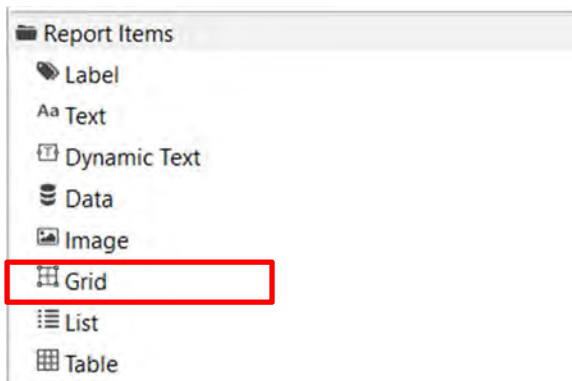
- Under **Data Set Type**, choose **SMART Queries Data Set**
- Click **Next**



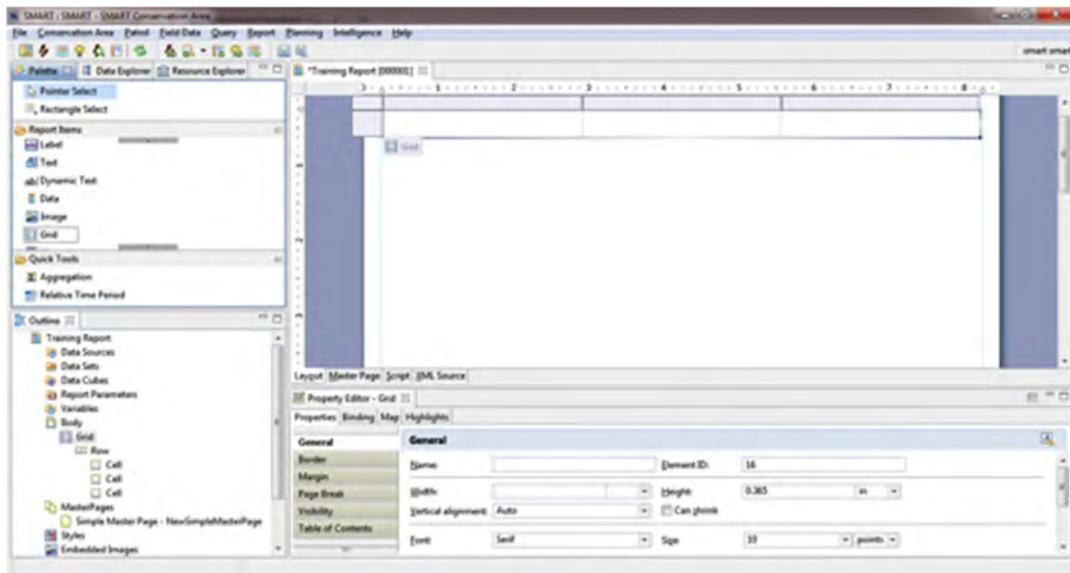
- Select: **Patrol coverage – km**
- Click **Finish** then **OK** in the resulting screen
- Repeat the process to also add:
 - **Patrol effort by transport type**
 - **Patrol effort by Patrol ID**

Create Report Title

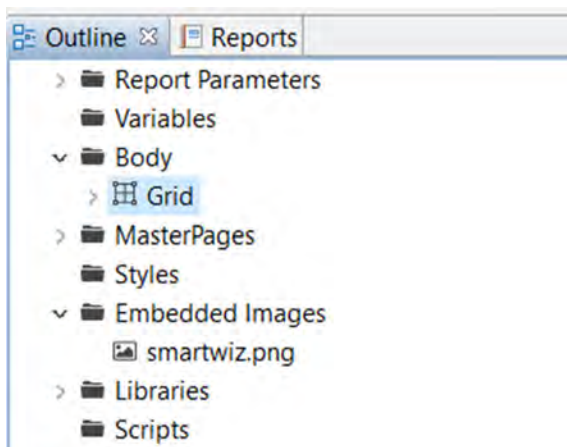
Place a grid (1 row x 3 columns) to organize the layout of the report title on the page:



- With the Layout tab selected, under **Report Items**, double-click **Grid** and create a grid with **Number of columns = 3** and **Number of rows = 1**
- Click OK to create the grid – a grid of 3 columns and 1 row is shown
- Hold the mouse over the bottom of the grid until the cursor changes to the two way arrow, then click and drag to increase the row height of the grid



In the Report Outline, you can see the Grid you have added under **Body**.

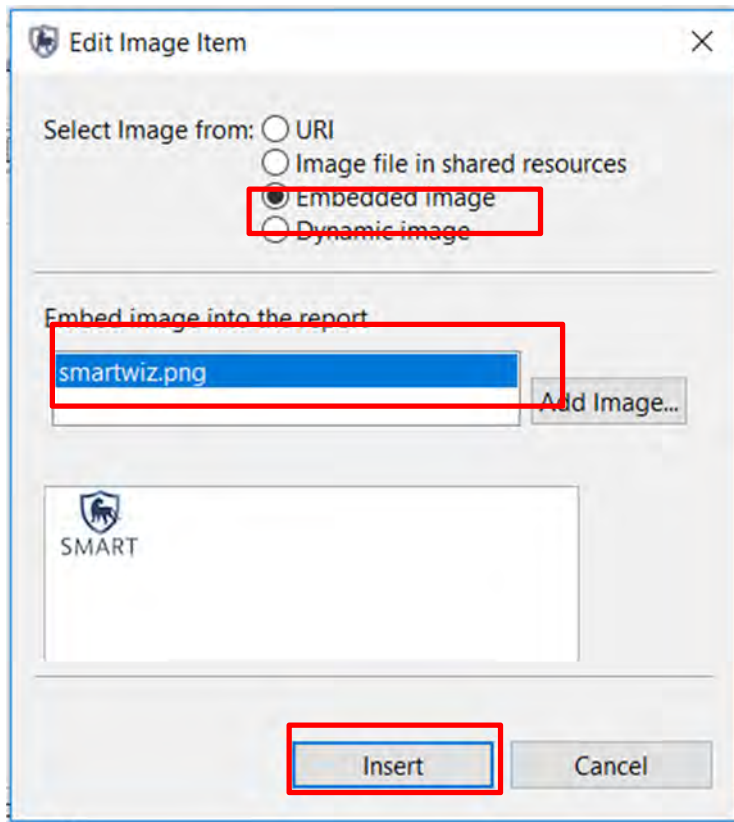


You're now going to add a logo in the left-hand cell of the grid and a title in the middle cell.

Add an Image

You're going to add the embedded image you added earlier into the left-hand grid cell:

- Under **Report Items**, click on **Image** and drag it into the left-hand cell of the grid



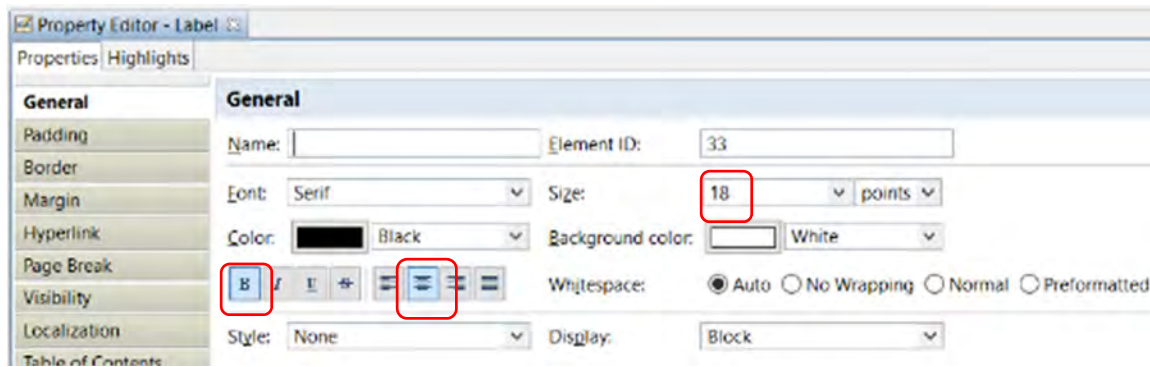
- Select **Embedded Image** and **smartwiz.png**
- Click **Insert**
- Re-size the image as needed so it fits in the cell

Adding Report Title as a Label

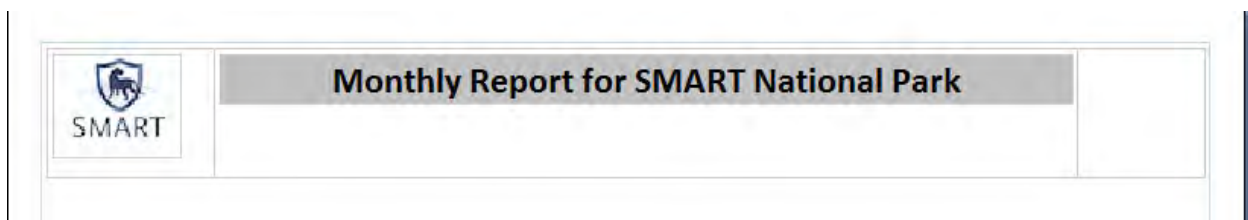
You are now going to add the report title.



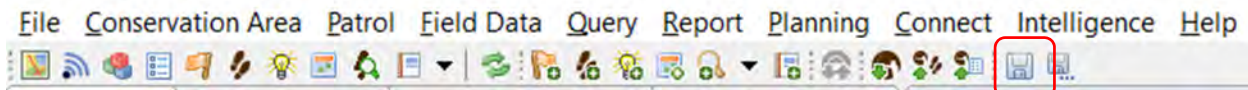
- Under **Report Items**, select **Label** and drag it into the middle cell of the grid
- In the text editor type: **Monthly report for SMART National Park**
- Press return to finish



- In the **Property Editor**, at the bottom of the screen, modify the text size and font style to **Bold 18**, and align the title in the center of the grid cell. You can also change the background color



Note: Now that you have added some elements – you need to save the report

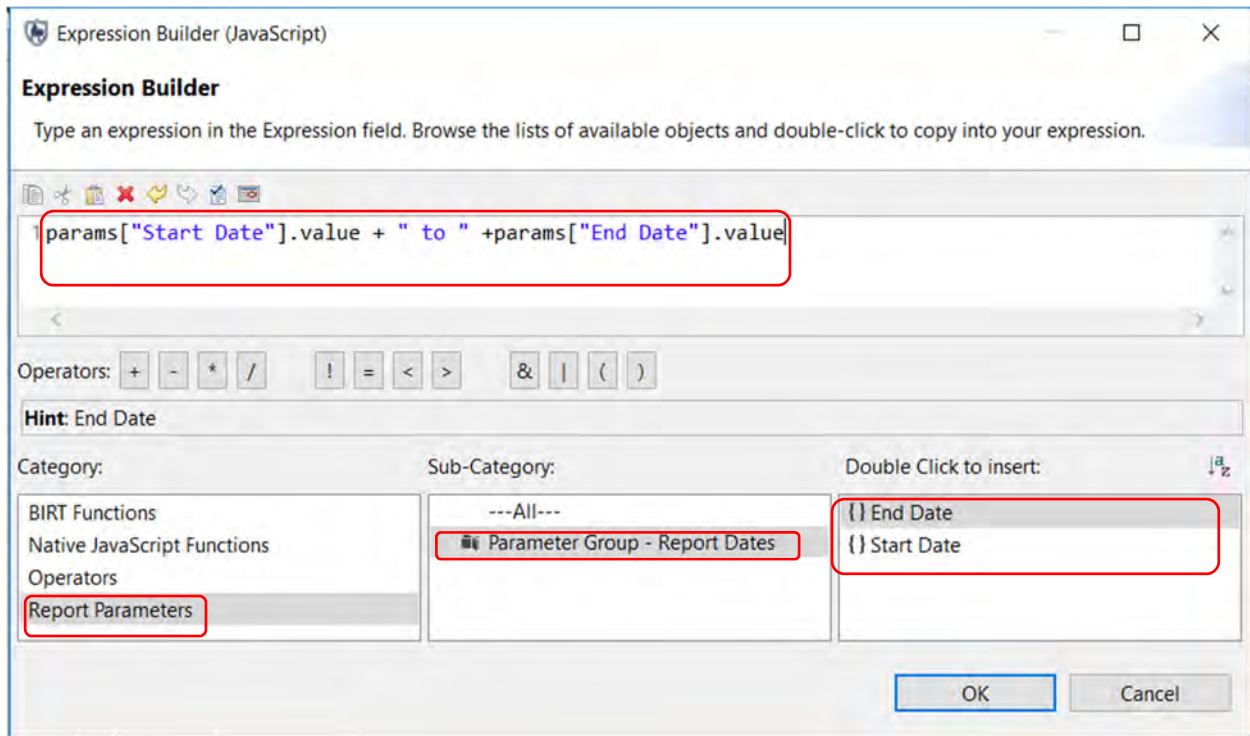


- In the menu bar of icons – click on the **large disk image to Save**

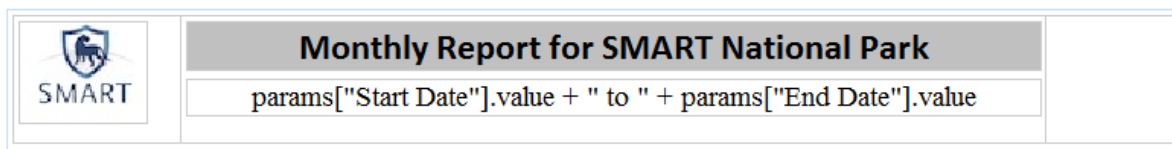
Adding reporting dates as dynamic text

Now you are going to add dynamic text, which will display the **reporting dates** each time the report is run (this will show the time period selected for the report).

- From the Report Items select **Dynamic Text** and drag it under the Report Title



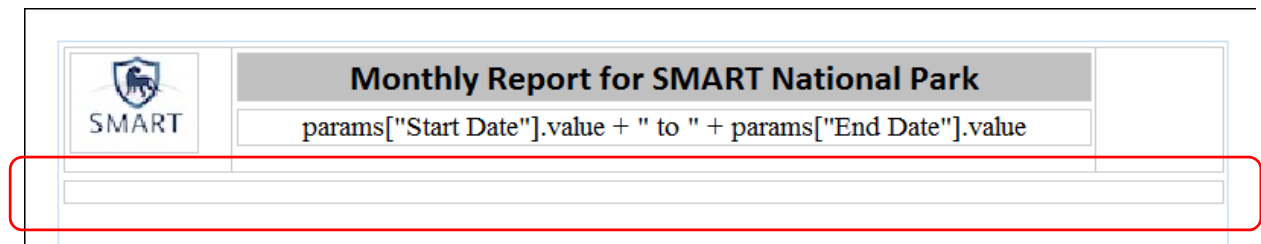
- Select Category of **Report Parameters**
- Select Sub-Category of **Parameter Group – Report Dates**
- Double Click **{ } Start Date** to insert function into the expression builder.
- In the top window, type + “ to ” + after **{ } Start Date**
- Double Click **{ } End Date** to insert function into the expression builder.
- Click **OK**
- In the **Property Editor** (bottom of screen) select alignment of **Center**



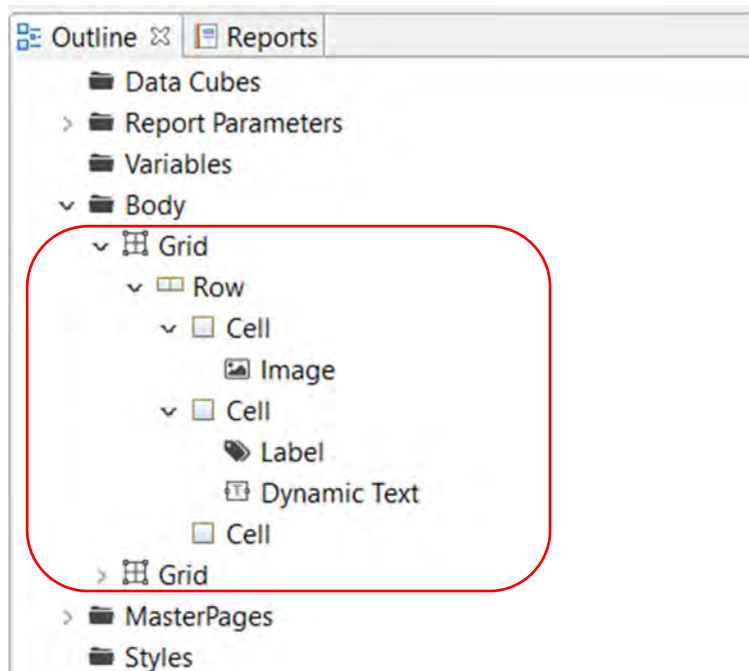
Note: *Never edit the Dynamic text – this is filled in automatically when the report is run*

When adding objects to the Design Window, the application will add the object directly below the last object, leaving little space between objects. If more space is desired between objects, a grid with the dimensions of 1x1 can be added and resized to provide the desired amount of empty space.

- Add a grid with the dimensions of **1 column and 1 row** to the layout
- **Select and resize** the grid to the height you want
- Save the report



In **Report Outline** under **Body**, you can now see the structure of the elements you have added.

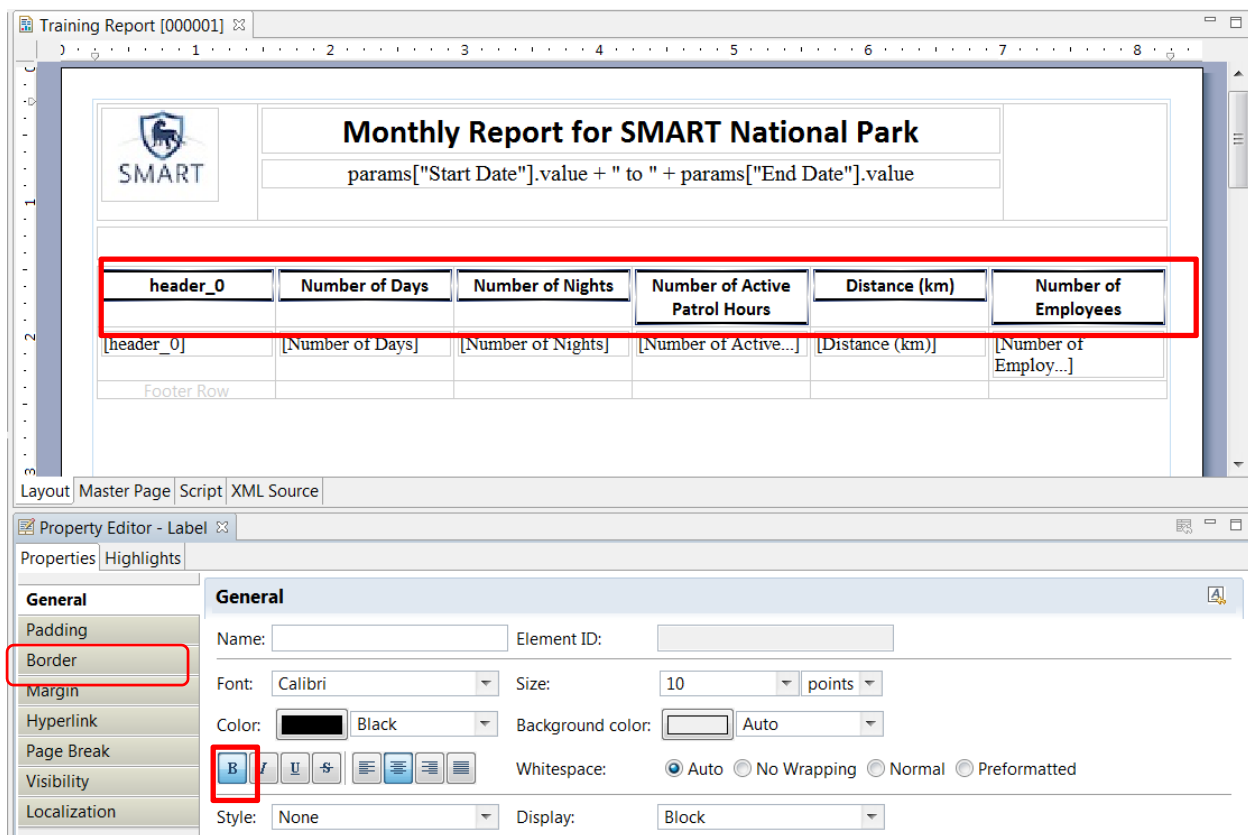


Adding query and summary tables

- In the **Report Outline** under **Datasets** select '**Patrol Effort by Patrol ID**' and drag it into the Report Layout
- In the Data Set Binding window, click **Select All** and **OK**.

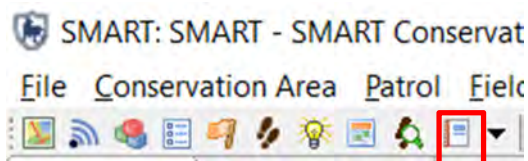
Number of days – text without square brackets means you can edit the text as you wish

[Number of days] – text in square brackets should NOT be edited. This will automatically be populated from the SMART database when the report is run

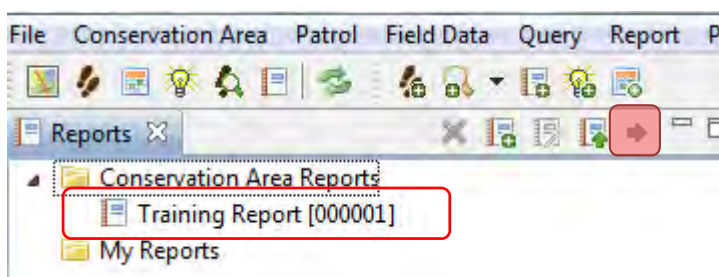


- Using the **Property Editor** in the lower window, change the text, font and other properties of the column headers as you wish
- In the Property Editor select **Border** on the left
- Add borders to the table as you wish
- Save the report!

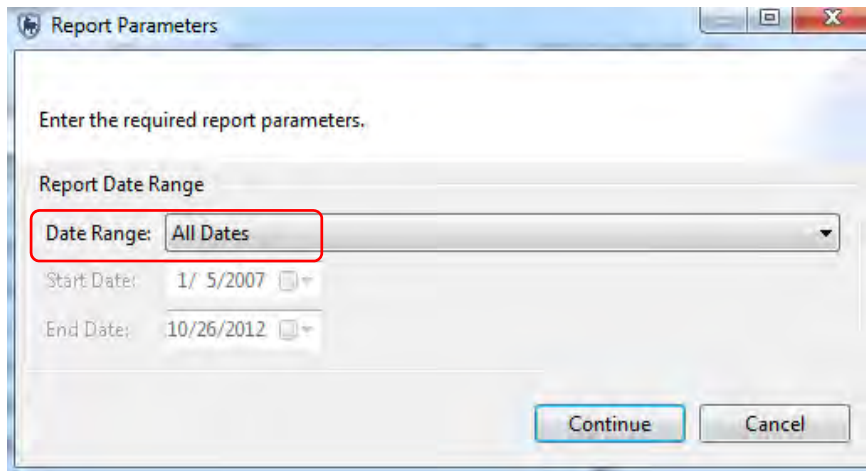
Now that you have added some data, you can run the report to see what it looks like.



- Click on the **Report** icon to return to the main report screen



- Select **Training Report** and click on the icon to Run the Report



Report Parameters

Enter the required report parameters.

Report Date Range

Date Range: All Dates

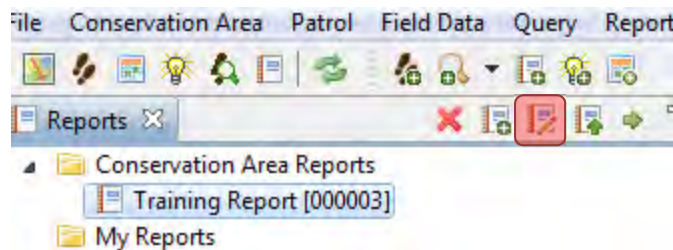
Start Date: 1/ 5/2007

End Date: 10/26/2012

Continue Cancel

- Select **All dates**
- Click **Continue**

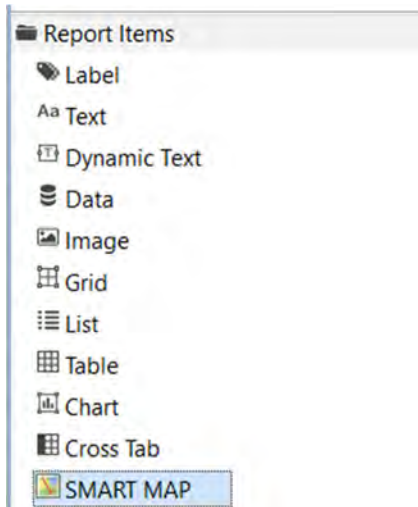
Wait for the report to run – it will show in the window on the right



- To return to edit the report, click on the icon **Edit Report**

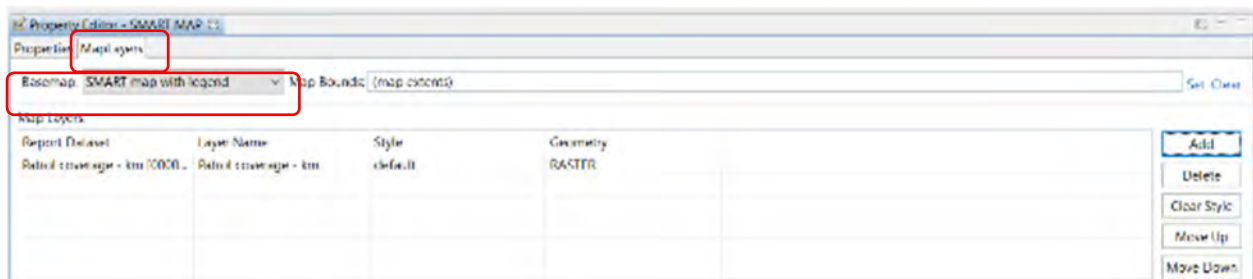
Adding maps to the report

In Module 4: Queries and Summaries, you explored the options for viewing the results of the queries with both a table and map view. In this report, you have added the table results and now you will add mapped results.



- Add a **grid (1x1)** directly under the patrol effort table
- Under **Report Items**, drag **SMART Map** into the layout window
- Re-size the map and make it fill the width of the page

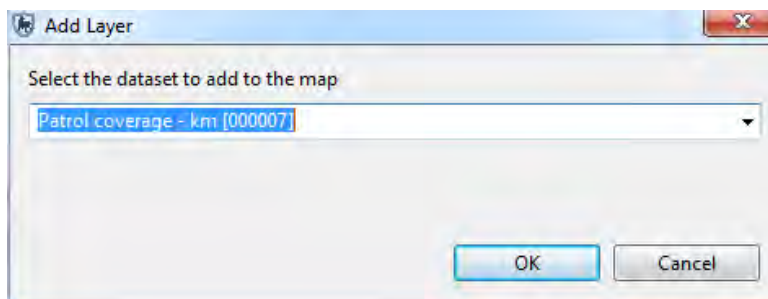
The map object has been added and resized, and now you will need to have the map object reference a Basemap and dataset.



- In the Property Editor window switch tabs from Properties to **Map Layers**
- On the Basemap menu select **SMART Map with legend** from the pull-down list
- Click **Add**

The **Add** Layers button brings in query results over top of the saved Basemaps.

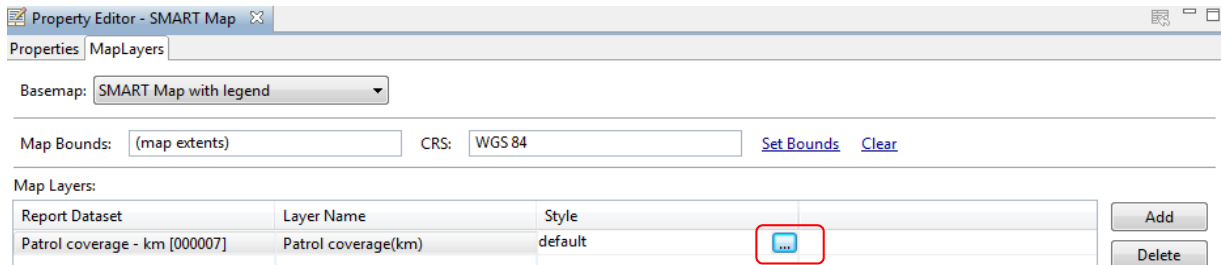
Note: More than one query result can be added to the report's map object.



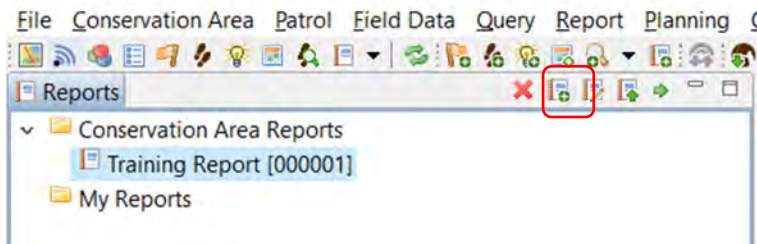
- Select **Patrol coverage - km**

- **OK**

You will now add a style to the map layer.



- In the Style cell click the **icon** on the right to bring up the Style Editor
- Change the style settings following the same process for gridded queries in Module 4
- Save the Report!



- Now return to the Report screen and **run** the report.



Monthly Report for SMART National Park

2012-03-17 to 2017-05-13

header ID	Number of Days	Number of Nights	Number of Active Patrol Hours	Distance (km)	Number of Employees
SMART_000001	2	1	26.053888888888	26.91482825415039	3
SMART_000002	3	2	21.213055555555	13.2237720488910195	2
SMART_000003	3	2	10.020555555555	131.281494140825	3



Changing View Extents for the Map

By default, a newly added map object will display the entire area of the Basemap. At times you might find it useful to change the view extents to only show a specific portion of the Conservation Area.

- Return to **Edit Mode**

Property Editor - SMART MAP

Properties | MapLayers

Basemap: SMART Map with Legend Map Bounds: (map extents) Set Clear

Map Layers:

Report Dataset	Layer Name	Style	Geometry
Patrol coverage - km [00...	Patrol coverage - km		RASTER

Add

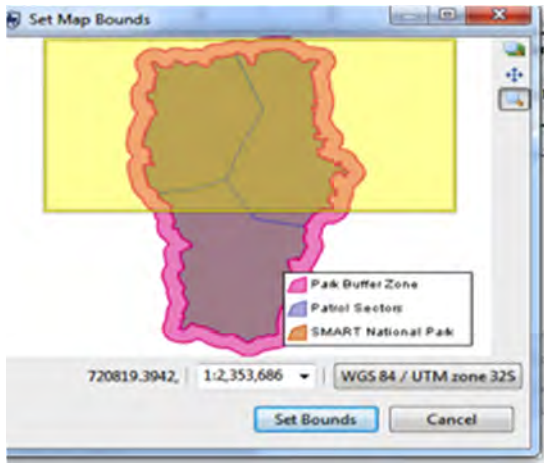
Delete

Clear Style

Move Up

Move Down

- Select the **SMART Map** in the **Report Layout**
- Click on **Map Layers** in the **Property Editor**
- Select **Set Bounds**
- With the zoom tool, define the area you want to appear in the map

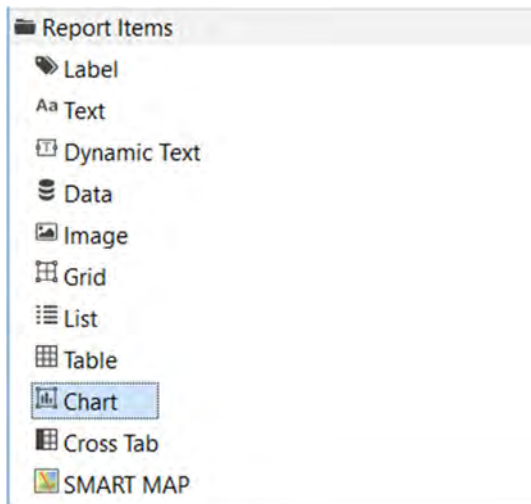


- Click **Set Bounds**
- **Save Report**
- Re-run the report

Adding Charts to the Report

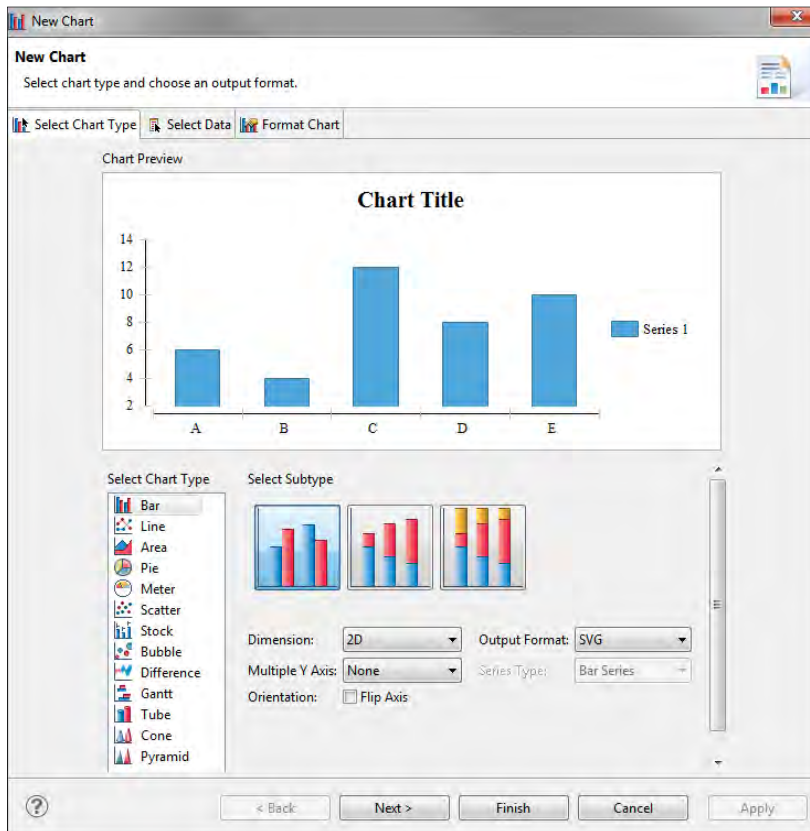
Charts are another option for visualization in SMART reports. Adding charts to SMART follows the same process as other Report objects. Now you're going to add a bar chart that shows the number of patrols by different means of transport:

- Return to **Edit Mode**



- Under **Report Items**, select **Chart** and drag it into the Report Layout window

After placing the chart object in the report designer window SMART will open a dialog wizard to guide users through the steps to set up a chart. The default chart is a Bar chart, which will be the one used in the following example. Other chart types are available and can be selected in the “Select Chart Type” window on the left.



- Keep default settings and click **Next**

The chart structure has been created but no data has been assigned to populate the chart. The next steps are to define the data source for the chart and to assign the X and Y components of the chart.

New Chart

Select the data to display in the chart and bind it to the series.

Chart Preview

Chart Title

Value (Y) Series:*
Series 1
row["Num"]

Optional Y Series Grouping:

Category (X) Series:*
row["header_0"]

Select Data

☐ Inherit Data from Container Inherit Columns only

☒ Use Data from Patrol effort by transport type [00002]

Data Preview

Use the right-click menu to bind the data to chart

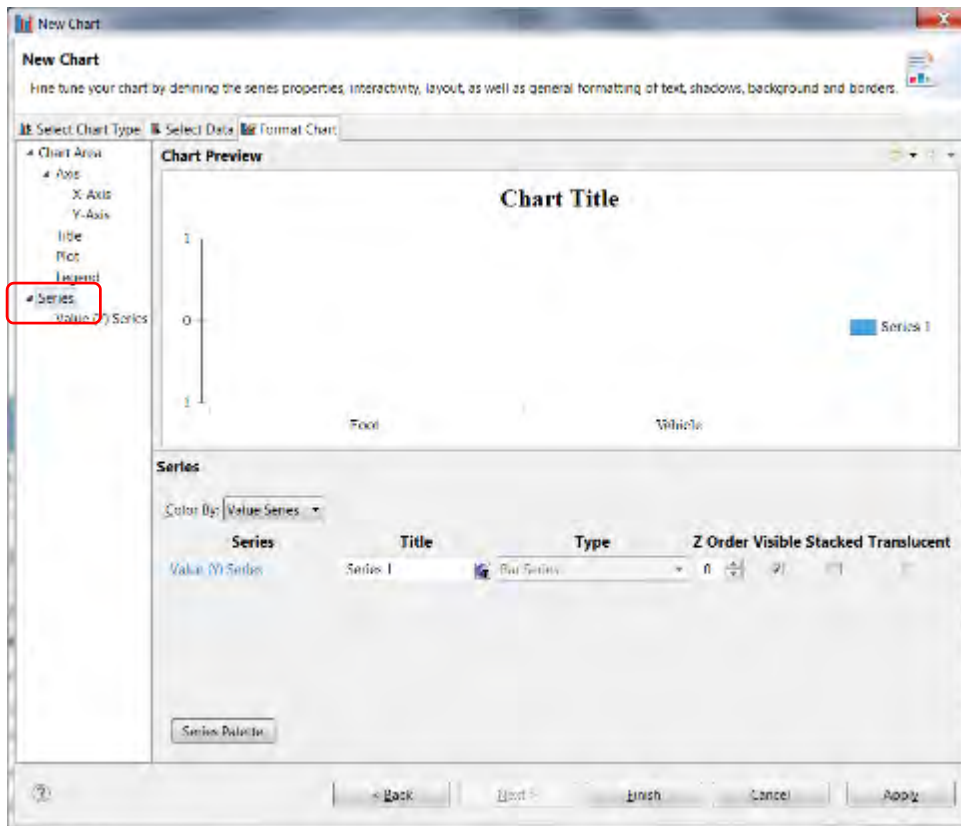
☐ Show data preview

Number of Days (Data Only)
Number of Employees per Number of Patrols
Number of Nights (Data Only)
Number of Patrols
Person - Days (Data Only) per Number of Patrols
header_0

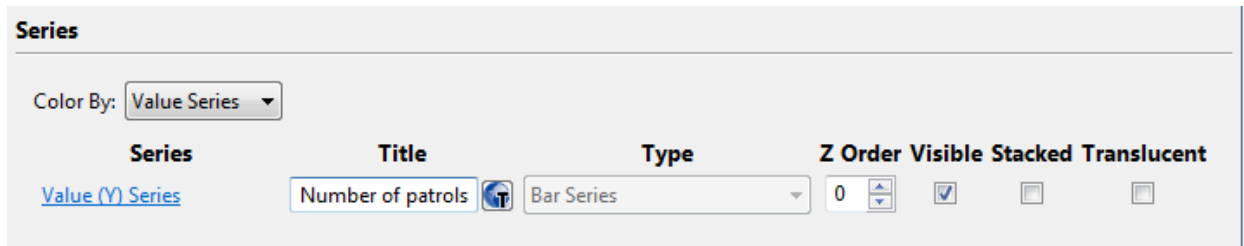
Filters...
Parameters...
Data Binding...

< Back Next > Finish Cancel Apply

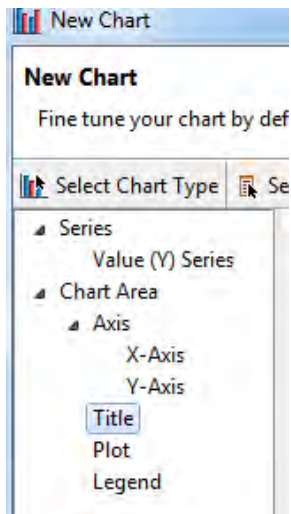
- In the **Select Data** tab
 - Select **Use Data from**
 - Select **Patrol effort by transport type** in the drop down menu of data sets
- In the Data Preview window, select **Number of patrols** and drag it under **Value Y Series**
- Select **Header_0 (Patrol ID)** and drag it under **Category X Series**
 - *Note: The report needs to be saved and run for the charts and graphs to be updated and display the correct data.*
- Click **Next**



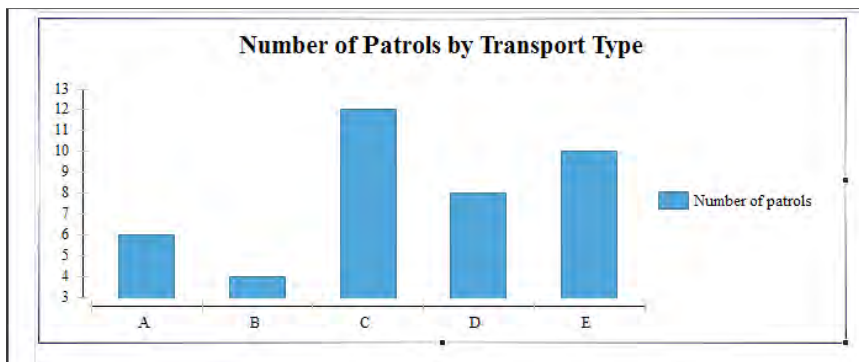
- Click on **Series** in the **Chart Area** menu



- Enter **Number of patrols** for the title of Series Y



- Click on **Title** in the **Chart Area** menu
- Enter **Number of Patrols by Transport Type** as Chart Title
- Click **Apply** then **Finish**



- **Re-size** the chart in the Report Layout
- **Save Report**
- Re-run report



Monthly Report for SMART National Park

2012-03-17 to 2017-05-13

header_0	Number of Days	Number of Nights	Number of Active Patrol Hours	Distance (km)	Number of Employees
SMART_000001	2	1	26.0538888888	26.91482925415039	3
SMART_000002	3	2	21.2130555555	13.223772048950195	2
SMART_000003	3	2	10.0205555555	151.281494140625	3



Number of Patrols by Transport Type

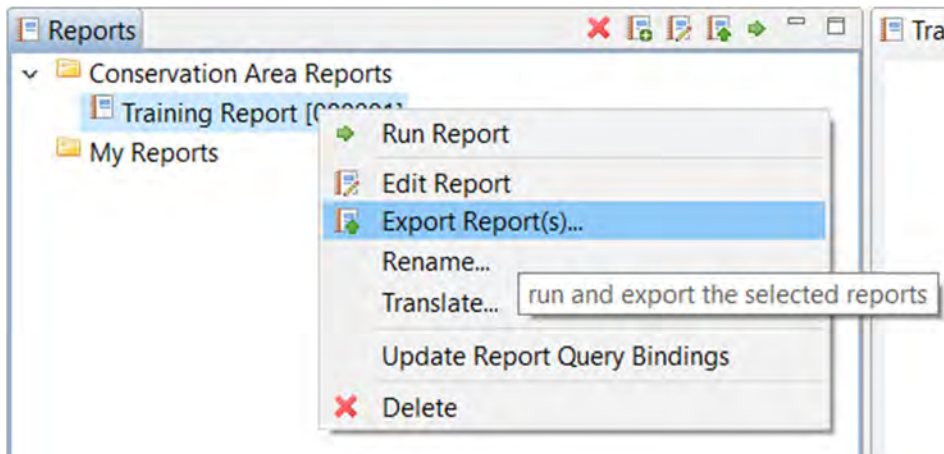


Exporting Reports

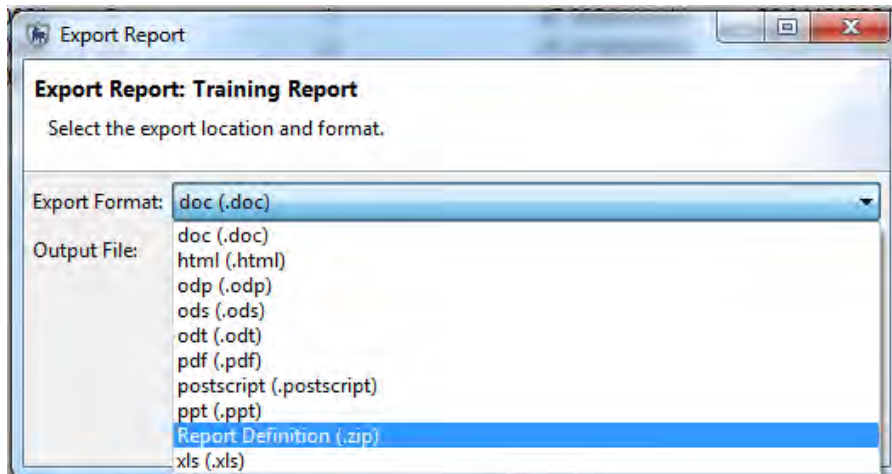
Reports can be exported in a variety of formats (e.g. PDF, Word document), which then can be used for easy distribution or importing into other applications. SMART can also export report definitions that can be imported into another installation of SMART. This feature allows for a template to be built and then distributed to other databases or offices to reduce the effort in creating new reports and ensure standardization.

Report Definition

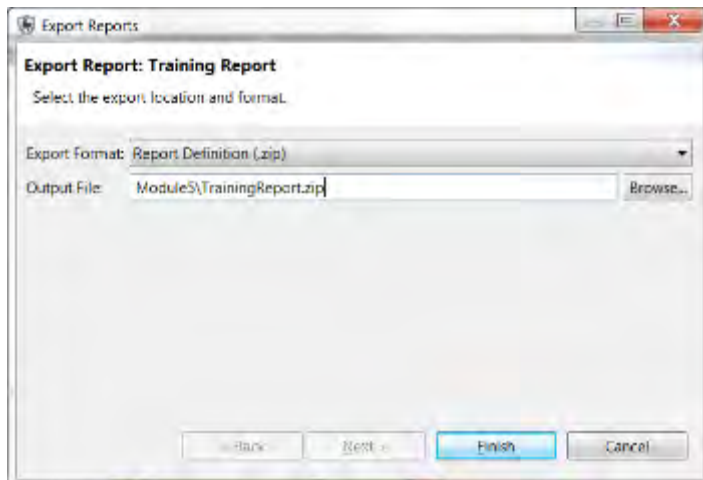
A Report Definition zipfile is a complete package that allows for other installations of SMART to import the report and its dependencies. A report can contain images, queries and other report objects and the report definition file bundles these together to make for easy importing into another system.



- In the Report List, right-click on your report and select the **Export Report(s)...** option



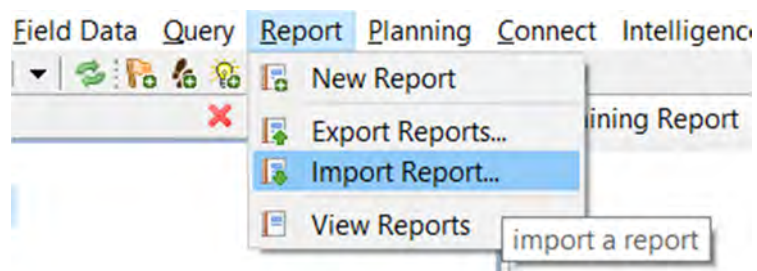
- In the **Export Format** field, select **Report Definition (.zip)**



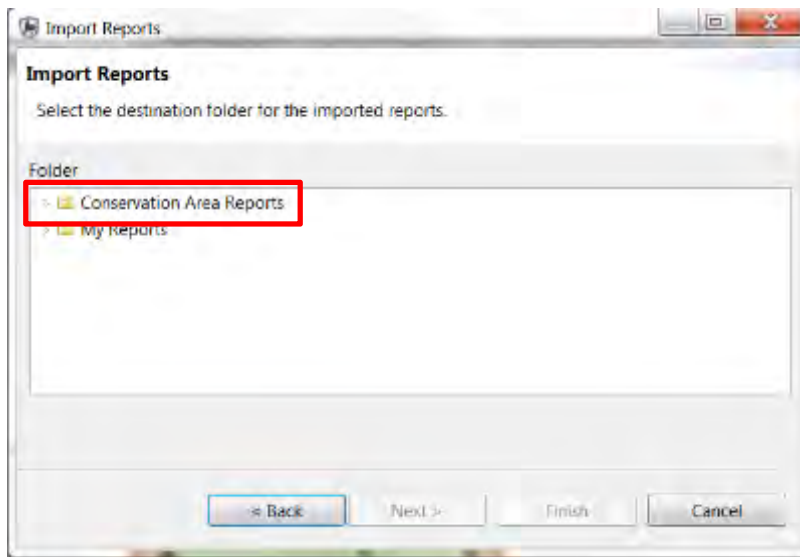
- Browse to the **Module 5** folder
- Save the **Training_Report.zip**
- Click **Finish**

Importing Reports

After the report has finished exporting, you will import the report definition back into your installation of SMART and rename the report. Imported reports will also import any queries, summaries and other report objects if they do not currently exist.

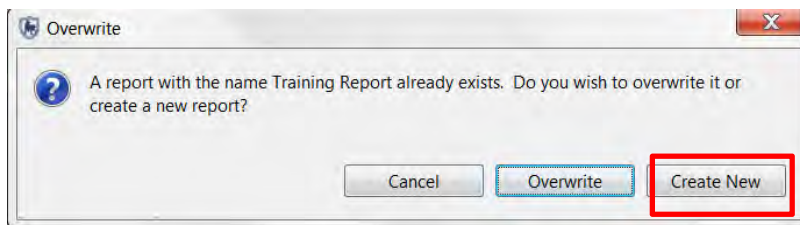


- Under the **Report** menu, select **Import Report**
- Select **Import from File** and click **Next**
- Click **Add** and browse to **Module 5**
- Select **Training_Report.zip** that you just exported
- Click **Open**, then **Next**



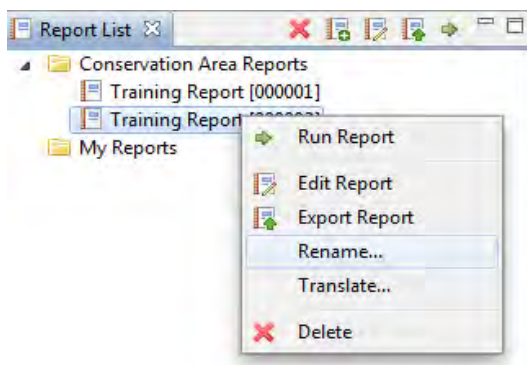
- Select **Conservation Area Reports** as the folder
- Click **Finish**

Note: SMART will warn you that a report of the same name already exists.



- Click **Create New**
- Click **OK**

You'll now see two reports in the Report List. You can change the name of the second report by right-clicking and selecting 'Rename'. You can then modify the report as you wish.



- Right-click on the new report you imported
- Click **Rename...**

- Give the imported report a new name

<End of Module 5 - Reports>

MODULE 6: Planning and Intelligence

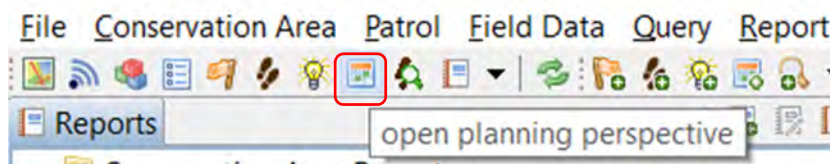
Objective

This module will guide you through the process of developing plans and recording incoming intelligence from patrols or external sources. Plans allow for a set of targets to be assigned to a patrol or series of patrols and keep track of available and active rangers. In the second half of this module you will learn how to track intelligence records from information gathered from previous patrols, general public, informants, or CET.

- Creating parent and child plans
- Developing numeric, administrative and spatial targets
- Linking plans to patrols
- Evaluating plans targets
- Recording intelligence records
- Associating intelligence records with patrols

Developing Plans

A plan allows for specific targets and goals be assigned to a Conservation Area, station, team, or series of patrols. A plan is created through a wizard, similar to that used to create patrols. After a plan has been created, it can be associated with a patrol or series of patrols, which then uses the track information to calculate the success or failure of defined targets.



- From the menu select **Open Planning Perspective**
- Click **Create a New Plan** icon 

At this point the Plan wizard will appear and guide you through the steps to create a plan. Plans can be generated completely from scratch or by using an existing plan as a template. For this example, you will create one from scratch as there are no existing plans to use as a template.

- Select **Create a new plan from scratch**
- Click **Next**
- Select Plan Type: **Patrol Plan**

Plans can be set to Patrol Plan, Conservation Area Plan, Station Plan, or Team Plan. This allows for grouping of plan types.

- Leave default of **Unavailable Rangers** set to "0"

- Click **Next**
- Select **No parent plan**
- Click **Next**
- Leave default **Plan ID**
- Set Plan Name: **Distance Targets**
- Provide a description of the plan
- Click **Next**
- Select **HQ** for the **Station**
- Select **Mobile Team 1** for the **Team**
- Click **Next**
- Leave defaults for Plan Dates
- Click **Next**

Target Types

Numeric - targets include distance covered by the patrols and duration of the patrols

Administrative - user specified criteria for creating targets

Spatial - locations within the Conservation Area that need to be visited by the patrols

Creating Targets

Create New Plan

Plan Targets

Add plan targets by selecting the "Add Target..." button. Use the "Edit Target ..." to edit the selected target and "Delete Target" to remove a target.

Plan Targets:

Target Name	Summary

- Select **Add Target...**

Create Target

Plan Target
Create a new plan target

Target Type: ☒ Numeric ☐ Administrative ☐ Spatial

Numeric Target Type: Distance Travelled

Operation: =

Target Value: 10 km

Target Name: Distance Travelled

Target Description:

Save Close

- Leave the default of Target Type as **Numeric**
- Leave the default Numeric Target Type as **Distance Travelled**
- Set Operator to =
- Set Target Value to **10**
- Leave the default Target Name as **Distance Travelled**
- Click **Save** then **Finish**

Now you will add two new target types to cover the remaining two options of Administrative and Spatial.

***Note:** It is not required to have all target types entered for a plan. Also, multiple entries of a single target type can be entered for a single plan.*

edit - edits the selected plan target

manage - opens dialog to add new targets

refresh - refreshes validation checks on patrols associated with these targets

- Click **manage**
- Click **Add Target...** and choose type the **Administrative Target Type**

- Enter **Make Arrest** for Target Name:
- Enter **Arrest Poachers** for Target Description
- Leave Target has been achieved as unchecked
- Click **Save**

Administrative targets can be defined by the administrators and planners of the Conservation Area patrols. SMART does not automatically evaluate the pass/fail of Administrative targets. When an administrative patrol target has been achieved the check box for "**Target has been achieved**" will need to be manually selected.

- Create a new target of type **Spatial**

Plan Target
Create a new plan target

Target Type: ☐ Numeric ☐ Administrative ☒ Spatial

Target Name: Visit three locations

Distance for Completion (m): 250

Target Description: Go to all three spatial targets

Points:

X:
Y:

827925.7946, 9002565.658 1:1,568,096 WGS 84 / UTM zone 32S

Save Close


- Enter **Visit 3 locations** for Target Name:
- Enter **Go to all three spatial targets** for Target Description

Spatial targets involve entering a location where the patrols are required to visit for the target to be achieved. The Distance for Completion (meters) field determines how close to the specified coordinates the patrol needs to be for the target to be achieved.

***Note:** This parameter is set by default to 250 meters. It can be manually changed on this screen, or the default value for the Conservation Area can be set by the menu selection of “File > System Preferences”. In System preferences the entry for “Smart Plan Configuration” is the location of this default value.*


- Leave the default value of Distance to Completion (meters) set to **250**

SMART has two options for selecting point locations for Plan targets. If the coordinates are known, then the values can be entered in the X and Y fields on the left.

Points: 

X:

Y:

If the coordinates are not known then the SMART patrol planner can enter in the location using the mapping interface using the add Plan Point icon. 

- Select the Add Plan Point Icon
- Add three points in the mapping window
- Click **Save**

Plan Target
Create a new plan target

Target Type: ☐ Numeric ☐ Administrative ☒ Spatial

Target Name:


Distance for Completion (m):

Target Description:

Points:

11.2828, -0.2144

X:
Y:



12.2234, -1.1234 1:1,568,096 WGS 84

- Create another spatial target using the coordinates (**X=11.2828, Y= -0.2144**)
 - Provide your own name and description, leave the default distance to 250 meters
 - Make sure your map projection is set as WGS 84 [EPSG: 4326]
- Click **Save** then **Close**

Linking Patrols to Targets

▼ Targets

Plan Targets

Total Targets Complete: 0/4

Target Name	Summary	Target Status	
Distance Travelled	[Numeric] Distance Travelled > 10.0	Incomplete (0.0)	✗
Made Arrest	[Admin] Made Arrest	Incomplete	✗
Poacher Sightings	[Spatial] Poacher Sightings (3 point(s))	Incomplete	✗
Single Location	[Spatial] Single Location (1 point(s))	Incomplete	✗

[edit](#) [manage](#) [refresh](#)

***Note:** The status indicators on the right are all showing red crosses indicating a failed target. This is because there are no contributing patrols that have achieved these targets.*

Now that a plan has been created and has targets assigned the next step is to associate the plan with a patrol.

- Return to the **patrol perspective**
- Double-Click on patrol (**SMART_000002**) to open it

***Note:** Remember to change the patrol date filters to see all the patrols in this Conservation Area. Once in the patrol perspective, it is necessary to click the 'Filter the patrol displayed in the list' icon in order to see all the patrols. Make sure all dates are selected.*

Patrol Data

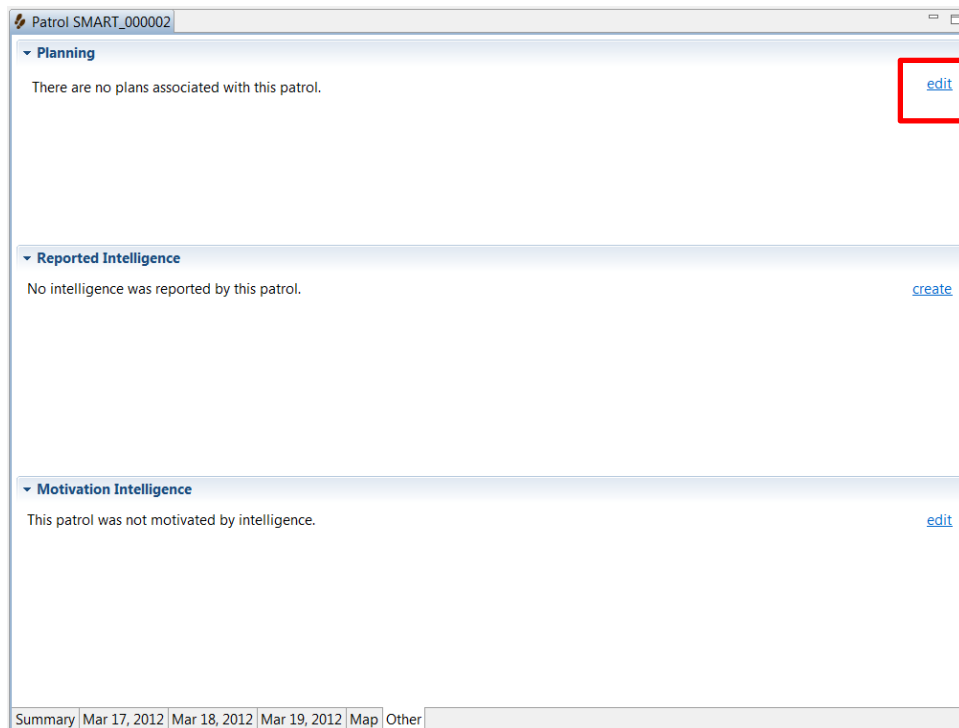
Start Date: March 17, 2012 End Date: March 19, 2012 [edit](#)

Day	Start Time	End Time	Distance	Total Patrol Time	Active Patrol Time
Mar 17, 2012 Sat	8:16:28 AM	3:17:49 PM	4.8168793	7h 1m	7h 1m
Mar 18, 2012 Sun	8:40:45 AM	2:48:45 PM	4.174289	6h 8m	6h 8m
Mar 19, 2012 Mon	9:03:58 AM	5:07:24 PM	4.2326026	8h 3m	8h 3m

[Update Start & End Times](#) Total Distance: 13.223772km Total Patrol Time: 21h 13m Total Active Time: 21h 13m

Summary [Mar 17, 2012](#) [Mar 18, 2012](#) [Mar 19, 2012](#) [Map](#) **Other**

- Click the **Other** tab at the bottom of the Patrol Summary window



Now you will link this patrol with the plan created in the previous steps.

- Click **edit** to the right of the Plan sub-section
- Select the plan that was previously created
- Click **Save** then **Close**

At this point you now have your plan linked to a single patrol.

***Note:** It is possible that multiple patrols can contribute to achieving the plan targets. For this exercise, you will evaluate the success of the patrol by having it linked to a single patrol.*

- Return to the **Planning Perspective**
- Double-Click your plan to open it

Targets			
Plan Targets			
Total Targets Complete: 1/4			
Target Name	Summary	Target Status	
Distance Travelled	[Numeric] Distance Travelled = 10.0	Incomplete (13,223.772048950190)	×
Make Arrest	[Admin] Make Arrest	Incomplete	×
Visit three locations	[Spatial] Visit three locations (3 points)	Incomplete	×
Go to 117808, -02144	[Spatial] Go to 117808, -02144 (1 points)	Complete	✓
			refresh

You should still see the target status indicators set to red.

- Click **refresh** to recalculate the target validations

The distance travelled target and the manually entered location status should change to Completed with the status indicators changing to a green check mark. Depending on the locations of the spatial targets entered using the mapping window that target could have changed to a check mark as well. The [Admin] target will only change when the status for that target is manually changed.

- Click **manage** to open the dialog to add, edit or delete targets
- Select the [Admin] target “**Make Arrest**” and click **Edit Target**

- Click the check box for “**Target has been achieved:**”
- Click **Save** then **Close**
- Repeat the **Save** and **Close** for the following window
- Refresh the status of the patrols

The [Admin] “Made Arrests” target should have changed from a red X to a green check mark. You will now create a new plan that is a child of this plan.

- Click the **Create New Plan** icon
- Choose **Use an existing plan as a template** and click **Next**
- Select the **Distance Targets plan** and select **Next**
- Leave Plan Type as the defaults and select **Next**

- On the Parent plan screen, select **Use the following plan as the parent** and select **Distance Targets**
- Click **Next**

Note: If errors are encountered when entering dates, ensure the dates of the child plan fall within the range of the parent plan.

- Create some new targets and link this plan to the other patrols
- Validate the plan targets to see if any of the targets have been achieved
- To see the child and parent plans together reopen the first plan and click **refresh** (to the right of the child plan window).

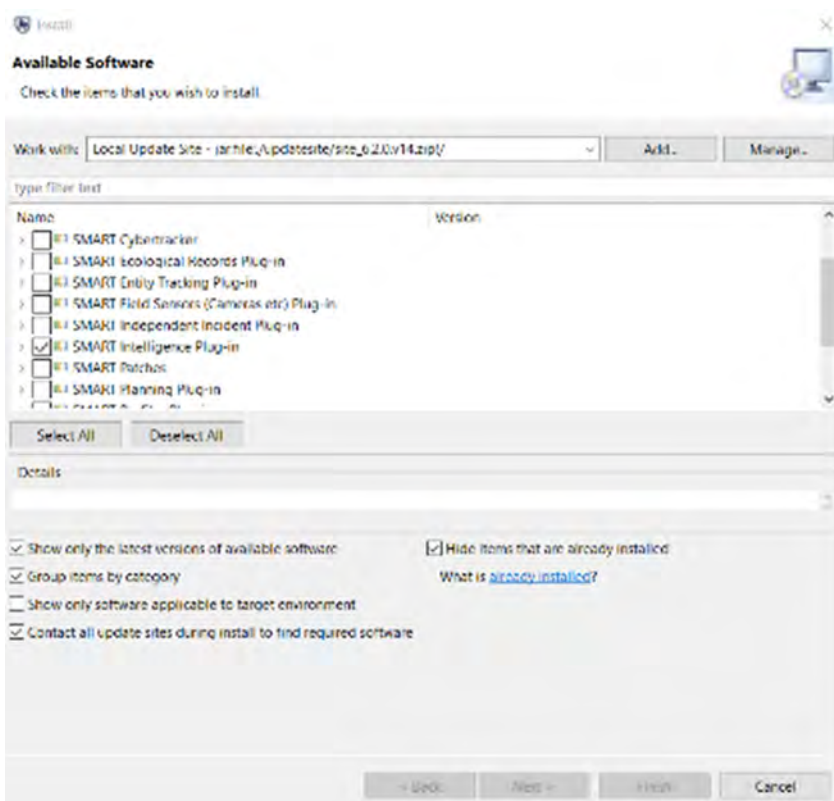
Note: The distance calculations for the master plan take into account the total distance travelled by the child plans.

Creating Intelligence Records

Intelligence records are pieces of information that have been gathered through previous patrols or by external sources. Information from intelligence records can be used by Conservation Area managers to help plan future patrols. Before you can create a new intelligence record, intelligence source types need to be added.

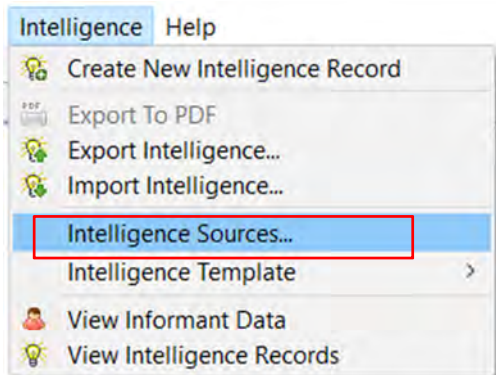
Note: If you haven't already installed the Intelligence plug-in, you will need to install it following the steps below.

- From the menu select **File > Install New Plugins**

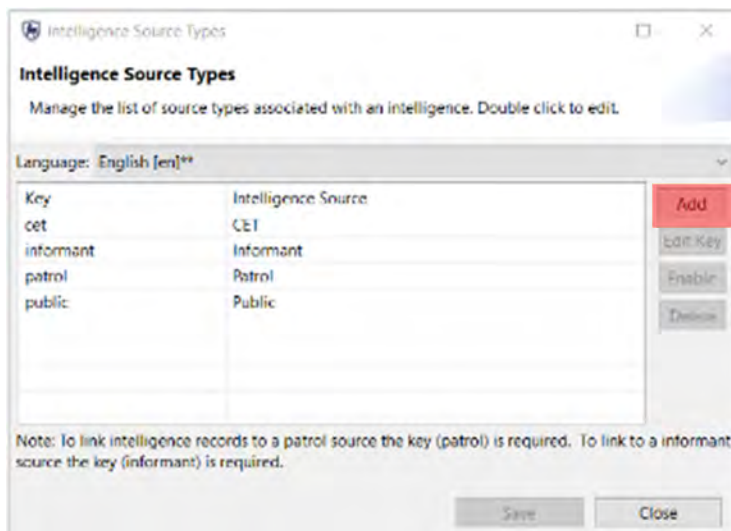


- Select the **Local Update Site**
- Check **SMART Intelligence Plug-in**

- Click **Next**
- Complete the install process for the Plug-in and **restart** SMART

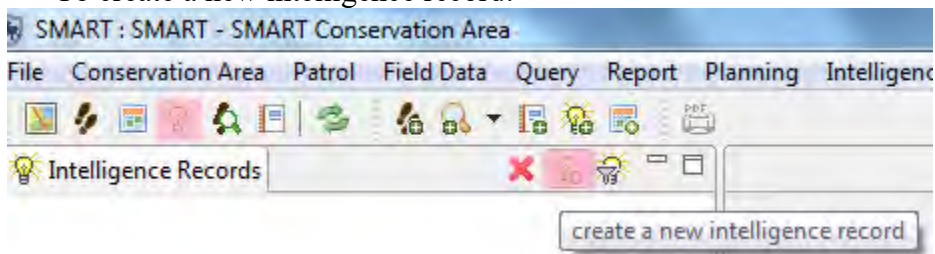


- In the menu, go to **Intelligence > Intelligence Sources**
- You will see intelligence sources that have already been added (**CET, Informant, Patrol and Public**)



- If you want to add additional sources, click **Add**

To create a new intelligence record:



- Use the menu **Intelligence > Create a new intelligence record**
- Keep the default date for **Received Date**:
- Click **Next**

- Set Intelligence Source: **Patrol**
- Select a **Patrol ID** (if no patrols are listed adjust the time filter to show **All Dates**)
- Click **Next**

Options in the Intelligence Source drop-down:

Patrol - gathered directly by a patrol

Public - from an unassociated member of the public

Informant - a person with some ties to the Conservation Area

CET - Community Extension Team (i.e. the separate Forest Department/ NGO team working with local communities)

***Note:** Only the Patrol choice will require a link to an existing patrol.*

Intelligence can be relevant for multiple days

If the incoming intelligence related to activity that spans multiple days, then you should check the box and enter in the appropriate dates. For this exercise, you will accept the default day.

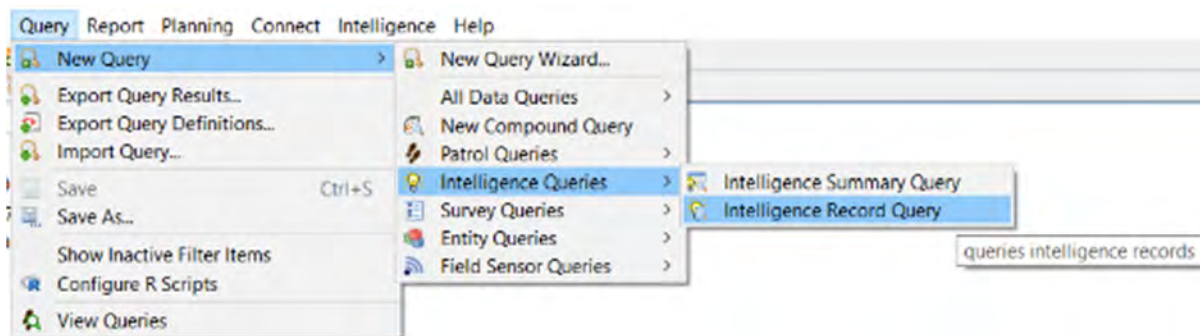
- Accept the **default day**
- Click **Next**
- Enter **Night Poaching** as the Short-Form Name
- Enter the following in the **Description**:
Rangers interviewed captured poacher and was informed of a night poaching raid in the Northwest to happen on the 15th of May.
- Click **Next** to move to the **Intelligence Location** window
- Enter in a **point** (coordinates or with map) for a location in the **Northwest** part of the Conservation Area
- Click **Next**

- Any relevant documents (photos, reports, etc.) can be added in the **Intelligence Attachments** form
- Click **Finish**
- Review the intelligence record, and if necessary make changes using the [edit](#) links next to the entry

Querying Patrols with Plans and Intelligence Records

Plans with links to patrols can be queried with a Patrol Query with Patrol Filters. The patrol filter "**Motivated by Intelligence**" is to query any patrols associated with Intelligence Records. The patrol filter "**Part of Plan**" is to query any patrols that were associated with Plans.

- Return to the Query Perspective to build and run a **Patrol Query** using each of these two filters.

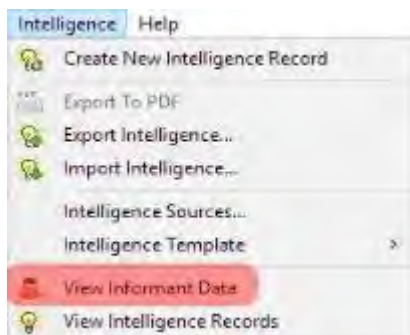


You can also query your Intelligence Records through an Intelligence Record Query or Intelligence Summary Query.

- From the menu, go to **Query > New Query > Intelligence Queries**
- Try creating both an **Intelligence Record Query** and an **Intelligence Summary Query**

Creating and Managing Informant Information

Information about informants can be stored in password-encrypted tables, and these records can be linked to specific intelligence records. Informant queries are also possible in the query perspective.



- Using the menu select **Intelligence > View Informant Data** to open the informant window
- Select **Set Password** to create a login account
- Click the **Add** button to create a new informant record
- Fill out the Informant information, then click **Save**

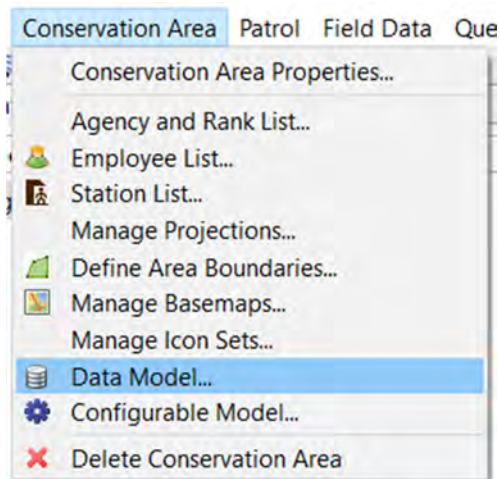
<End of Module 6 – Planning and intelligence>

MODULE 7: Data Model Management

Objective

This Training Module will instruct you on how to manage the Observation Data Model within the SMART system. In this module, you will learn how to create, disable or delete categories and attributes in line with best practices and principles of data modeling.

Detailed Steps



- From the menu go to **Conservation Area > Data Model...**





Data Model Overview

The SMART data model is based on a tree structure, comprised of nodes (Categories) and a series of 'leaves' or attributes that can be associated with any number of the tree's categories.

***Note:** For users familiar with MIST: in SMART, Categories correspond to Observations and Observation types in MIST, and Attributes correspond to Observation Remarks in MIST*

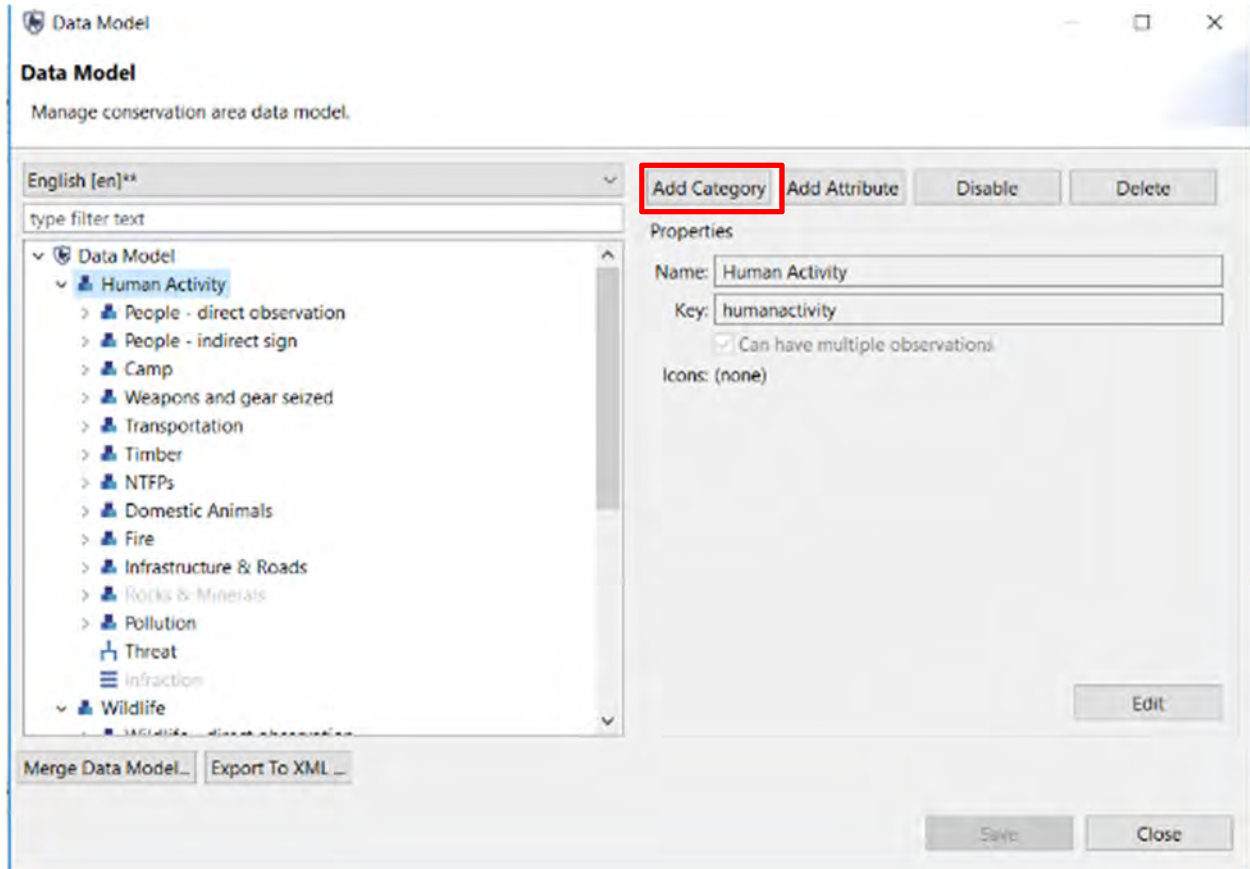
Categories are denoted as: 

Attributes are denoted by values (Numbers, lists, text):

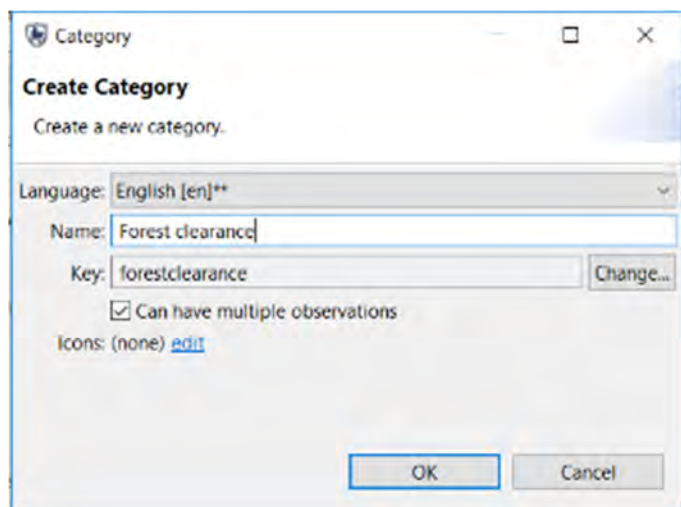
 Type of transportation
 Number of transport items
 Registration number
 Patrol action

Add a Category to the Data Model

At any level in the data model, new categories can be created, edited, disabled or deleted. In the example below, you are going to create a new category 'Forest clearance', under Human Activity.



- In the data model tree, select "**Human Activity**"
- This will enable the action buttons in the top right
- Click on **Add Category**



- Create a new category called '**Forest clearance**'
- Keep checked "**Can have multiple observations**"
- Click **OK**

***Note:** The **Key** is created automatically in SMART. It's not recommended to change this unless you're sure you know what you're doing.*

Attribute Types

SMART supports attribute types of Numeric, Text, List, Tree and Boolean. Usage of the attribute types will depend on the nature of the observation information collected in the field. Examples and recommended usages of attribute types are:

Numeric - widths, lengths, amounts, numbers of animals, people or items

Text - specific names that cannot be preloaded into a list

List - names of items where the list is known and the list is not too long

Tree - a collection of attributes that can be arranged in a hierarchical or logical format such as animal species

Boolean - any situation that can be answered with a Yes or No

Date - used to store the date related to the observation

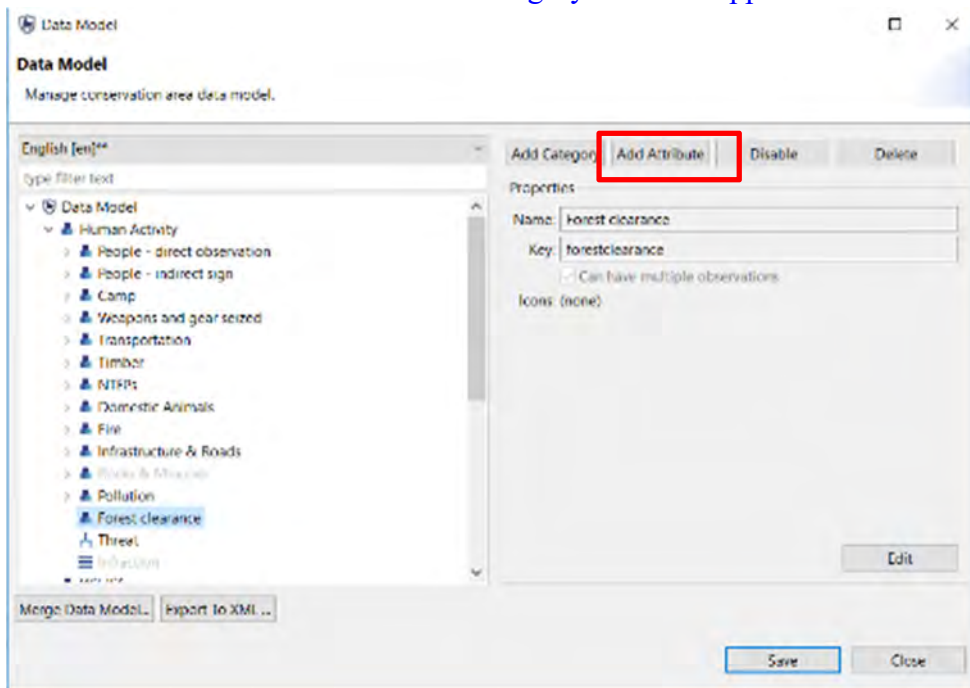
Creating New Attributes

In the category 'forest clearance', you're going to add two attributes:

Area cleared in hectares (numeric attribute)

Species planted (list attribute)

- The new 'Forest clearance' category will now appear under Human Activity

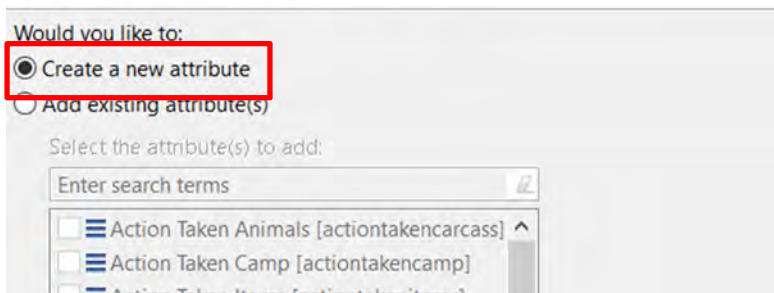


- Select it and then click on **Add Attribute** in the upper right of the window

Add Attribute

Add Attribute

Add a new attribute to category Forest clearance



- Select **Create a new attribute**
- Click **Next**

Create Attribute
Create a new attribute.

Type: **NUMERIC**

Language: English [en]**

Name: **Area_ha**

Key: area_ha [Change...](#)

Required: ☐

Icons: (none) [edit](#)

Aggregations: ☒ average ☒ maximum
☒ minimum ☒ standard deviation (samp.)
☒ sum ☒ variance (samp.)

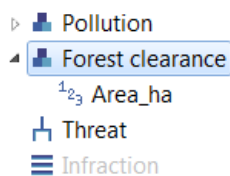
Minimum Value:

Maximum Value:

[Finish](#) [Cancel](#)

- Create a new attribute as follows:
 - Type = "Numeric"
 - Name = "Area_ha"
 - Check all options under « Aggregations »
 - Click **Finish**

The new attribute "Area_ha" will now appear under the category Forest Clearance in the data model tree



- Click **Save** (in the bottom right of the window)
- Select the category 'Forest clearance'
- Click on **Add Attribute**
- Select **Create a new attribute**
- Click **Next**

Create Attribute
Create a new attribute.

Type: LIST

Language: English [en]**

Name: Species Planted

Key: speciesplanted [Change...](#)

Required: ☐

Icons: (none) [edit](#)

Values:

Bananas (bananas)	Add
Manioc (manioc)	Edit
Beans (beans)	Disable
	Delete
	Move Up
	Move Down
	Sort

[Finish](#) [Cancel](#)

- Type = "LIST"
- Name = "Species Planted"
- Add the following values one at a time by clicking the **Add** button
 - Bananas
 - Manioc
 - Beans
- Click **Finish**

Forest clearance

1_2_3 Area_ha

Species planted

Threat

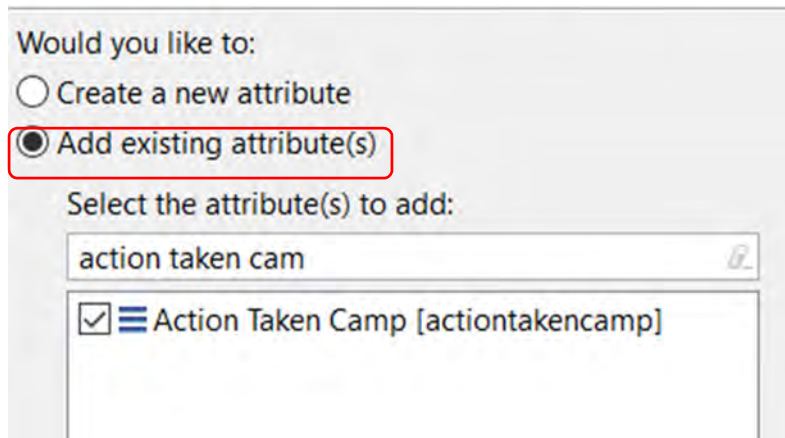
Infraction

Using Existing Attributes

In addition to creating new attributes, you can also re-use existing attributes.

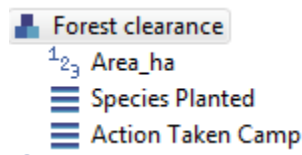
Add Attribute

Add a new attribute to category Forest clearance



- Select the category '**Forest clearance**'
- Select **Add Attribute**
- Select **Add existing attribute(s)**
- In the list of attributes, select **Action Taken Camp**
- Click **Finish**

In the category **Forest Clearance**, you will now see the three new attributes under the category



Disabling and Deleting Categories/Attributes

Categories, attributes, or values within attributes can all be deleted from the data model or disabled.

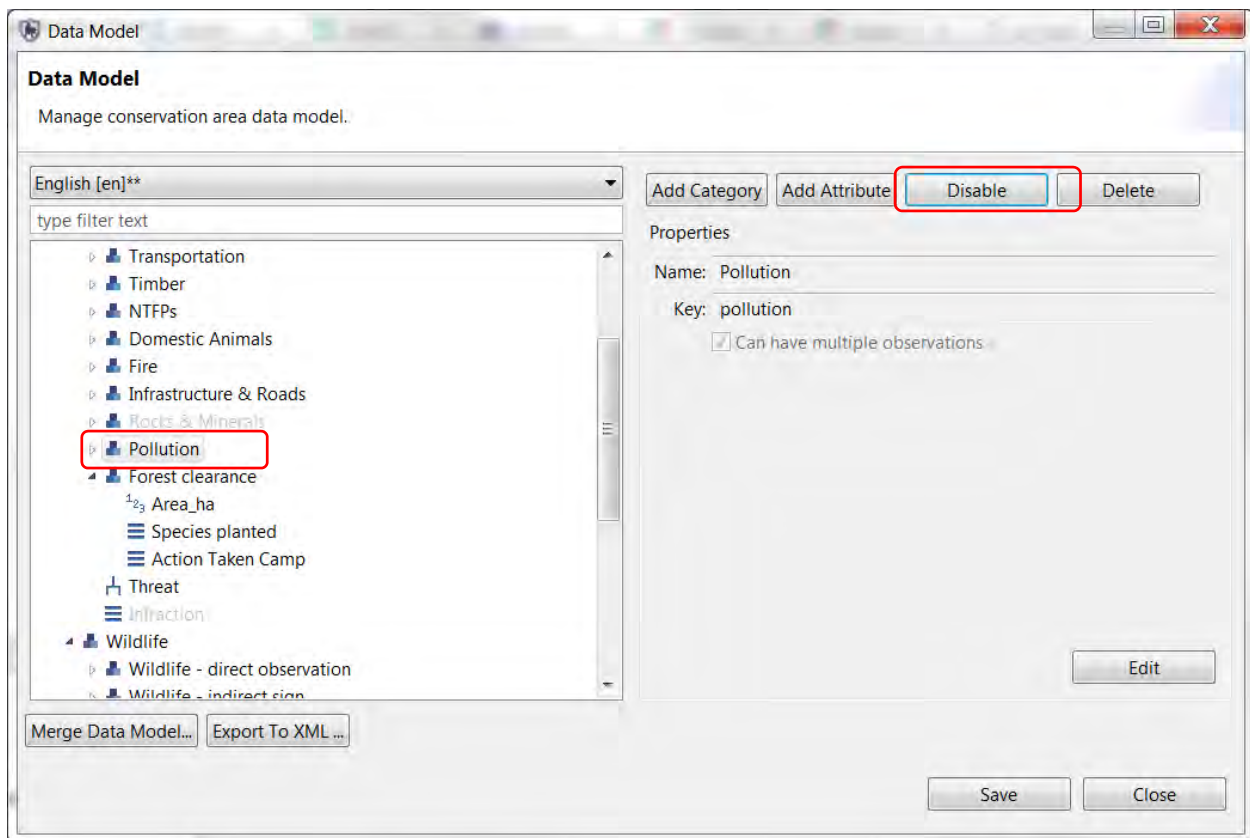
Delete - Completely removes the feature from the data model. This can only be done if there are no dependencies, which can be a child category, attribute, recorded observation or query/summary. If no dependencies exist, the feature can be completely removed from the data model.

Disable - If dependencies exist or the administrator does not wish to fully remove the feature, it can be disabled. Disabling removes the ability to record any observations based on the disabled feature, but does preserve the ability to perform analysis on the feature.

*Note: If you aren't sure whether to disable or delete, you should always just **DISABLE**. You can always re-enable it later on.*








Disabling / Enabling Categories

Disabling / Enabling categories is a much easier process because it does not require that all dependencies be disabled before proceeding with the higher level category. It also allows for reintroduction if the need arises.



- Select the category **Pollution**
- Click on **Disable**

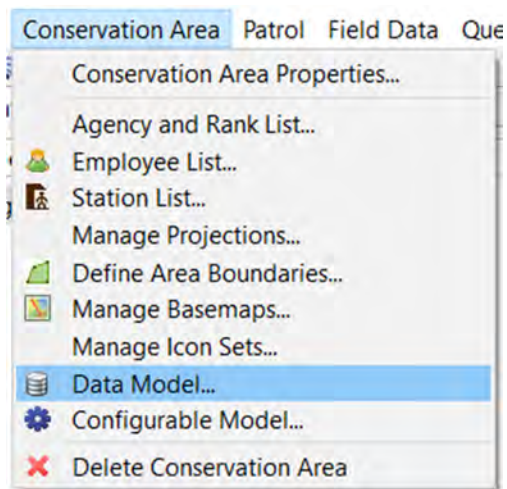
Pollution is now greyed-out in the model. You'll no longer be able to see this as an option during data entry.

- ▷  Domestic Animals
- ▷  Fire
- ▷  Infrastructure & Roads
- ▷  Rocks & Minerals
- ▷  Pollution
- ▷  Forest clearance
- ▷  Threat

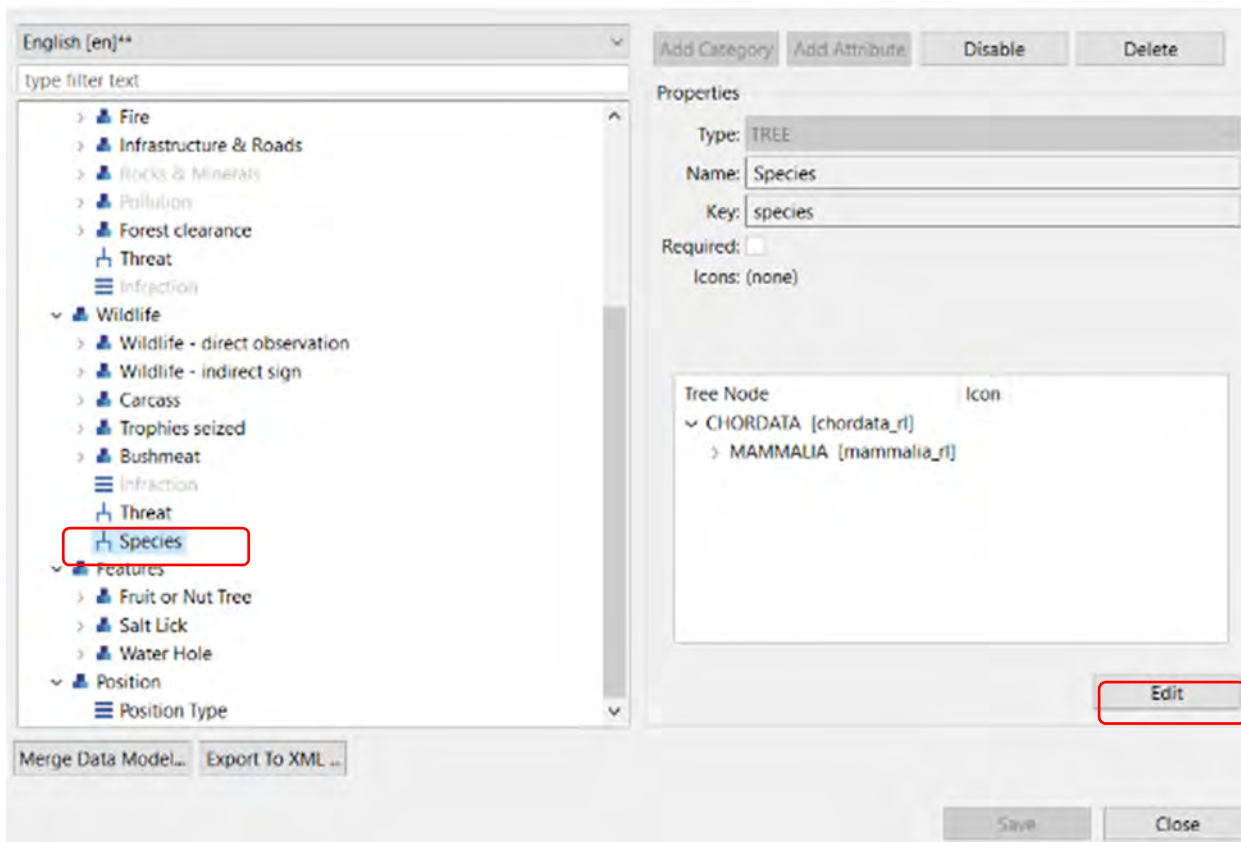
You can re-activate it by clicking on ‘**Enable**’

Add Species to the Species Attribute

If you need to add a specific species to SMART that is not in the default list, follow the steps below.

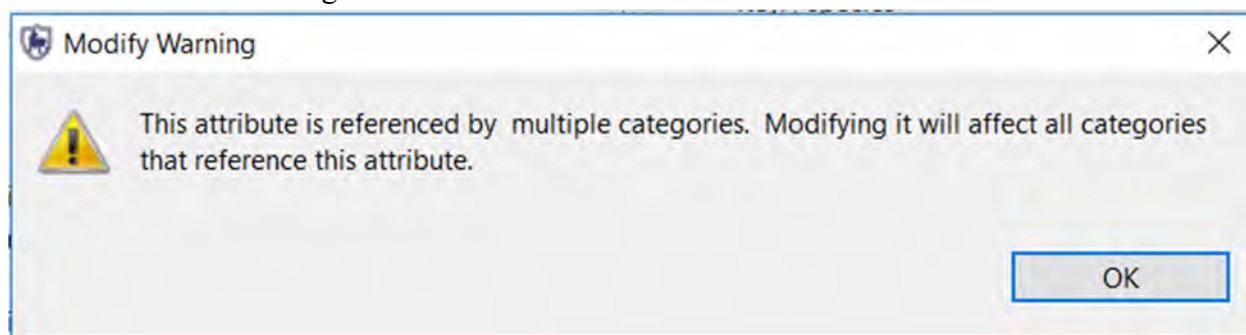


- In the menu, click **Conservation Area > Data Model...**

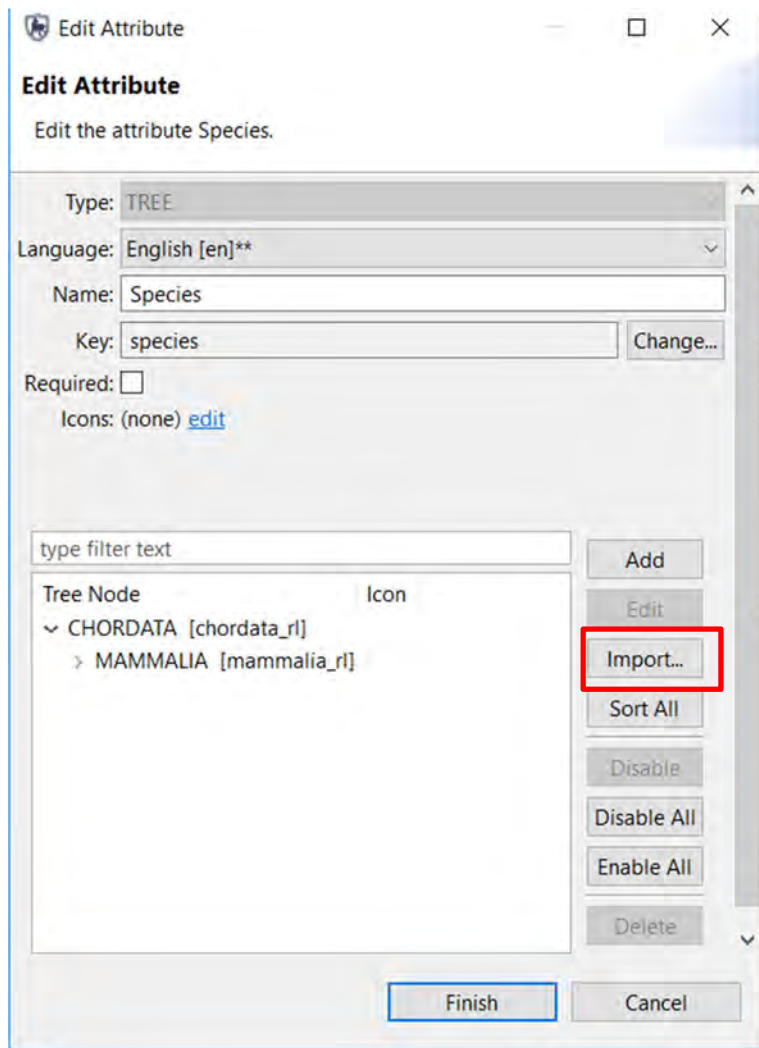


- Click **Wildlife > Species**
- Click **Edit**

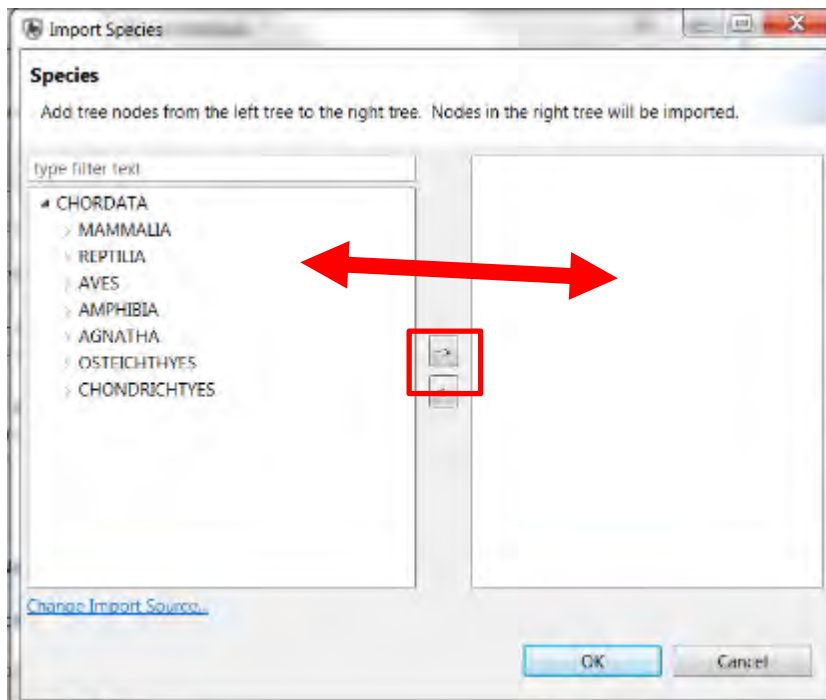
You will see this warning:



- Click **OK**



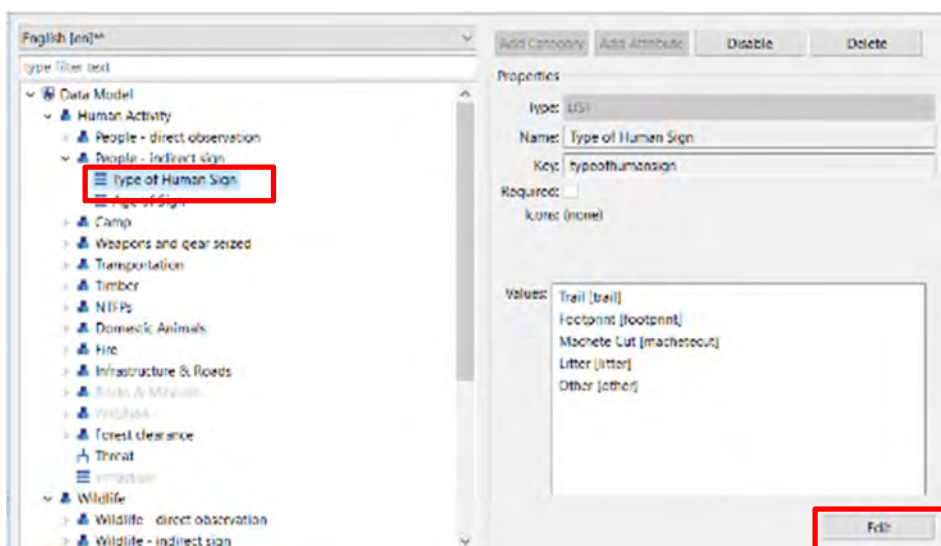
- Click **Import**



- From the list of species on the left, select the species you want to add by expanding the lists. Then click on the right arrow to add them to your data model
- Click **Ok** then **Finish**

Modifying Existing Attributes

You can modify existing attributes by adding (or disabling) values (for example if the current list of values is not relevant for your site). You're going to modify the list of attributes under the category Human Activity – People - Indirect sign.

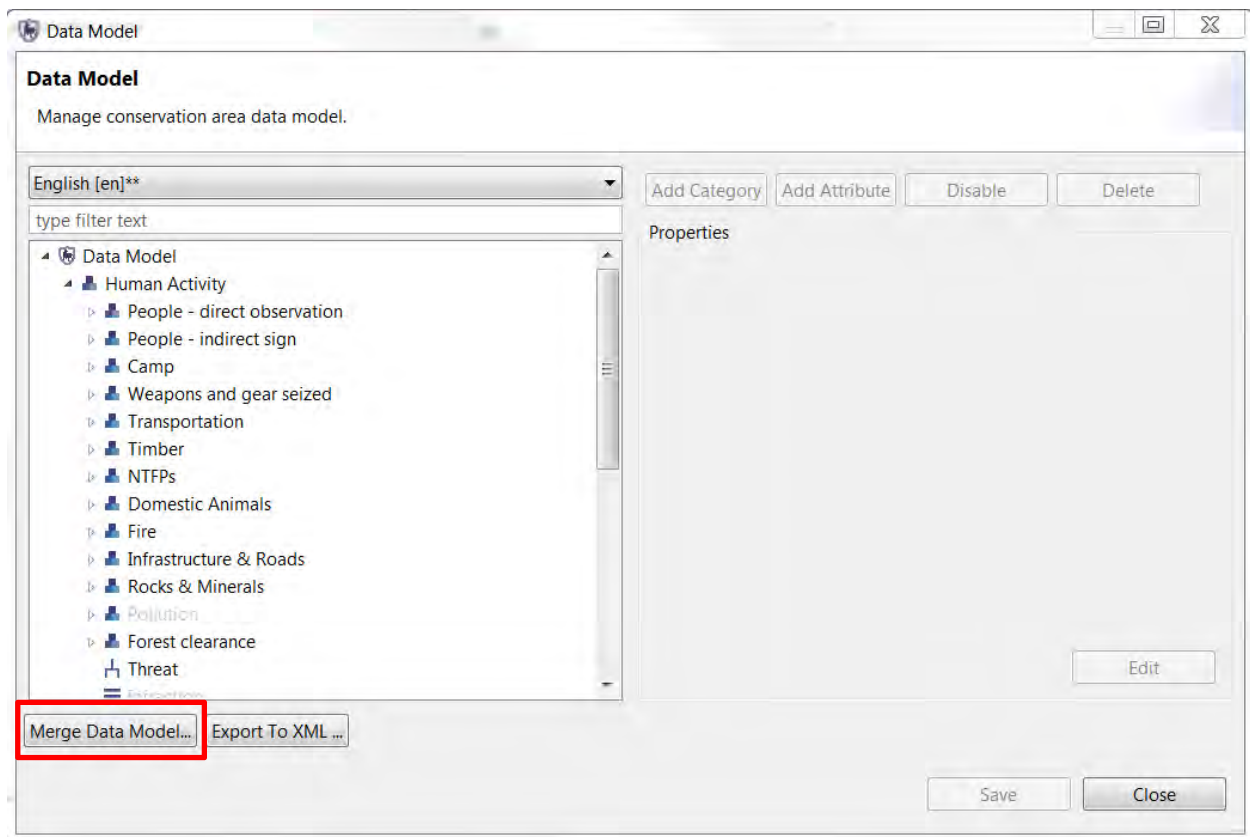


- Select the category: **Human Activity > People – indirect sign**
- Select the attribute – **Type of human sign**
- Click on **Edit in the right-hand lower corner of the screen**
- Click **Add**
- Enter ‘ **Charcoal furnace**’
- Click **Save**
- Click **Finish**
- **Save the data model** by clicking on **Save**

***Note:** When you have modified the data model you can then share it with other conservation areas in order to standardize the list of observations. Click on ‘Export to xml’ and save the file. With SMART 4.1, the application will support advanced central management of data models (see Module 13 - Connect).*

Optional Exercise

Replicating data model changes from one SMART instance to another has been made more efficient with the "Merge Data Model" (see image below). This function allows for an external Data Model saved as in XML to be merged with the data model used by the active Conservation Area. If an Administrator makes a data model change they can then export the XML and send it to other SMART users who will then use the "Merge Data Model" function to integrate the changes into their application.



For this optional exercise, you will:

- Make some minor changes to your active data model (changes can be made to categories or attributes).
- Export those changes to XML
- Revert the changes in your active data model
- Use the Merge Data Model to reinstall the changes that are saved in the exported XML

<End of Module 7 – Data Model Management>

MODULE 8: Administrative Tasks

Objective

This Training Module will introduce you to a number of administrative functions to ensure a productive working environment in SMART. In this module, you will look at the export/importing capabilities, backing up and restoring of a conservation area, and other best practices that will ensure a minimal amount of downtime if disaster strikes.

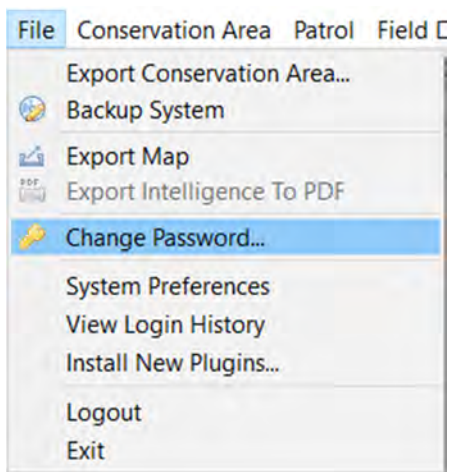
- Changing your username and password
- Importing and exporting patrols
- Exporting and importing intelligence records
- Exporting and importing a Conservation Area
- System backup
- Configuring automatic backups
- Backing up and restoring the database

Detailed Steps

Previous modules that you have worked on have focused on one particular portion or perspective within the SMART application. This module will explore many perspectives but with a focus on creating backups and other safeguards to protect your Conservation Area(s).

Changing Username and Password

The following steps are to change the password for the account that is logged into and active.



- From the menu select **File > Change Password...**

Change username password.

Username and Password

To change your password enter your current password and your new password.

Username: smart Change...

Current Password: ●●●●●

New Password: ●●●●●●●

Re-type New Password: ●●●●●●●

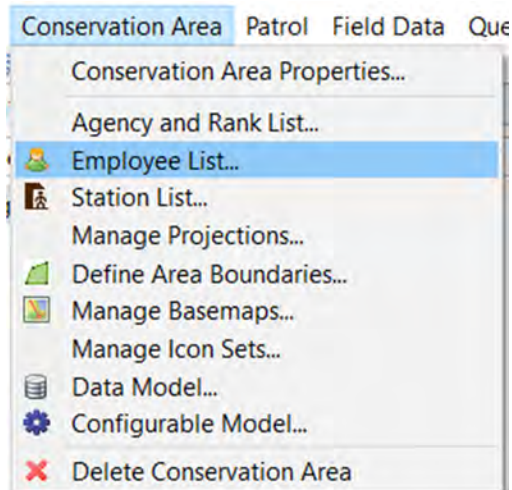
Save Close

- Click **Change...**
- Change your user name to **smarter**
- Click **OK**
- In the Password fields, enter:
 - Current Password = **smart**
 - New Password = **smarter**
 - Re-type New Password = **smarter**
- Click **Save**
- Repeat the process and change it back to **smart**

Changing Username and Password of Other Accounts

If a non-administrator account has forgotten the username or password an Administrator account can log into SMART and change the account settings for that employee.

***Note:** You must always have a least one Administrator for a Conservation Area. If you delete the main administrator but there is not another administrator in the system, you will be unable to open the database.*



- From the menu select **Conservation Area > Employee List**
- Select one of the employees
- Click **Edit**

Update Employee: 198500022

ID: 198500022

Given Name(s): Sally

Family Name(s): User

Conservation Area Start: Wednesday, May 10, 2017

☐ Inactive

Employment End: Sunday, May 14, 2017

Birth Date: Tuesday, January 01, 1985

Gender: ☐ Male ☒ Female

Agency: National Park Department

Rank: Ranger

SMART User

☒ SMART User

SMART User Level: DATAENTRY

SMART Username: dataentry

SMART Password:

Re-Type Password:

Save Cancel

- Check **SMART User**
- Under SMART User level: select **DATAENTRY** (see explanation for **SMART User Levels** below)
- Enter the SMART User name : **dataentry**

- SMART password : **dataentry**
- Re-Type that password
- Click **Save**

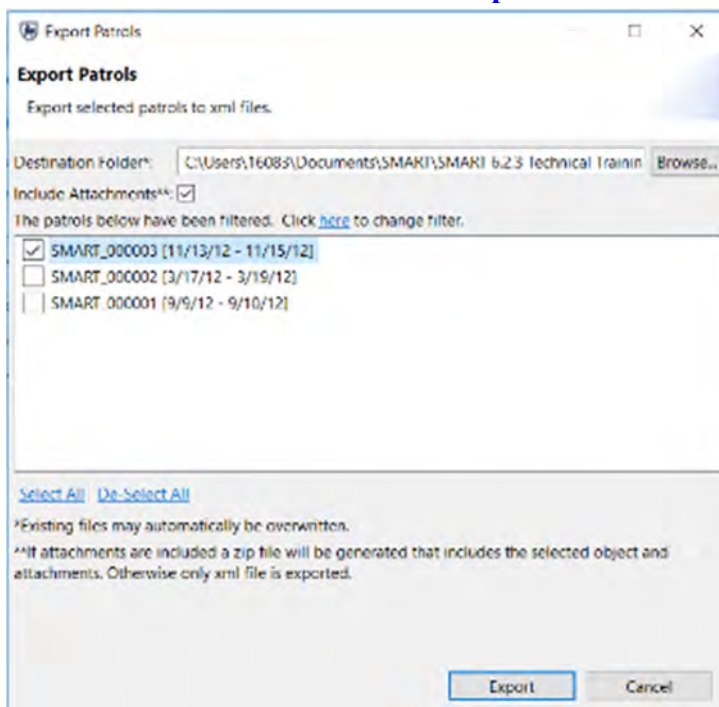
***Note:** The Update Employee window can be used to update all aspects of a particular employee including Agency, Rank, Smart User Level.*

Exporting and Importing Patrols

SMART's ability to Export and Import patrols allows for multiple data entry computers and collating into a master system. This can also be achieved with SMART Connect (see Module 13).

***Note:** For users familiar with MIST, Import/Export patrols in SMART corresponds to Data Replication in MIST*

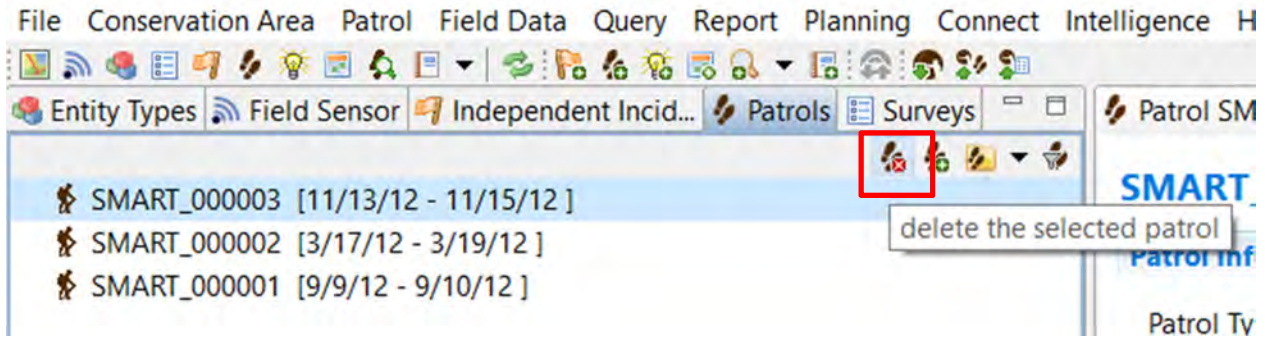
- Change to the **Patrol Perspective**
- From the Patrol List View double-click the Patrol **SMART_000003** (select **all-dates** in the filter if you can't see the patrol), you need to open the patrol before you can export it.
- On the **Patrol Menu** select **Export Patrols**



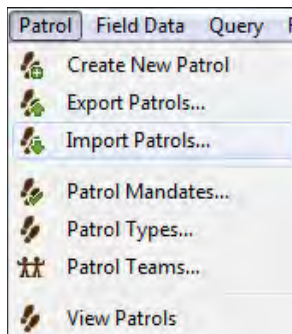
- Browse to **Module 8** (either on your USB key or in the files you downloaded from the website) and click **OK**
- Select **SMART_000003**
- Leave as default the box for '**Include Attachments**'

- Click **Export**
- **OK**
- Check in Windows Explorer that the file was correctly exported to the Module 8 folder.

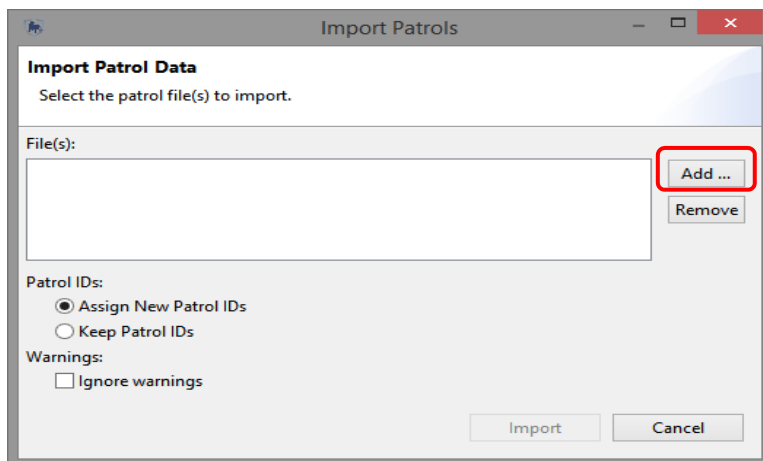
To test the import process, you will need to delete the Patrol SMART_000003 before you import it.



- Select patrol **SMART_000003**
- Click on the icon **Delete this current selected patrol**
- Click **OK**



- In the menu, select **Patrol > Import Patrols...**

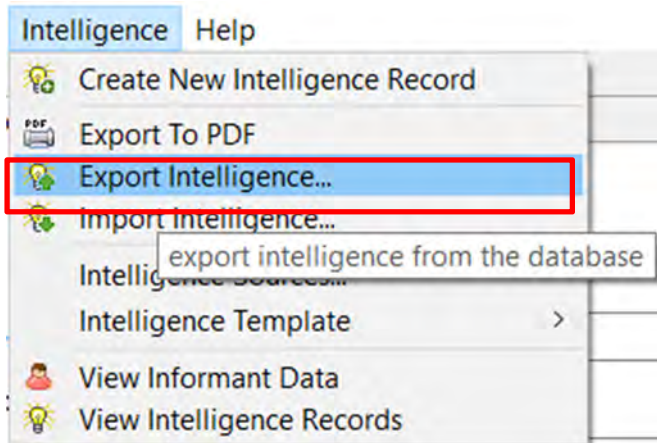


- Click on Add
- Browse to the file **SMART_000003.zip** that you exported to Module 8 on your USB key or in the files you downloaded from the website
- Click **Import**

Exporting and Importing Intelligence Records

The exporting and importing of Intelligence records allows for distributed information gathering that can be combined at a later date in a central system. Since Intelligence records can be tied to Patrols it is important to understand how the export and import process works for linked patrol and intelligence records.

An exported patrol will retain links to plans and intelligence records. If the patrol is imported into a Conservation Area that already contains the plans and/or intelligence records then the links are re-established. If the patrol is imported into a Conservation Area that does not contain the plans or intelligence records then the link will remain broken until the plans and/or intelligence records are imported. If an Intelligence record with links to a patrol is imported and the linked patrol already exists, the link is re-established. If an imported intelligence record has a link to a patrol that does not exist, the type of patrol is still set to "Patrol" and the link to a patrol has to be set manually.

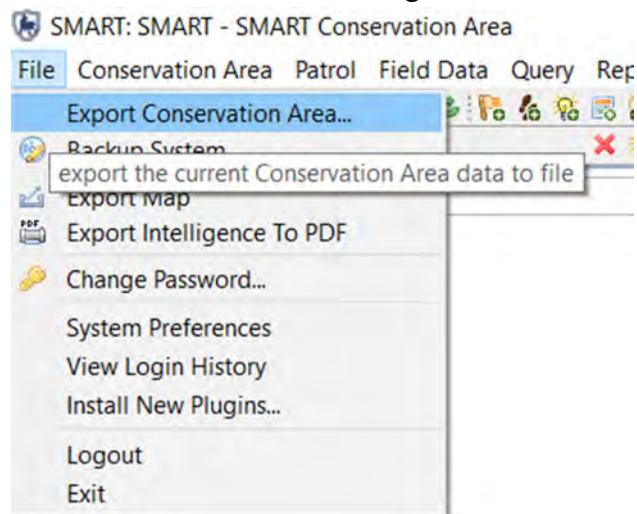


- In the Intelligence Perspective select an **Intelligence Record**
- From the menu select **Intelligence > Export Intelligence...**
- Browse to the folder **Module 8**
- Check the **box** next to the Intelligence record
- Check **Include Attachments** if necessary
- Click **Export**

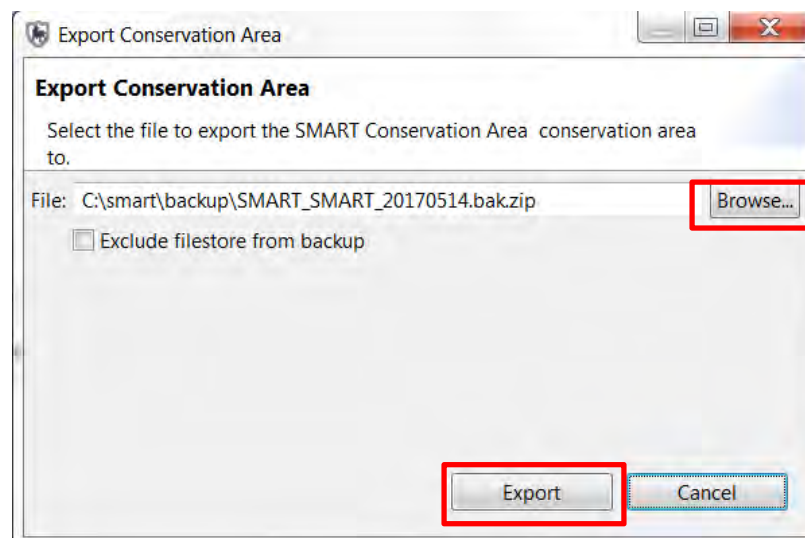
Importing an Intelligence record involves selecting a record or records and completing the import process. If an Intelligence record with the same name already exists Smart will warn the user about potential duplicate entries.

Exporting a Conservation Area

The exporting of a Conservation Area will export all of the components of a particular Conservation Area. This function not only allows for the archiving of a Conservation Area, but also for distribution and sharing.



- From the menu select **File > Export Conservation Area...**



- Click **Browse...**
- Browse to the folder **Module 8**
- Keep the default file name

- Click **Save**
- Click **Export**

Importing a Conservation Area

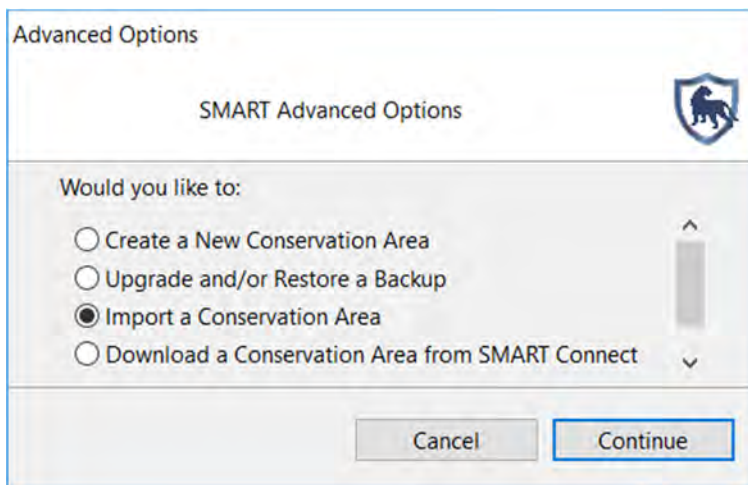
Now you're going to import a new Conservation Area into your database. SMART can manage multiple conservation areas in a single database, but you can only log in to one at a time.

- In the main menu, select **File > Logout**

SMART will now restart automatically and bring you to the main login screen

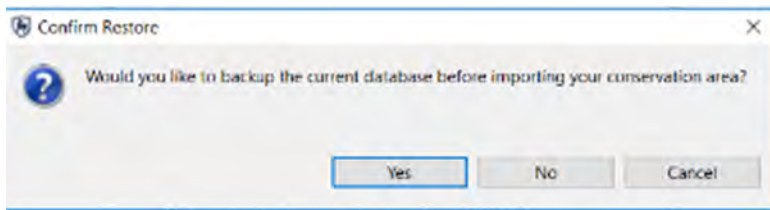


- Click **Advanced**

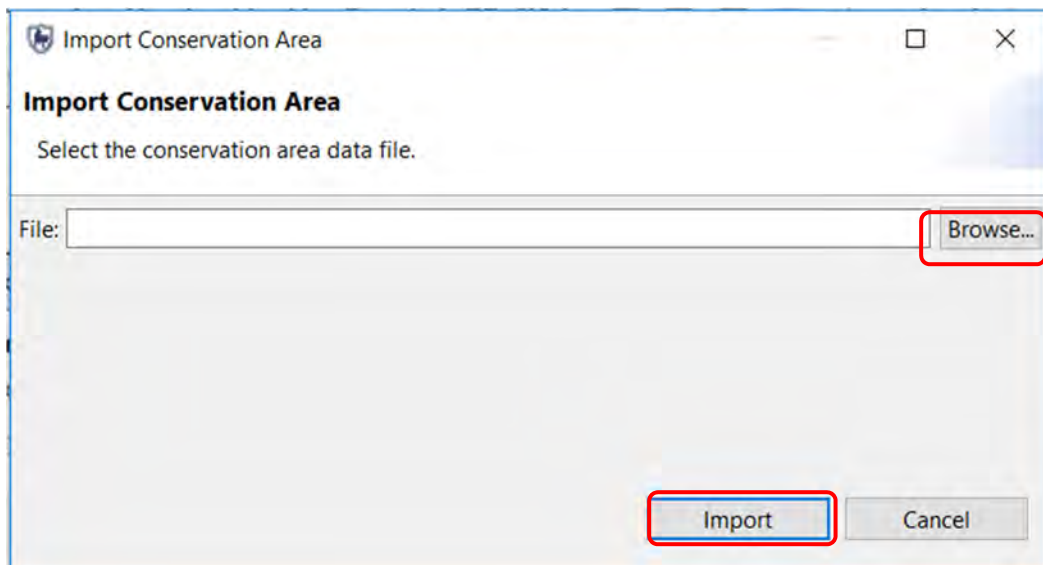


- Select **Import a Conservation Area**
- Click **Continue**

SMART will ask you if you want to backup the current database:



- Click **No**



- Browse to **Module 8**
- Select the file **SMART_Training.bak.zip**
- Click **Import**
- When the import is complete, click **OK**

You'll now see a new conservation area listed in the login screen

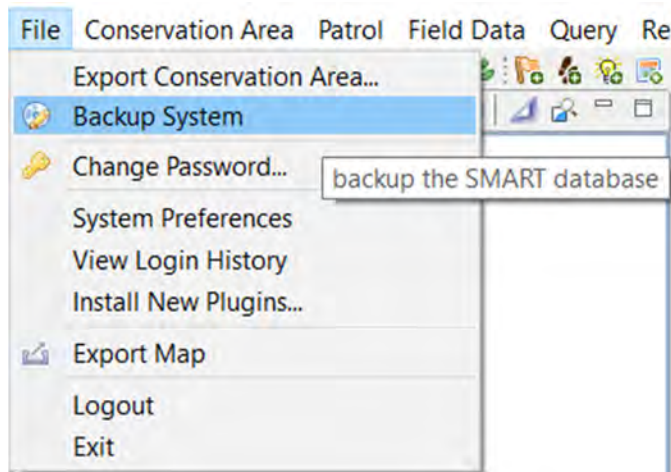
- Select the new **SMART Training Import CA**
- Enter
 - Username = **smart**
 - Password = **smart**
- **Log in**

Backup System

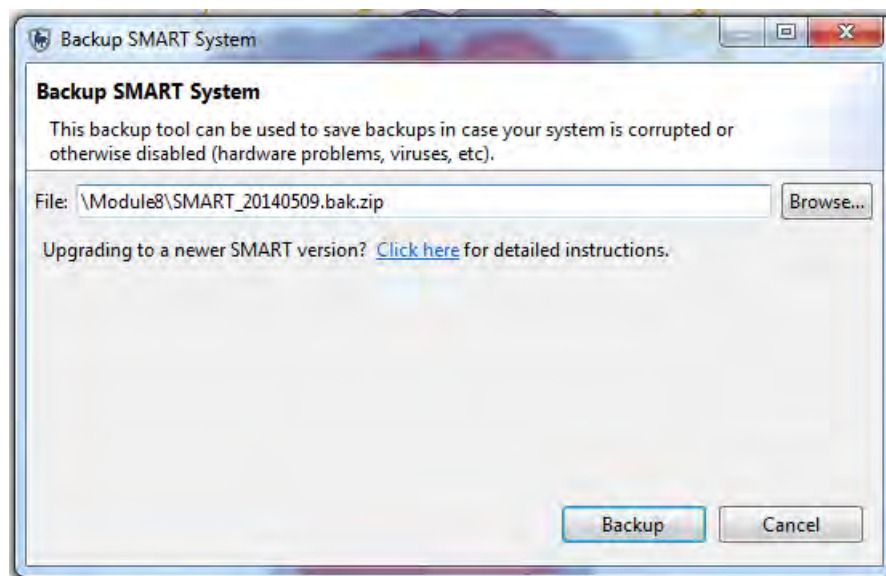
In the previous example, you exported and then imported a single Conservation Area. The Backup System function will create a backup file of the entire database and backup every

Conservation Area managed by that database. Note: the backup is also used for upgrading. See the SMART website for details of upgrading SMART.

Note: if you have multiple conservation areas in the database, this will back-up everything in one step.



- In the menu select **File > Backup System**

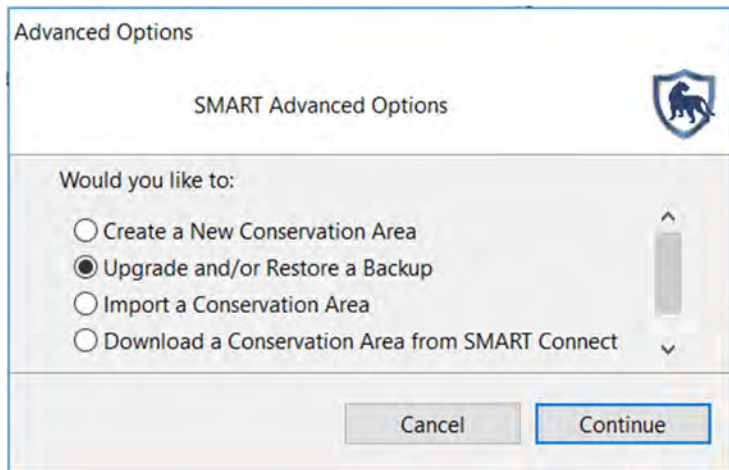


- Browse to the folder **Module 8**
- Keep the default file name
- Click **Backup**
- Once the process has completed click **OK**
- Browse to the folder **Module 8** to ensure that the file has exported correctly

Note: The filename is nearly the same as the Conservation Area export file with the exception that no specific Conservation Area names are included in the export filename.

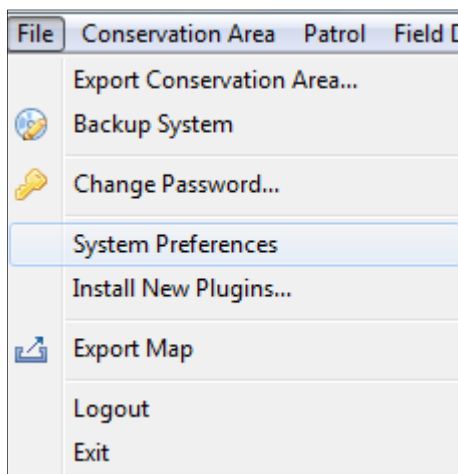
At this point, you will not need to restore the entire database, but the following screenshot is a reminder of where the import would take place.

Note: the backup file can be imported through the SMART Advanced Options screen.



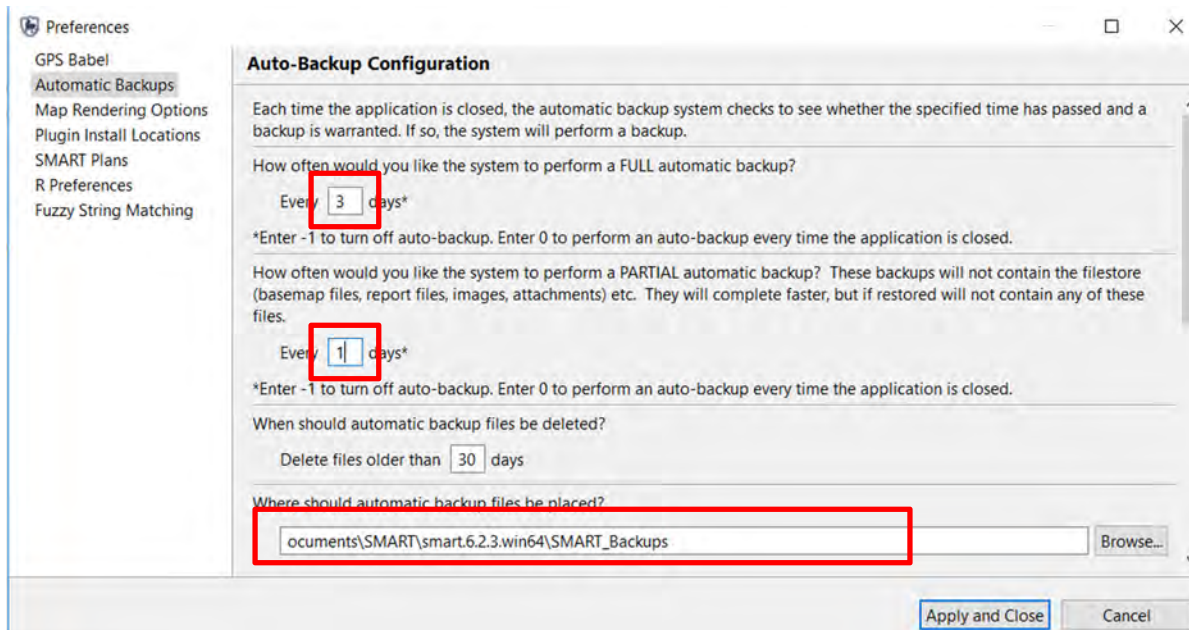
Configuring Automatic Backups

Performing regular backups is critical to ensuring that data can be recovered in the event of a system crash. SMART has the ability to automatically perform regular backups to a specified folder.



- In the menu select **File > System Preferences > Automatic Backups**

***Note:** The frequency (and file location) for the Auto-Backup Configuration will be left up to the individual administrators.*



- Set the FULL backup for **Every 3 days**
- Set the PARTIAL backup for **Every 1 day**
- Leave the default delete threshold and backup location
- Click **Apply and Close**

You should notice a short backup process that occurs before the application finally closes. This process may take longer for large databases with many patrols, basemaps and attachments.

- **Log back in** and change the auto-backup configuration back to **-1** to disable auto-backups

Delete a Conservation Area

- You can delete an entire Conservation Area by selecting **Conservation Area – Delete Conservation Area** from the main menu. You will be prompted to enter the username and password.

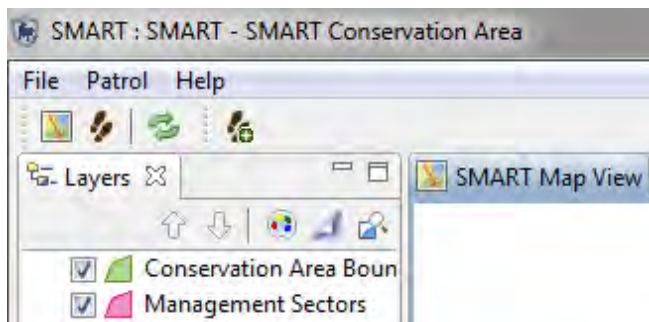
Warning – you should always do an export or backup before doing this to avoid losing your data!

User Levels Permissions and Restrictions

Throughout the technical training modules all examples have been performed through the Administrator account, which has full access to all SMART functions. Other SMART accounts have different access permissions allowing Administrators to assign an appropriate user level to employees.

Data Entry

The data entry user level has the most restrictions in place. The menu bar and icons available have been customized to include only the features required for the account to enter patrol data. The data entry user level can enter create, export, import patrols, and create system backups after patrol information has been completed.



Analyst

The analyst user level is designed for employees to create, export, import, run queries and reports. The analyst user level cannot create, alter or delete any queries or reports that have been saved in the Conservation Area Queries (or) Reports. This user level can run, create, alter or delete reports saved in the My Queries or My Reports folders.

Manager

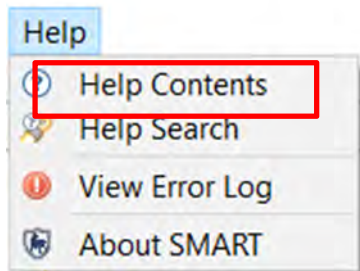
The manager account can make full changes to the patrol, query, report or planning modules. A manager account cannot make changes to the data model or update Conservation Area or patrol settings.

Administrator

The administrator account has full access to all functions and options in SMART.

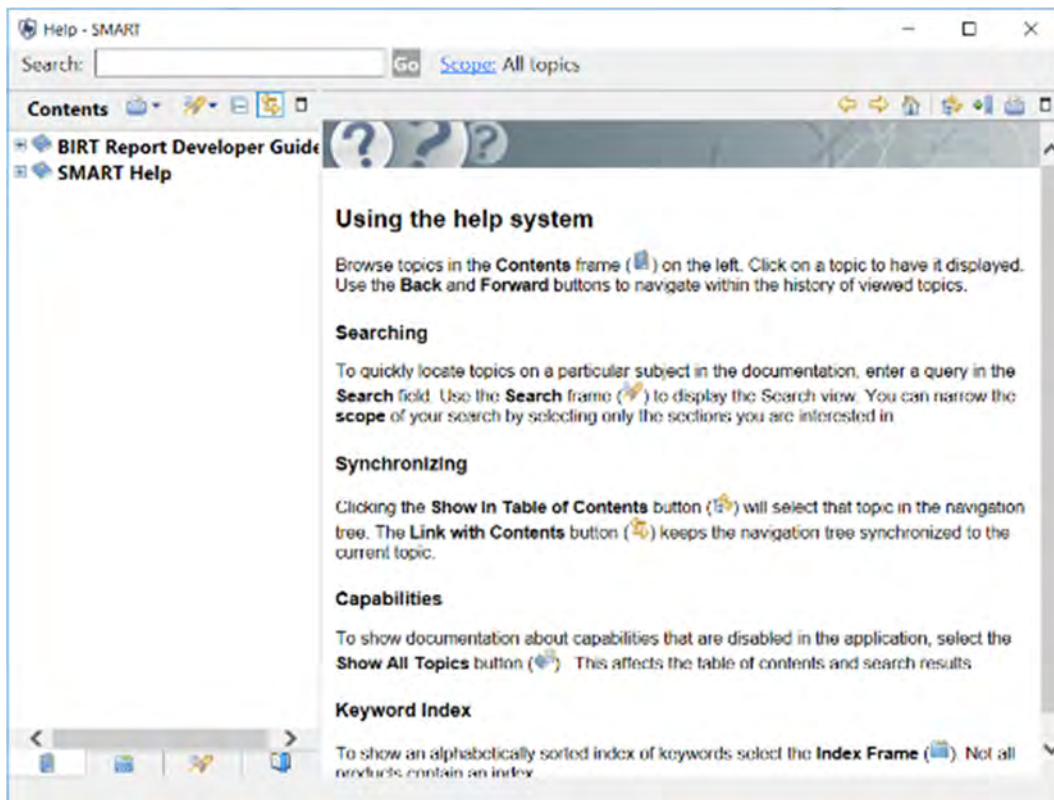
SMART Help

SMART's help system can be accessed directly through the menu bar.



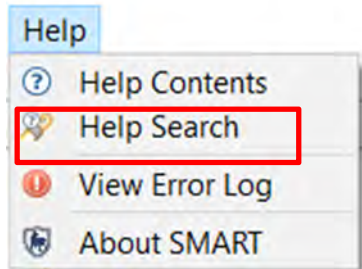
- To access the Help Contents from the menu select **Help > Help Contents**

Contents of SMART can be accessed through the Help tree or by directly entering in key words into the Search bar.



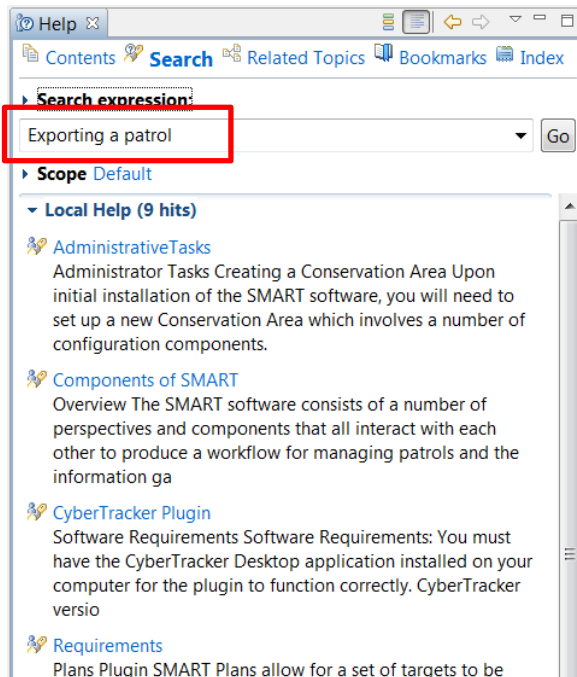
SMART Help Search

SMART Help search can be viewed through a side window to allow for regular viewing of the application.



- To access the from the menu select **Help > Help Search**

In the window on the left, the Help Search functions are available. Direct keyword searching is entered in the Search expression: field. Browsing of the help tree is available through the Contents link.

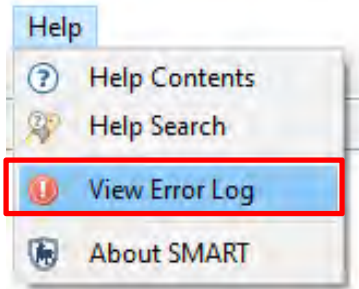


View Error Log

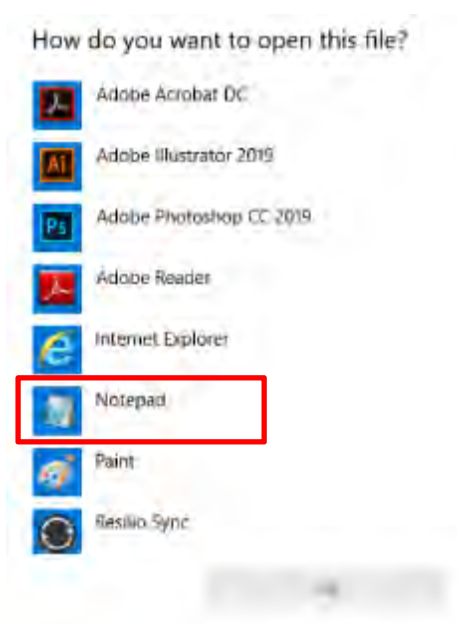
As with any software, small bugs and functionality issues will become evident over time. For most users, the majority of issues and questions that arise can be solved using the help option, the documentation provided on our [support](#) page, or by searching our knowledge base on the

[Community Forum](#). If you continue to have problems, we recommend posting the issue to the [Community Forum](#) with as much detail as possible. Importantly, we ask that when users have problems, that they please generate a log file and include it with their post to the forum. To create a log file:

- Go to "Help->View Error Log"



- Choose to open the file in any text editor (Notepad works best on windows)



- Now you can save the file or copy/paste it.

Note: Usually you can see dates in most of the entries and the most recent messages will be at the bottom. Scrolling up until you see dates/times from before the error occurred then copying everything from there to the end of the file can be helpful if you don't want to post the entire file contents.

SMART Community Forum

The SMART Community Forum is an active and vibrant online group of over 400 SMART practitioners from around the world. The Community Forum allows users to quickly and flexibly share ideas, answer questions, contribute workarounds/tools, and flag software issues when they arise. Solutions and tips from the SMART Partnership are also shared with the entire SMART community, ensuring the broad dissemination of answers to questions and the long-term maintenance of a significant SMART knowledge base.

We recommend all SMART users join the [Community Forum](#) and welcome them to ask questions and post tips, lessons learned and other information that you think would be helpful to other SMART users.

<End of Module 8 – Administrative Tasks>

MODULE 9: CyberTracker Plug-In and SMART Mobile

Objective

This Training Module will provide instructions on how to install and use CyberTracker and SMART Mobile to collect field observations during a patrol.

- Installing CyberTracker on a desktop computer
- Creating Custom Data Models
- Installing CyberTracker on a PDA (Windows and Android)
- Installing SMART-CyberTracker plug-in
- Transferring Data Model to the PDA
- Installing SMART Mobile on a PDA
- Collecting data using the PDA
- Exporting patrol information into SMART

Detailed Steps

SMART-CyberTracker is an optional plug-in that eliminates the requirements that observations are recorded separately from the GPS data. CyberTracker uses a GPS enabled PDA to collect the GPS data and the observation data in a single unit. After a patrol returns to the office, the GPS and observation data is transferred to SMART in a semi-automated process.

SMART Mobile is a new data collection solution for mobile devices that was made available in a beta version along with SMART 6. Mobile is powered by CyberTracker (CT) and leverages the functionality of CT by using a GPS-enabled mobile device to collect both observations (text or icon based data entry and digital images) and GPS data in a single unit. Observations and GPS data can then be transferred directly into SMART Connect or desktop in semi-automated processes. SMART Mobile represents a significant enhancement to the existing functionality of CT, including: touch/swipe controls, advanced mapping and navigation, natively translated languages and further support for all unicode languages, multiple data point entry on one screen, flexibly change patrol metadata on the fly, configure real-time alerts for key observations, and many other new functionalities.

Note: SMART Mobile is currently available in a beta version for piloting, but it shouldn't be used yet in Production.

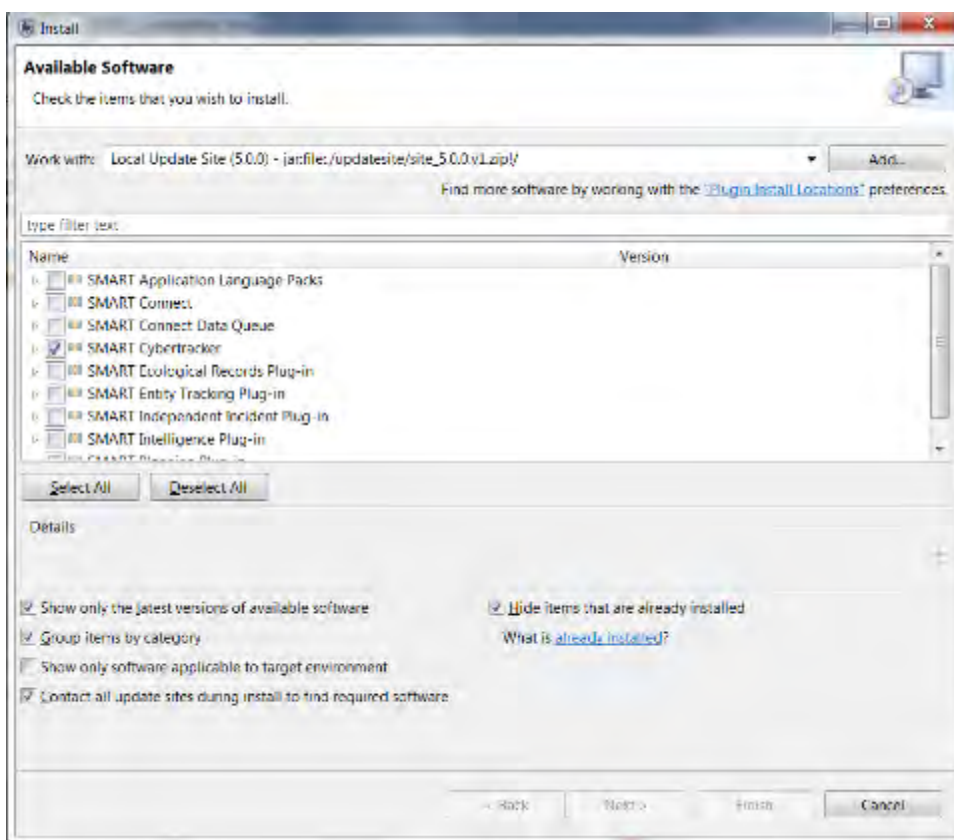
Installing CyberTracker on the Desktop Computer

CyberTracker is a third party platform that was created to simplify the collection of field data. The SMART-CT plug-in leverages the functionality of CyberTracker but still requires the base CyberTracker software be installed on the same computer that runs the SMART software. The software will need to be installed on your computer. Find the current version at: <http://www.cybertracker.org/software/free-download>.

Installing the CyberTracker plug-in in SMART

The CyberTracker plug-in should be installed in the SMART application by default. You can confirm this, by checking the top menu, selecting “**Field Data**” and then seeing if you have a “**CyberTracker Classic**” option in the dropdown. If you already have CyberTracker plug-in installed on your computer, then skip the following section. If you do not have it installed or are experiencing issues, follow these steps:

- Select **File**
- Select **Install New plugins**



- Select the **Local Update Site**
- Check **SMART CyberTracker**
- Click **Next**

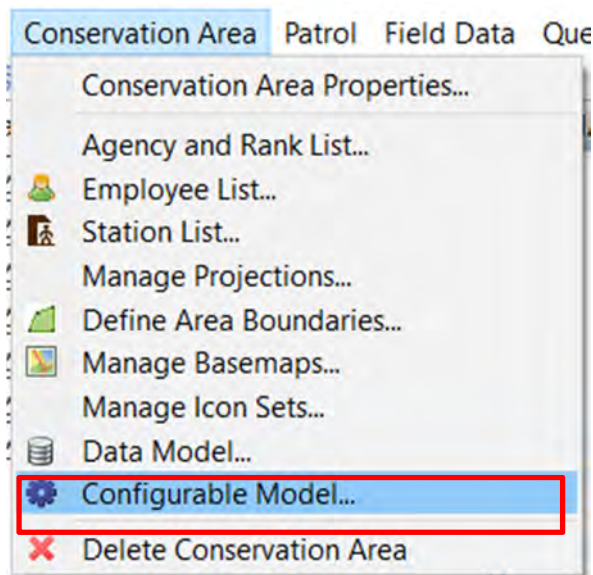
- Complete the install process for the Plug-in and **restart** SMART
- If you are still experiencing issues, visit this link for more detailed instructions: https://www.assembla.com/wiki/show/smart-cs/Application_Installation#plug-in_installation_-_version_3.0_and_newer

Note: After the installation SMART will require a restart and for users to log back into the Conservation Area.

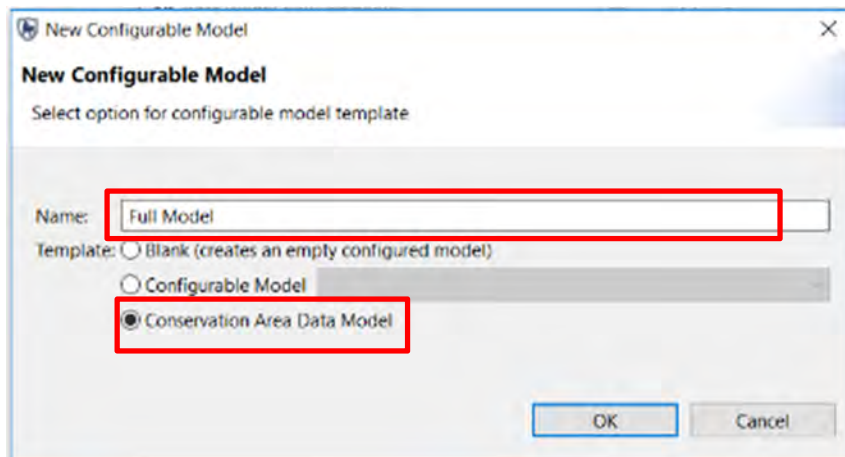
Creating Custom Data Models

The observation data model is designed for data analysis flexibility and not field user data entry efficiency. For example, the default data model has a variety of higher level categories (Animals, Features, People) that the field data entry users don't necessarily want to select each time they make an observation. In order to improve data entry efficiency, custom data models can be created to configure data entry aiming to make it more efficient.

The options below are critical for the success of the SMART CyberTracker integration, as they will allow the SMART data model to be quickly and easily deployed with CyberTracker in a way that leverages the richness and ease of use CyberTracker users already expect. An initial install of CyberTracker on a PDA requires an accompanying data model. Instead of using the base data model, you will create one in this module for your CyberTracker installation.

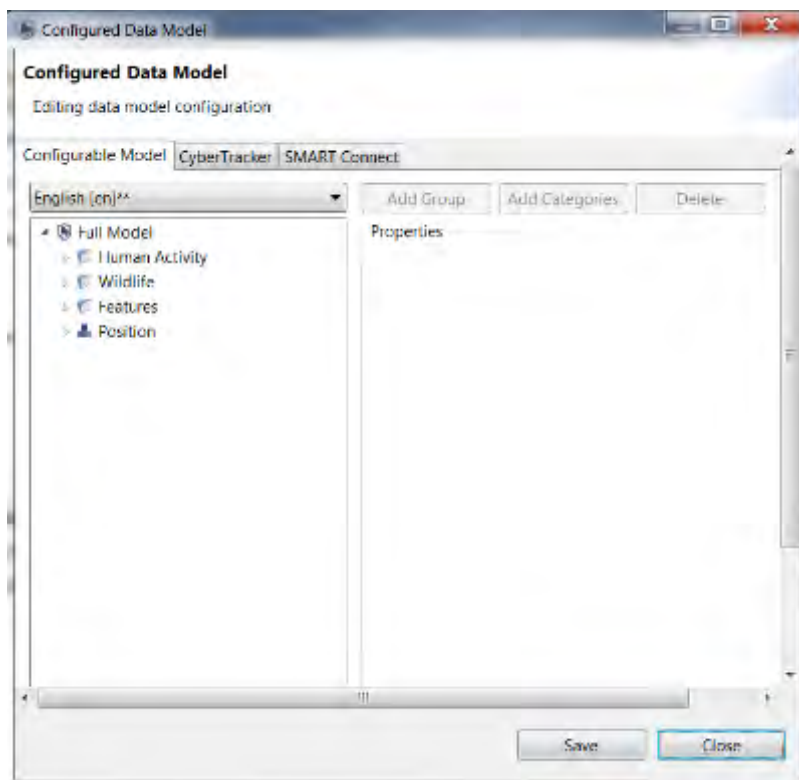


- In the menu select **Conservation Area > Configurable Model**
- After the window appears click **Create New...**



- Type in **Full Model** for the name and select **Conservation Area Data Model**
- Click **OK**

This will create a CyberTracker data model based on the existing Conservation Area Data Model. From here, you will examine the model and later create a simplified model from the beginning.



The structure of a Configured Data Model is broken up into three components: Groups, Categories and Attributes. These are slightly different than the standard SMART data model, which has only Categories and Attributes. The Group is required when multiple tiers of

categories are required. The layout remains the same but requires users to use Groups on data model branches with multiple categories.

Editing a Configurable Data Model

Edits to the Configurable Data Model does not affect the Conservation Area's data model. The custom edits will only be reflected when using CyberTracker to collect observations.

Add Group - a group can be added at any level to provide the equivalent to a sub-category.

Add Category - this will add only the selected category and its direct attributes. Any sub-categories below the selected category will be ignored.

Delete - deletion will affect sub-groups and categories and any objects below them.

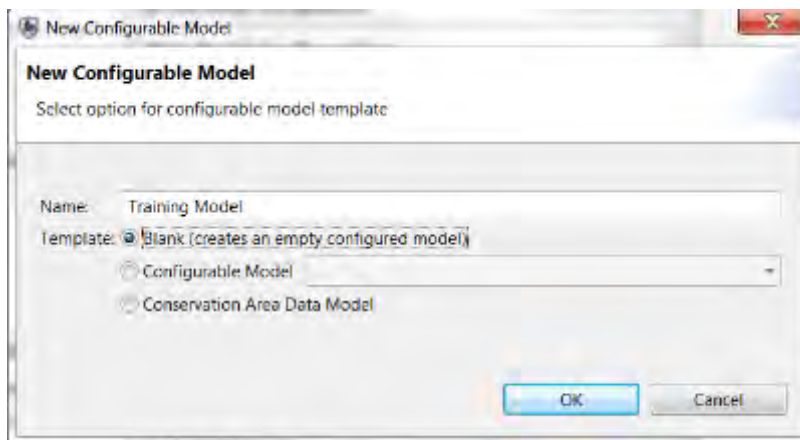
Translate - opens a dialog box to allow for entering / editing of translations into another language of the selected item.

- **Save and Close the Full Model**

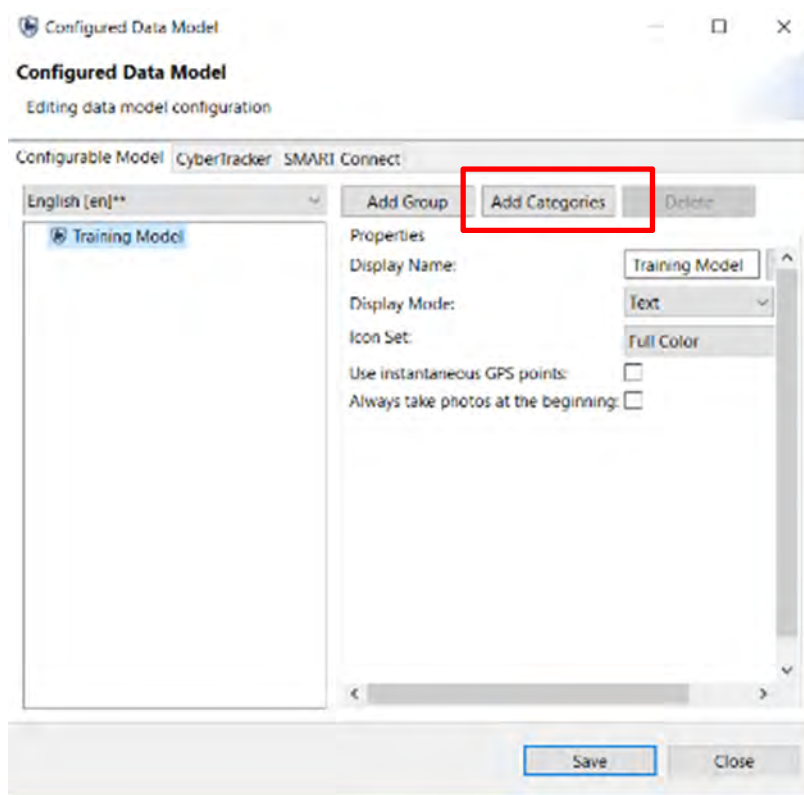
Creating a Configurable Data Model

In this module, you will perform all edits on a blank configurable data model. All aspects of the edits will be covered building a new configurable data model.

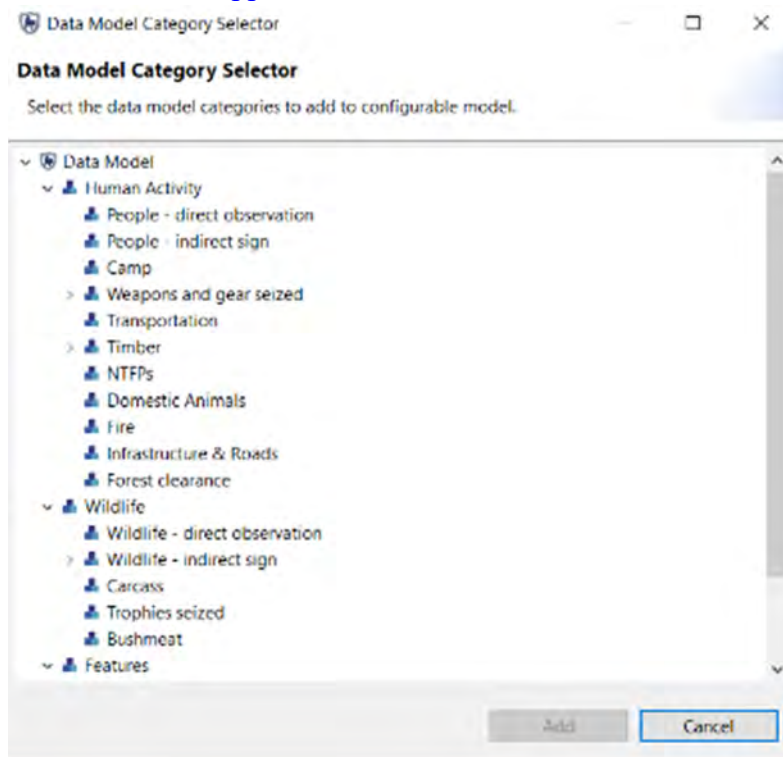
- **Select Create New**

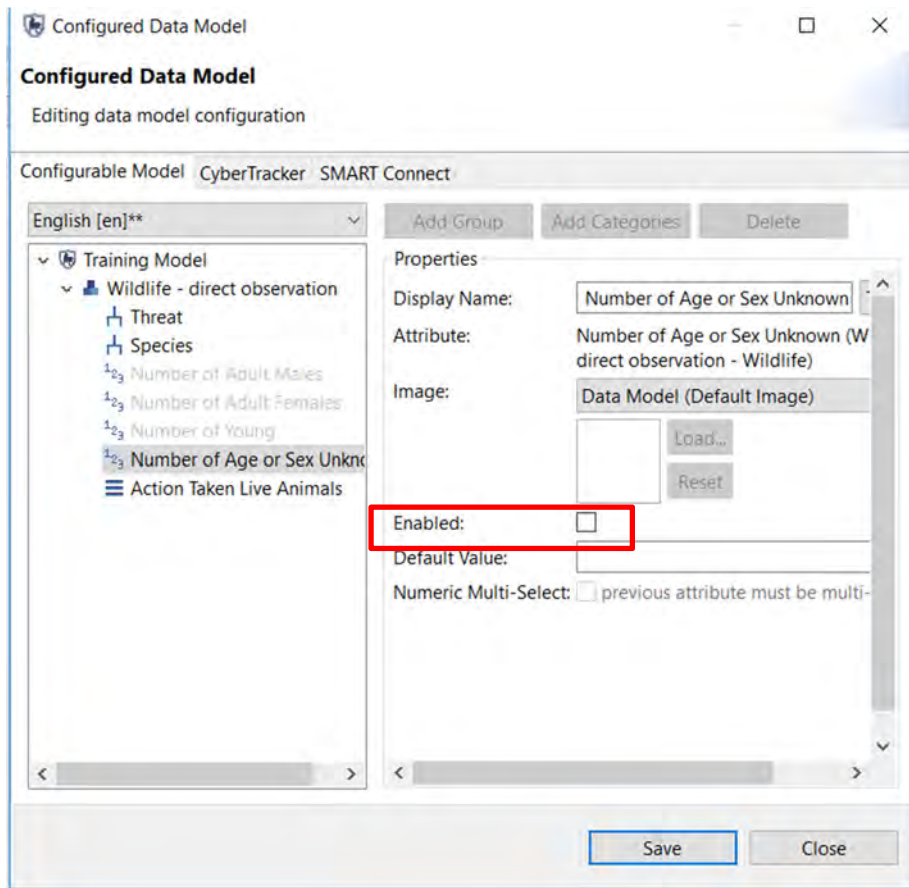


- **Name your model Training Model**
- **Select Blank (creates an empty configured model)**
- **Click OK**

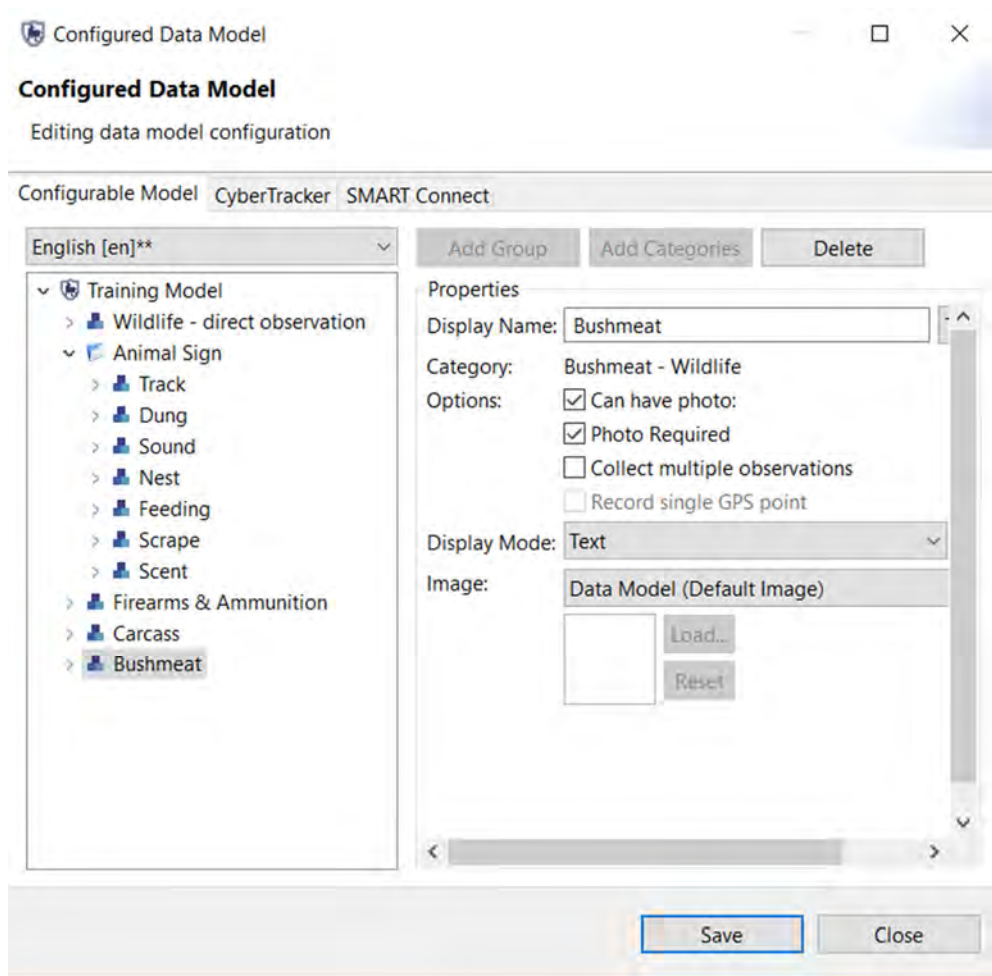


- Click on ‘**Training Model**’ and click **Add Categories** to make the Data Model Category Selector appear.





- Select **Wildlife – direct observation** and then click **Add**
- All attributes under this category will appear. Disable all attributes except **Threat**, **Species**, and **Action Taken Live Animals** by unselecting the Enabled tick box for each.
- Select the category **Wildlife – direct observation** and check **Can have photo**:



- Click on **Training Model** again and create a Group with the name **Animal Sign**
- Select **Add Categories** and then add in all the sub-categories of **Wildlife – indirect sign**
- Click on **Training Model** again and **Add the categories of Firearms & Ammunition, Carcass and Bushmeat**
- Select **Can have photo** for all categories
- Click **Save** then **Close**

Optional Configurable Data Model Settings

Convert to list - takes tree attribute and create a single level (flattened) list rather than the original tree format.

Default Value - assigns a default value to the attribute.

Multi-select - allows for multiple items to be selected in a single screen when collecting data with CyberTracker. Note that only one attribute for a category can be configured as multi-select.

Collect multiple observations - multiple observations can be collected for a single category by looping over the attributes within a category rather than re-entering the category for each and every observation.

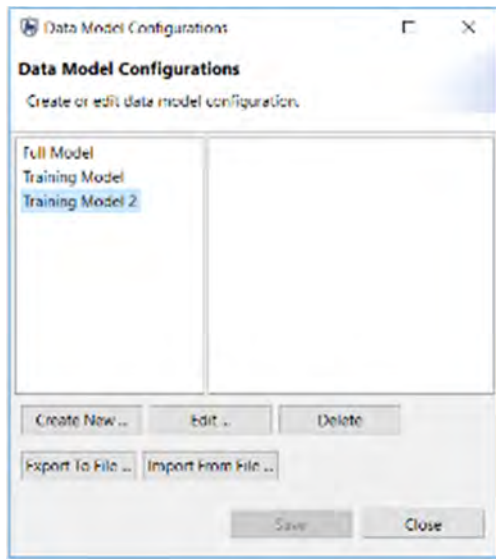
Record single GPS point - in cases where there are many objects to record all within a close proximity to each other this option will allow for multiple observations to share a single waypoint.

Use Custom Tree Configuration - allows for a restructuring of tree nodes and branches that can be applied to a single category. Other categories using the same attribute tree can be left with its default values or customized.

Revert to data model version of attribute - allows for users to revert back to the values held in the Data Model. This can be useful when values have been accidentally removed or altered or when the customizations to the attribute are no longer needed

Groups, categories and attributes can be dragged to new positions allowing for custom ordering when collecting data. Make the following edits to your Training Model:

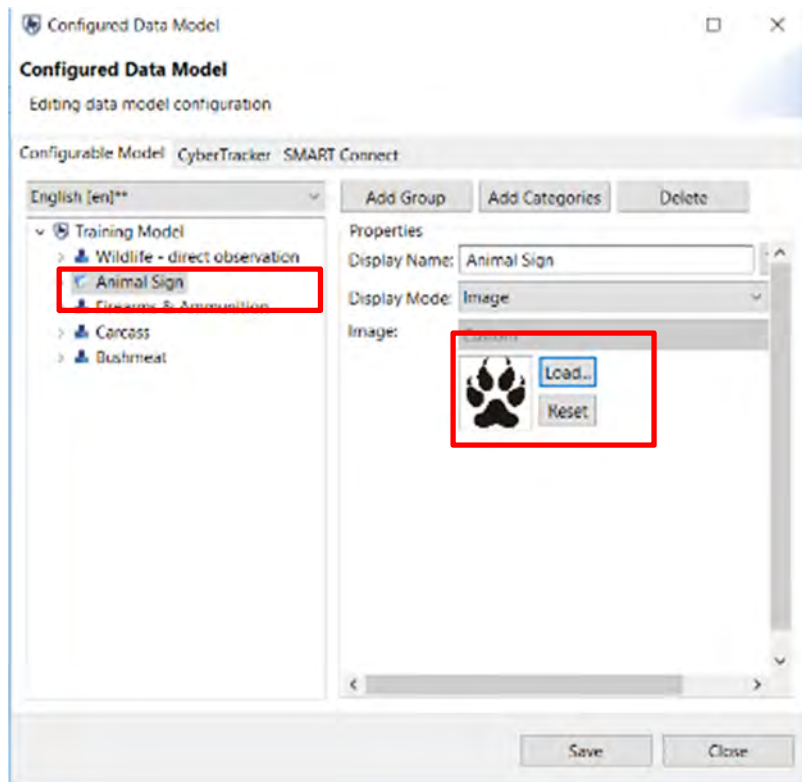
- Take an attribute and move it up or down in the list of attributes
- Select **Cause of Death** tree attribute (listed under Carcass) and **convert to list** (i.e. flatten)
- Drag and drop **Action Taken Live Animals** (listed under Wildlife - direct observation) to the top of the list and click the checkbox of **Multi-Select (Multi)**
- Click **Save**



- Create a new configurable data model using a variety of elements learned in the previous example
- After creating your third configurable data model **Save** and close down the **Data Model Configuration** window

Display Mode for CyberTracker Interface

One of the features of CyberTracker is its ability to use a text based interface or one with pictograms or icons. By default the text-based interface is enabled but users have the option of switching to using pictures and icons rather than words for the groups, categories and attributes.

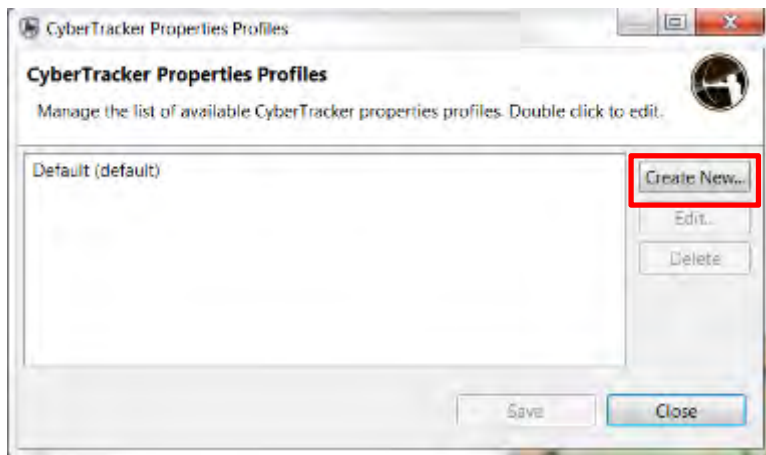


- Open the **Data Model Configuration** window, select the **Training Model** you created, and click **Edit**
- Select **Animal Sign**
- Change the **Display Mode** to **Image** and load in **pawPrint.jpg** found in your Module 9 folder

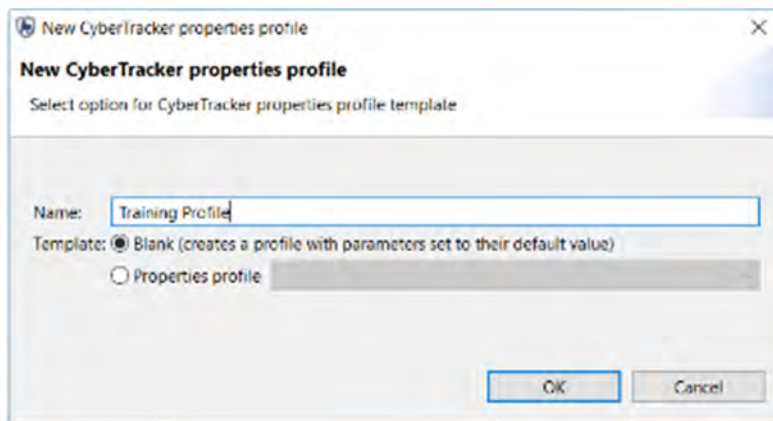
Configuring CyberTracker Export

Before the configured data model can be exported to the CyberTracker PDA, the properties of this transfer need to be set with a profile. Individual profiles can be created and associated with Configurable Data Models, and profile templates can be used to create new profiles. In this section you will learn to create CyberTracker Property profiles and associate them with Configurable Data Models.

- From the menu select **Field Data > CyberTracker Classic > CyberTracker Properties**



- Click "Create New"



- Create a new **Blank** profile and name it **Training Profile**
- Click **OK**

On the General tab of the CyberTracker Default Properties there are a number of settings that an Administrator can use to modify the behavior of CyberTracker.

- **Kiosk Mode Exit Pin: 1234** - the code that will allow users to exit out of the CyberTracker application on the PDA

Note: the remaining options and their function/usage can be read in detail in the CyberTracker documentation.

The screenshot shows the 'CyberTracker Default Properties' dialog box with the 'GPS' tab selected. The 'Profile Name' is 'Training Profile'. The 'Track Timer (seconds)' is set to 5 and is highlighted with a red rectangle. Other settings include Sighting Accuracy (20.0), Sighting Fix Count (10), Track Accuracy (20.0), Use time from GPS (checked), GMT/UTC time offset (GMT), Format (Degrees minutes seconds), UTM zone (0), Skip Button Timeout (3), Manual GPS on Skip via Field Map (checked), Manual GPS on Skip via input (unchecked), Allow Skip of Manual GPS Entry (checked), and Dilution of Precision (49). The 'Save' and 'Close' buttons are at the bottom right.

Property	Value
Profile Name	Training Profile
Sighting Accuracy	20.0
Sighting Fix Count	10
Track Accuracy	20.0
Track Timer (seconds)	5
Use time from GPS	<input checked="" type="checkbox"/>
GMT/UTC time offset	GMT
Format	Degrees minutes seconds
UTM zone	0
Skip Button Timeout	3
Manual GPS on Skip via Field Map	<input checked="" type="checkbox"/>
Manual GPS on Skip via input	<input type="checkbox"/>
Allow Skip of Manual GPS Entry	<input checked="" type="checkbox"/>
Dilution of Precision	49

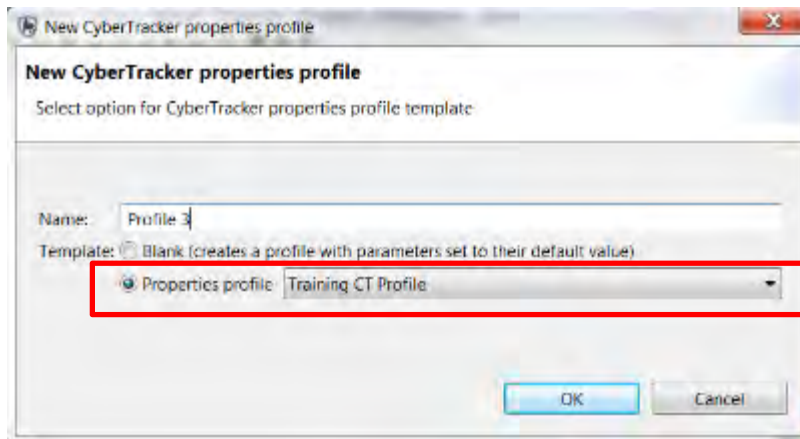
- On the **GPS** tab set the **Track Timer (seconds)** to **5**

***Note:** If Track Timer is set to 0 the CyberTracker PDA will not collect GPS track information.*

The Field Map tab allows for an upload of a custom map background to the PDA.

- Click **Save** and **Close**

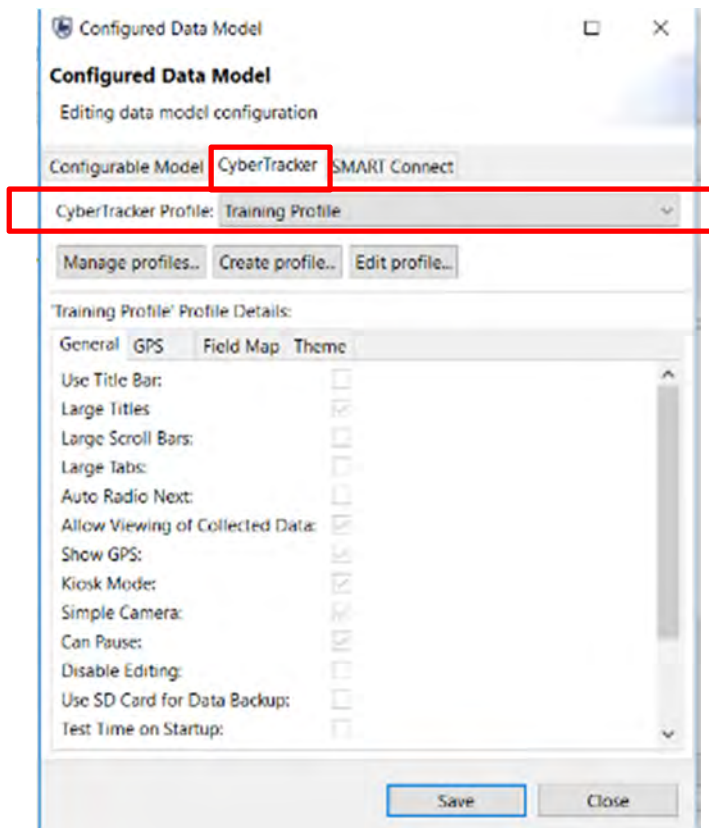
Creating a Profile using a Template



- Now create a **new profile** and use the previous one as a **template**
- **Save and Close** your new profile.

Associating Configurable Data Models with CyberTracker Profiles

Now that profiles have been created you will return to the Configurable Data Model and associate the CyberTracker profile with a Configurable Data Model.

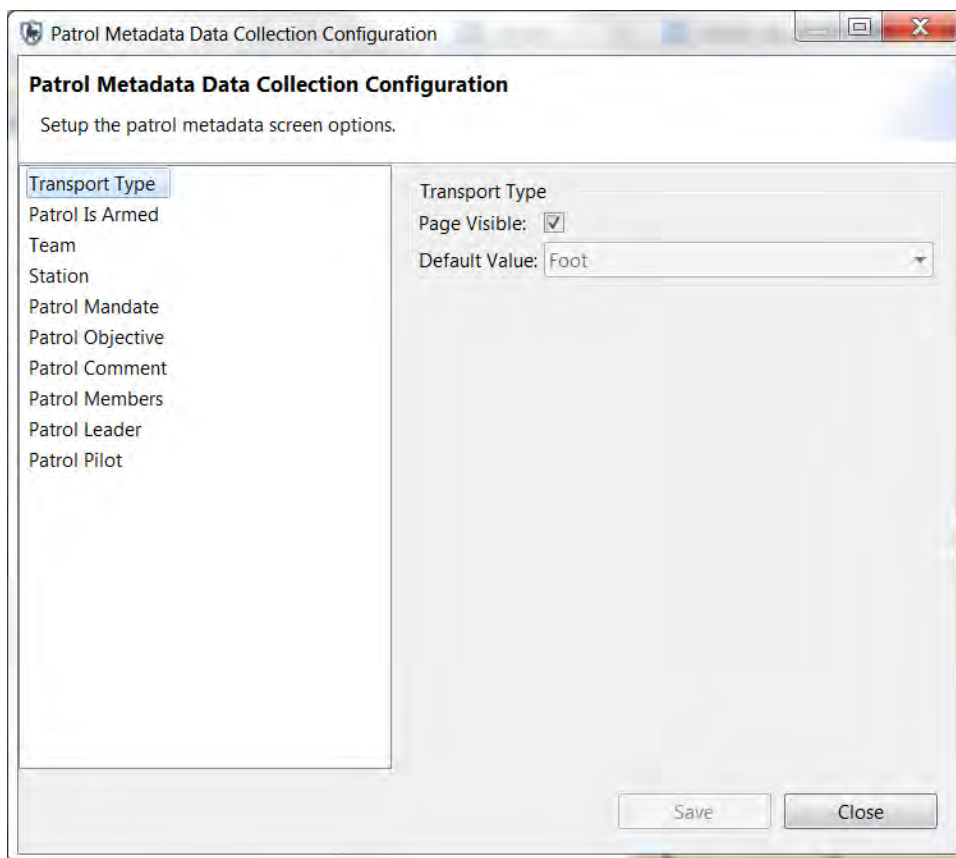
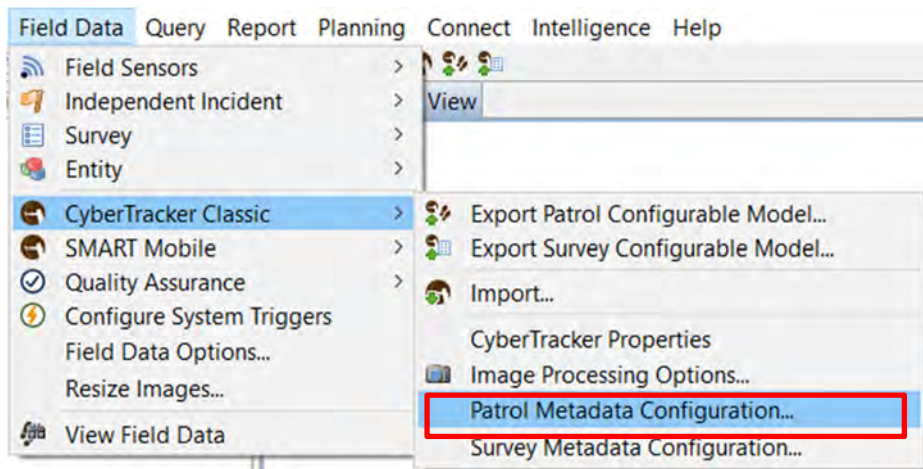


- Open the **Data Model Configuration** window
- Select the **Training Model** and click **Edit**
- Open the **Cybertracker** Tab and select your **Training Profile**
- Click **Save** and **Close**

***Note:** The three buttons of "Manage profiles", "Create profile" and "Edit profile" allow for CyberTracker Profile Properties to be edited without returning to the Field Data - CyberTracker - Properties menu.*

Configuring Patrol Metadata Data Collection Configuration

One final (but optional) configuration is the Patrol Metadata Configuration. This configuration screen allows for certain aspects of the Patrol configuration (teams, stations, transport, etc.) to be made visible or hidden with pre-selected default values.



If the patrol object is kept visible the user will be required to enter in a value that exists in the Conservation Area. If an object is not visible, you will be able to select a default value that will be populated during the transfer of the CyberTracker patrol from the PDA to the main computer with SMART installed.

For this example, you will not change the default values and proceed with configuring patrols using the PDA.

Exporting & Installation of CyberTracker on a PDA

CyberTracker data collection is done using a Personal Data Assistant (PDA) device. All devices must have CyberTracker installed before any data collection can take place. CyberTracker is supported on Windows Mobile and Android devices. Apple devices are not supported at this time. If you have a Mac computer, you can use Apple Bootcamp or Parallels to run a Windows operating system on your computer. The upload and installation of CyberTracker can occur in the main application or through the SMART interface. In this module we will use the SMART interface to complete the upload.

The process of installing CyberTracker on Windows Mobile is different than installing on an Android device. This tutorial will guide you through both platforms. The initial steps of exporting your configurable data model to CyberTracker will be the same for both platforms. What differs is how to complete the final installation of CyberTracker on the device.

Installing on Windows mobile device

In order to install CyberTracker you will need to have the Windows Mobile Device Center installed on your computer, which is free to download. Once you have Windows Mobile Device Center installed, follow these steps:

- Open **Windows Mobile Device Center** software program

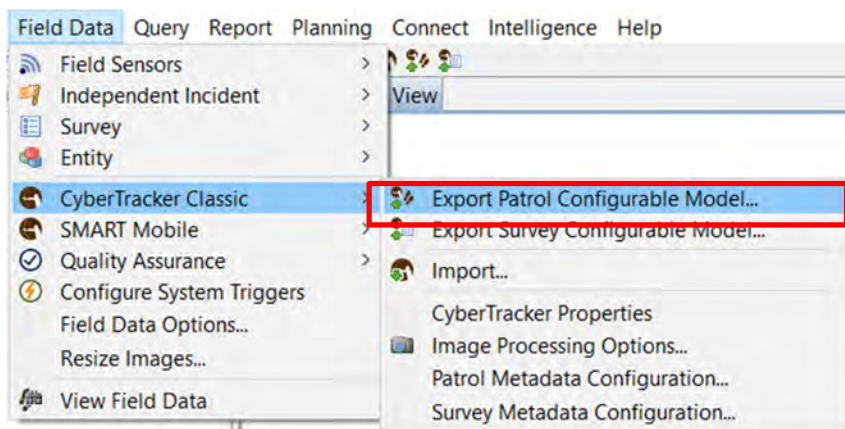


- Plug in your mobile device with it switched on. Note: The first time you do this, it will install the mobile device drive.

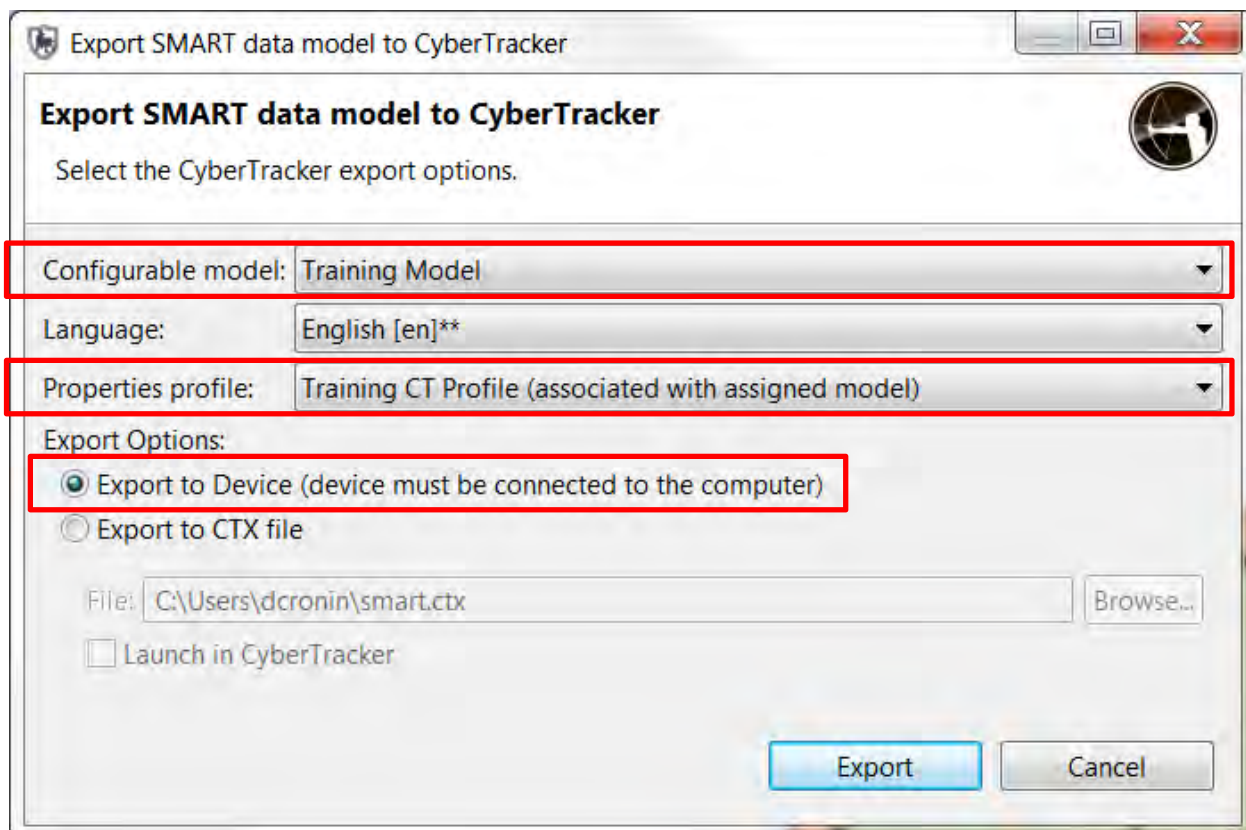


- Once the mobile device is connected, click **Connect without setting up your device** (or set up your unit).

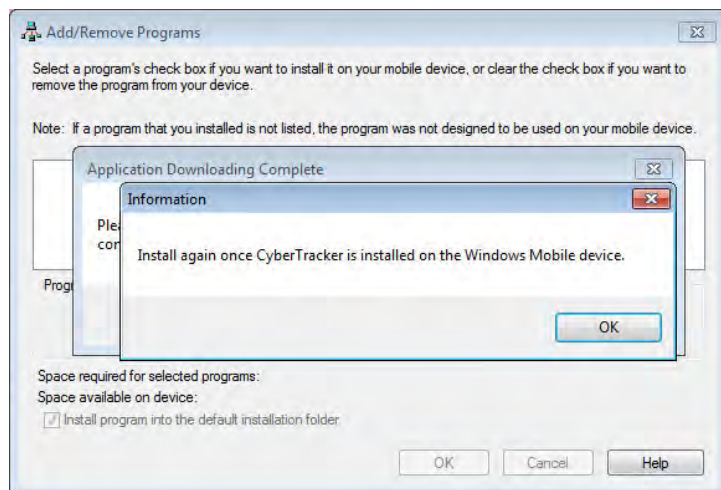
Follow these steps in the SMART application on your computer:



- Select **Field Data > CyberTracker Classic > Export Patrol Configurable Model...** from the toolbar



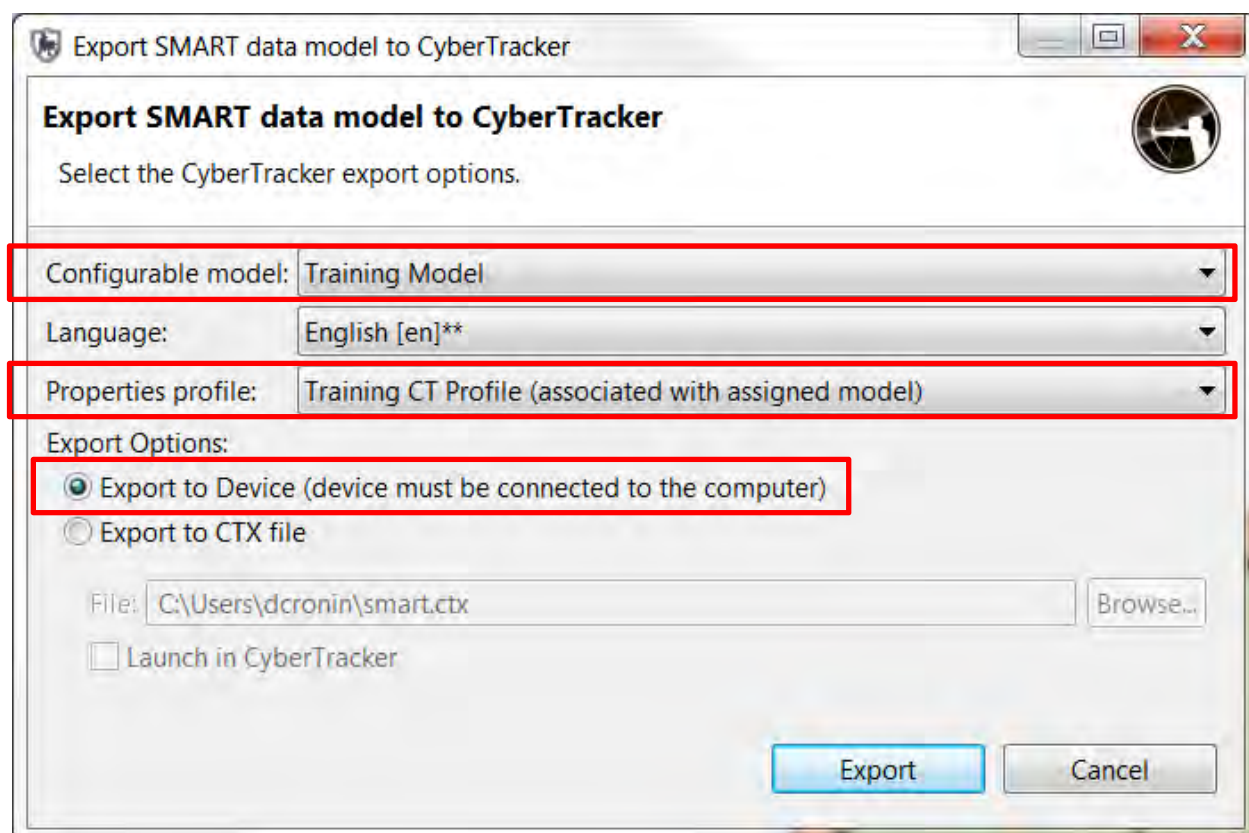
- Select your **Training Model** from the drop down list
- Select your **Language**
- Select **Export to Device**
- Select **Export**



Cybertracker will install automatically on the mobile device and the above message will appear . Follow the on screen instructions to complete the installation on your windows mobile device.

- Click **OK**

You will now re-export your data model.



- Select your **Training Model** from the drop down list
- Select your **Language**
- Select **Export to Device**
- Select **Export**

SMART should now be installed on your mobile device.

***Note:** after a successful install you will be able to see the name you created in the CyberTracker - Application Screen.*

Installing on Android

The initial process of selecting your configurable data model and exporting directly to the device is the same for Android devices. What varies will be the process to finalize the install of CyberTracker on the Android device.

The transfer process will create a CyberTracker install file on the device. Where it is located will vary depending on the device and its configuration. To complete the process, users are required to find the install file and manually complete the installation of CyberTracker. Once that is complete the application and the exported configured data model will be available for use.

Installing SMART-CyberTracker on your android device is a 4 step process.

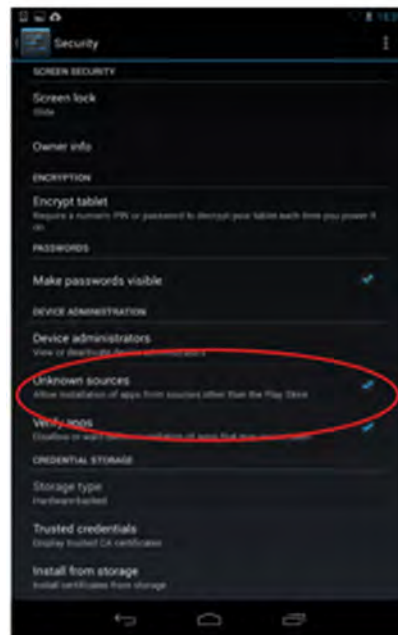
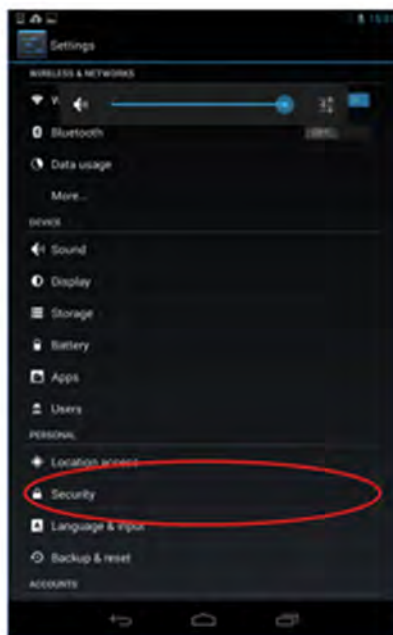
Step 1: Preparing the Android.

Before you install SMART-CyberTracker on an android device you need to prepare your android handheld device. On your Android handheld device you need to:

a) Have a file manager

This can be easy or difficult depending on the type of device and file management application running on it. For example, on a Nexus 4 there is no default file browser/file management application and this step can be difficult unless you can access the **Play Store** and download one (free or otherwise). “ES File Explorer” has been used successfully and it is freely available from the Play Store. Any other file application, pre-installed or downloaded, that allows one to browse folders on the device should work similarly.

b) Enable “Use Unknown Sources”



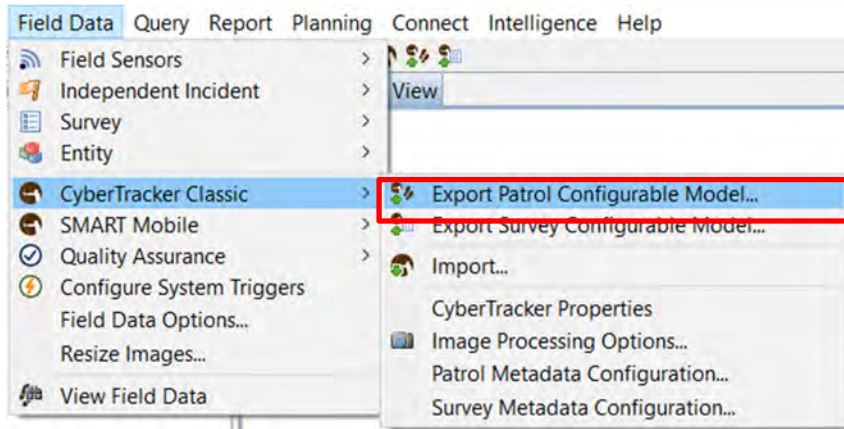
- Open the Android settings
- Select **Security**
- Select the **Unknown sources** checkbox

Step 2: Uploading the CyberTracker application onto the Android

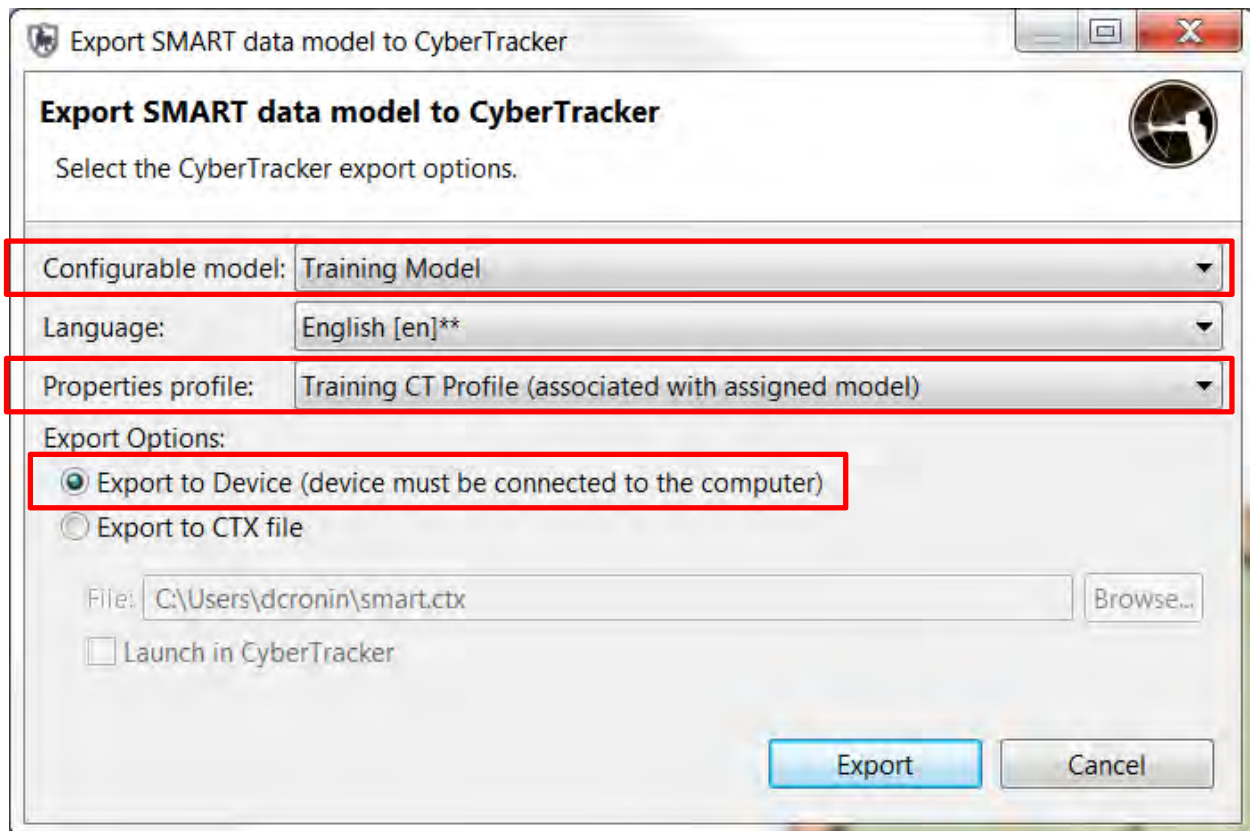
The **first time** you attempt to export a data model to an Android device without a CyberTracker mobile application on it, the export process will create a CyberTracker install file on the device in the root (highest level) directory.

Follow these steps in the SMART application on your computer:

- Plug in the Android device to the computer using a USB Cable
- Turn on the USB Storage mode on your Android device by tapping on 'Turn on USB storage.' This is often done by swiping down from the top of the screen, and can also be called File Transfer Mode.

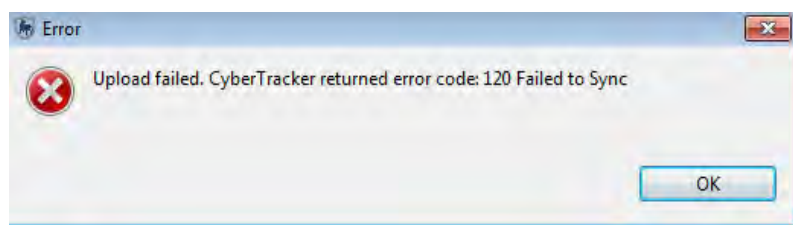
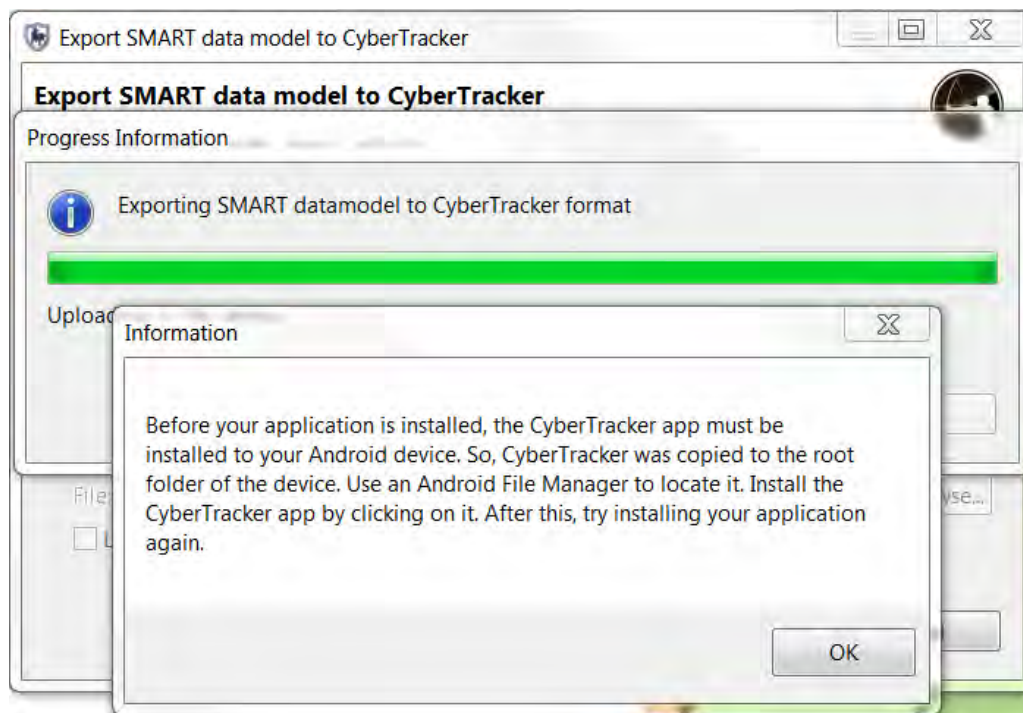


- Select **Field Data > CyberTracker Classic > Export Patrol Configurable Model** from the menu



- Select your **Training Model** from the drop down list
- Select your **Language**
- Select **Export to Device**
- Select **Export**

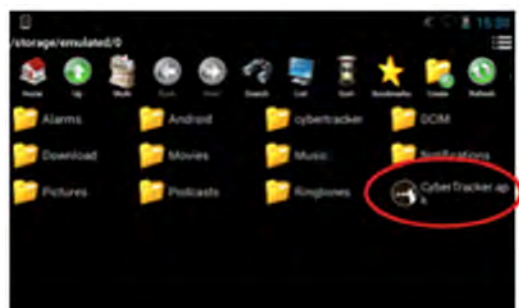
You will get this error message, which is expected. SMART has exported the CyberTracker install file onto your Android device.



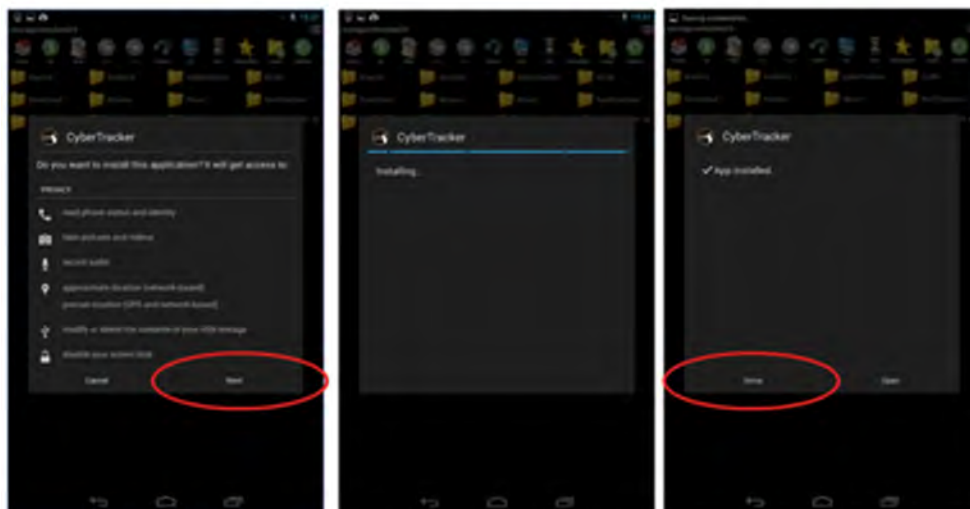
- Click **OK**
- Click **OK** again

Step 3: Installing Cybertracker Application on your Android

On your Android handheld device, use the file manager to find the “CyberTracker. APK” file.



- Select the icon to launch the installation

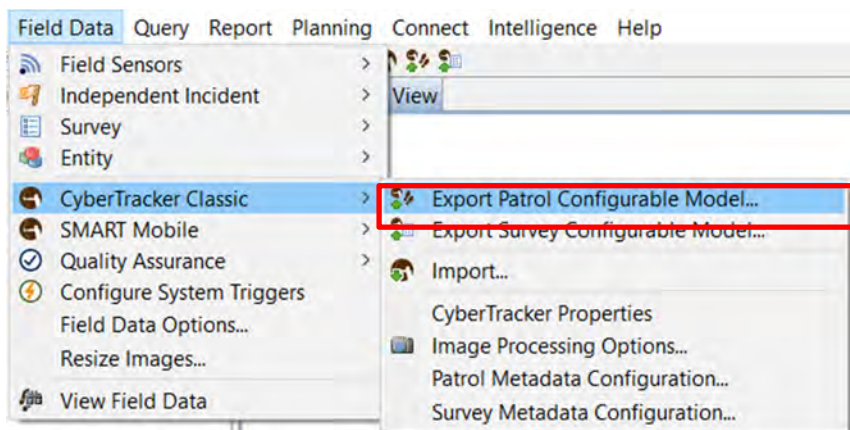


- Select **Next**
- Select **Install**
- Once the installation has finished, select **Done**

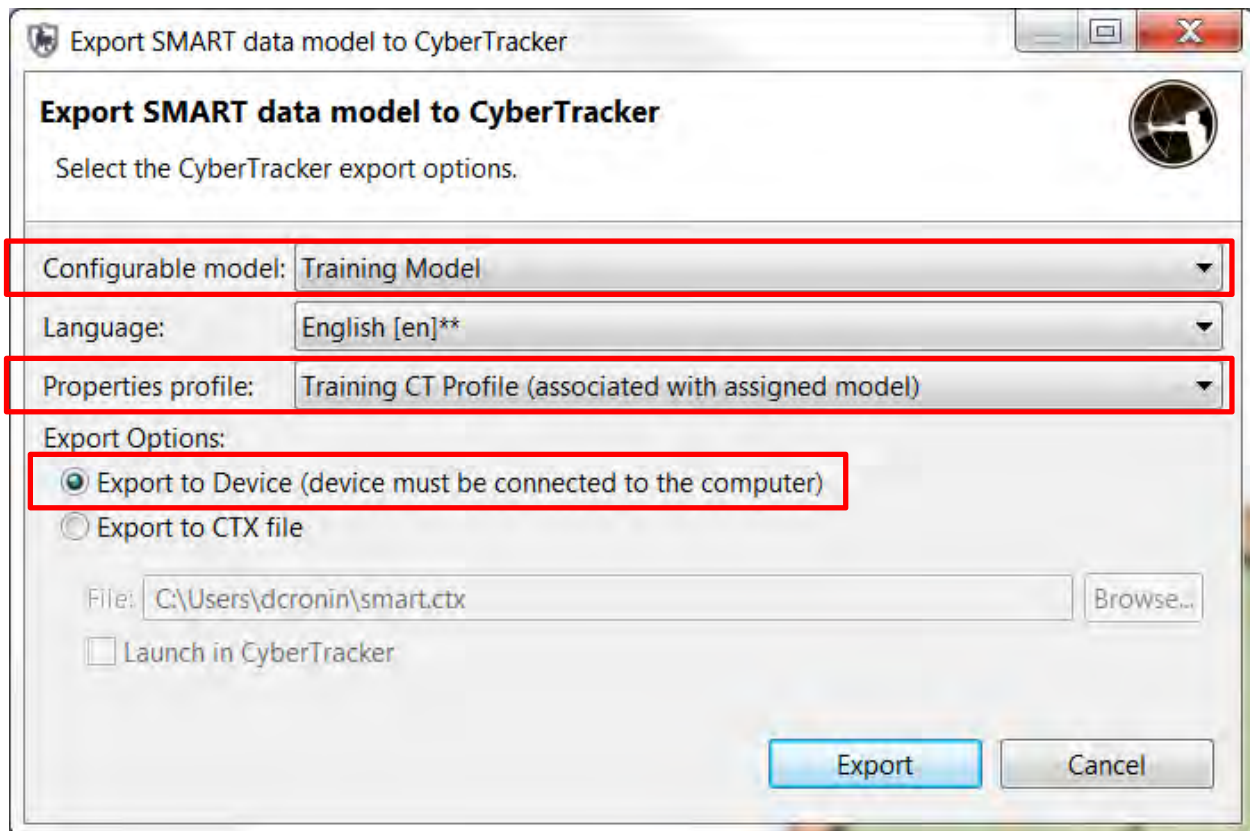
Keep the Android on and plugged into the computer.

Step 4: Uploading the Data model to your Android

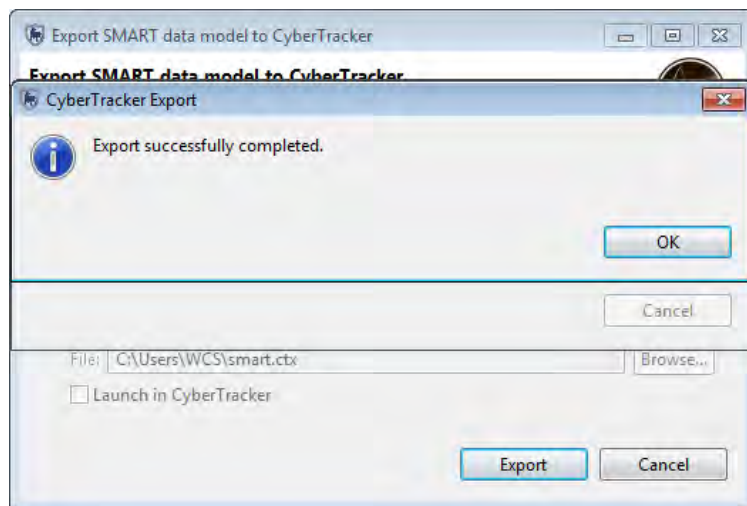
CyberTracker is now installed on your Android. You will now follow the same process as Step 2 above to install the SMART configurable model.



- Select **Field Data > CyberTracker Classic > Export Patrol Configurable Model** from the menu



- Select your **Training Model** from the drop down list
- Select your **Language**
- Select **Export to Device**
- Click **Export**



- You will receive an “Export successfully completed” message
- Click **OK**

Note: If you get the same error message, you might need to restart your Android device and/or restart SMART, and then redo step 4.



Note: after a successful install, if on CyberTracker you will be able to see the SMART database on the screen

Installing Additional Data Models (Both Operating Systems)

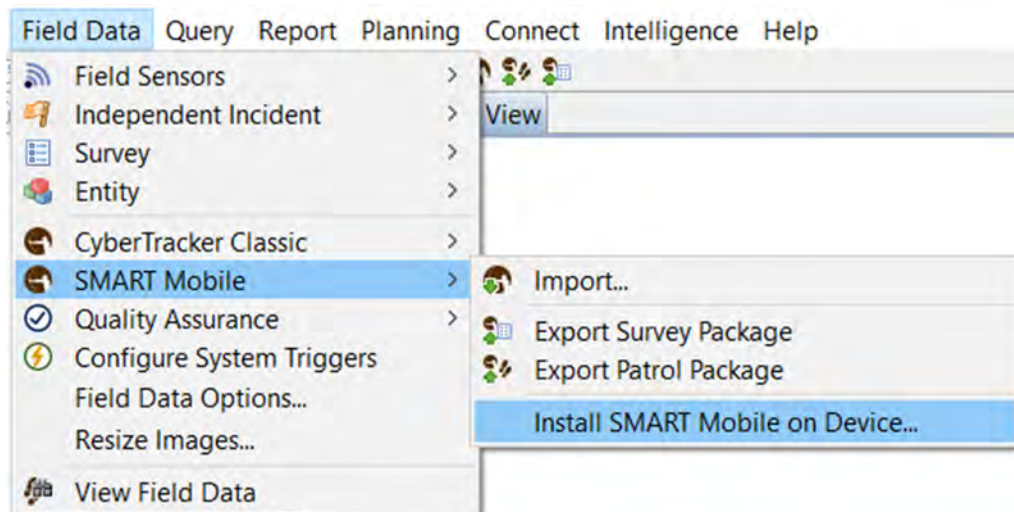
- Complete the export for the **second configured data model** to the PDA
- Repeat for the **Full Data model**

Note: If your intentions are to load a new configurable data model then make sure that it has a unique name.

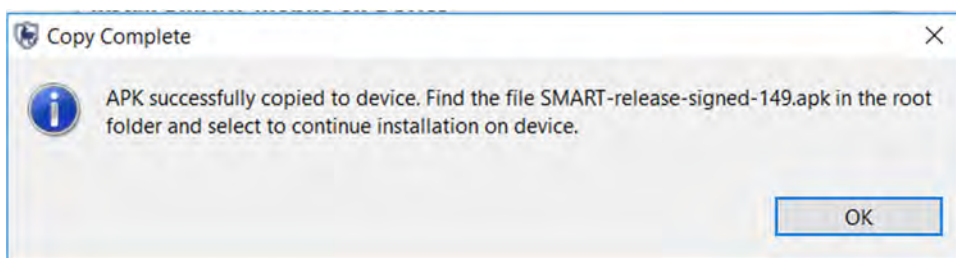
Installing SMART Mobile on a PDA

SMART Mobile is installed as a separate application from CyberTracker. Follow these steps to install SMART Mobile BETA on your PDA:

- Download the SMART Mobile BETA application (.APK) file from this link: [SMART Mobile Download](#)
- Save the .APK file in an easily found location (e.g., the same root folder as your SMART installation)



- In SMART, go to **Field Data > SMART Mobile > Install SMART Mobile on Device...**
- Browse to the folder where you saved it and select the **SMART-release-signed-149.apk** file; click **Open**
- Click **Install**



- Click **OK**
- Find the .apk file on your PDA using your file manager and select it to install
- Follow the prompts to install SMART Mobile

Collecting Data on the PDA

At this point you should have two configured data models loaded onto your PDA. To begin the process of collecting data:

- Turn on the GPS
- Start the CyberTracker application
- Choose the data model that was first transferred to the PDA

Enter exit pin			
7	8	9	C
4	5	6	<
1	2	3	0



If CyberTracker starts with the screen **Enter exit pin**

- Click the **back arrow**
- Enter in **exit pin** (default was 1234)

To begin a CyberTracker patrol you will need to see this screen:

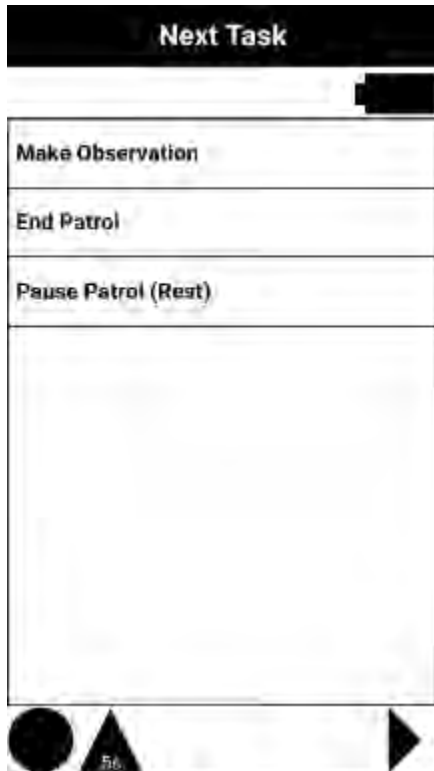
SMART CyberTracker
Start New Patrol
Exit CyberTracker



- Click **Start New Patrol**
- Complete the Patrol Configuration screens to define the Patrol properties




Note: You can skip options sections using the forward arrow

Making Observations

After the patrol configuration options are entered you are able to collect data using your CyberTracker PDA.



Make Observation	Loads the configured data model and allows for entry of observations
End Patrol	Ends the Patrol
Pause Patrol (Rest)	Stops recording track information during extended rest periods to avoid having the track information accumulate. This option should only be used during extended stationary rest periods.
Resume Patrol	Once resumed the track information will resume from the last recorded position. All patrols should resume the GPS track before resuming the patrol or risk losing their track positions.
	Opens up the options screen
	Displays the interval of when GPS track points are collected. If there is no number then the device will not record track information. It is well advised to review this icon and make appropriate changes

	in the CyberTracker Properties - GPS tab (track timer) and re-export the patrol to the PDA
	Back arrow to return to previous screen
	Forward arrow to advance to next screen
	Saves the observation
Skip GPS	If no GPS signal is available users will be prompted to skip GPS collection and advance to the next screen. This will create a waypoint with no coordinate information.
Save As New Waypoint	Creates a new GPS waypoint location and assigns the observation to the new waypoint.
Add To Last Waypoint	Assigns the observation to the previous waypoint. Used when multiple observations are recorded at a single location.

- Click **Make Observation**
- Start by making a single observation about a **live animal sighting**.
- Take a **photo** of the observed animal
- Click **Save As New Waypoint**
- Click the icon **Save the Observation**
- Repeat the process and select **Sign - Indirect Evidence** and **save the observation to the last waypoint**

Using Multi-Selects in CyberTracker

A multi-select attribute allows for multiple items to be checked off in a single screen. The subsequent screens are linked to the initial multi-select screen. This results in a more streamlined data entry where the user does not have to enter in multiple observations of the same attribute. The value of the multi-select that is linked to attribute will appear in brackets next to the attribute name at the top of the screen.

Infraction (Destroyed)	Infraction (Heard Only)
Hunting In Protected Area	Hunting In Protected Area
Illegal Entry	Illegal Entry
Possession of Firearms	Possession of Firearms
Possession of Wildlife	Possession of Wildlife
None	None

For the next observation you will use the category **Action Taken Live Animals** which will have the multi-select option available.

Action Taken Live Animals	
<input type="checkbox"/>	Confiscated
<input checked="" type="checkbox"/>	Destroyed
<input checked="" type="checkbox"/>	Observed Only
<input type="checkbox"/>	Released

- Create a single observation at a single location using the multi-select option (**Destroyed & Observed Only**)
- Create more observations using the multi-select with different combinations
- Create multiple observations at a single waypoint
- After creating multiple observations at multiple waypoints click **End Patrol**
- Click **Save** to finalize the patrol

Create a Patrol Using the Full Data Model

Once CyberTracker has returned to the initial screen of Start New Patrol & Exit CyberTracker, you are now able to start a new patrol. For this patrol you should explore some of the other observation items available to you in the Full Configured data model.

To select the Full data model you will need to exit CyberTracker and select the Full data model from the application name list.

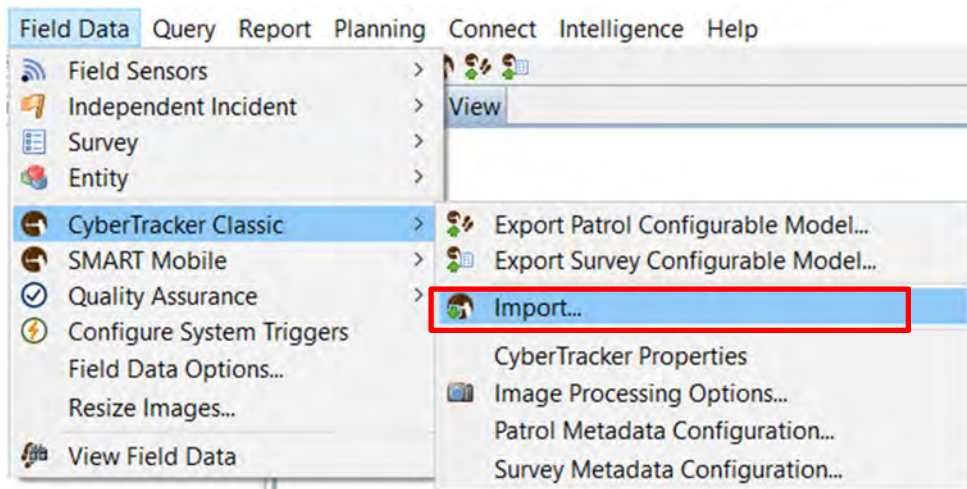
Note: When using the full data model it is easy to become overwhelmed in the size of the model. This is expected and the intention of this portion of the module. By demonstrating the difficulty of using the entire data model you will quickly see the benefit of a configured data model that has been simplified to suit the needs of the patrol team.

Full Model	Human Activity
Human Activity	People
Animals	Human Sign
Features	Shelter or Camp
Position	Weapons & Equipment
	Transportation
	Timber
	Non Timber Forest Products
	Domestic Animals
	Land Clearing
	Fire

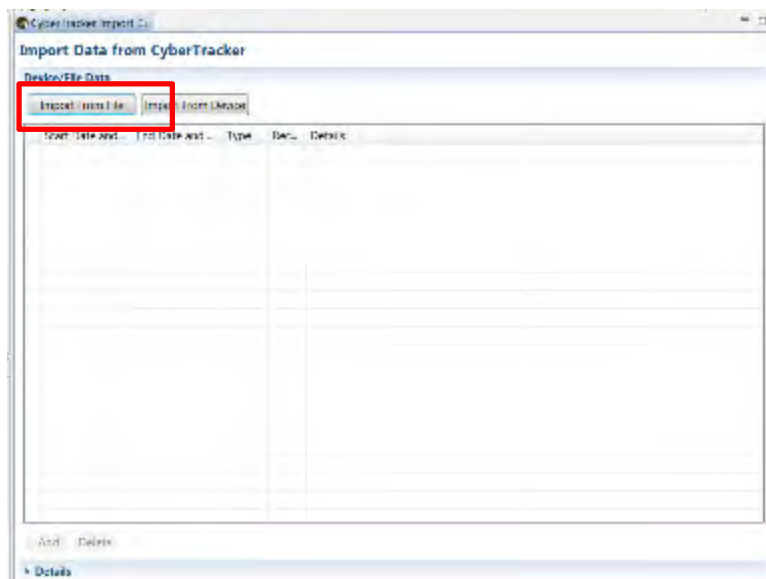
- Complete a couple small patrols using the **Full Data Model**
- After completing a couple patrols using the full data model exit out of CyberTracker and select the second configured data model and complete a couple patrols.

Importing CyberTracker Patrols into SMART

After data collection has completed, you can import the patrol information into SMART. Unlike a standard GPS import, a CyberTracker PDA import will bring in the GPS track and waypoints, and all the associated observations with those waypoints.



- Plug the CyberTracker PDA back into the computer with SMART installed
- From the menu select **Field Data > CyberTracker Classic > Import**



Import From Device - Used on the first import and will directly import the patrols from the CyberTracker PDA.

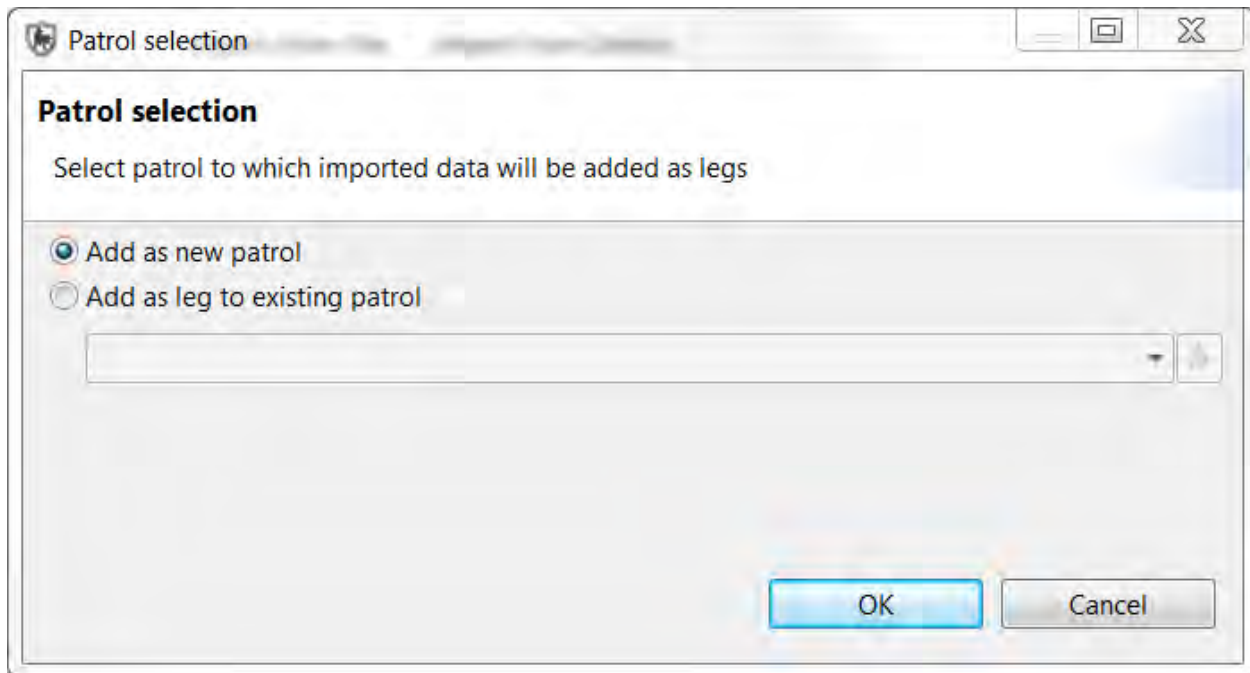
Import From File - If the CyberTracker patrols were not assigned in SMART the files are located in the filestore for that particular Conservation Area. By selecting this option SMART will access the filestore allowing users to assign these patrols after the PDA has been disconnected.

Add As New Patrol - Creates new SMART patrols from the selected CyberTracker patrols.

Add As New Leg - Takes the selected CyberTracker patrols and allows users to assign them as individual legs of a multi-leg SMART patrol. Users will be prompted to which patrol this leg will be applied to.

Delete - Deletes the selected imported CyberTracker patrols.

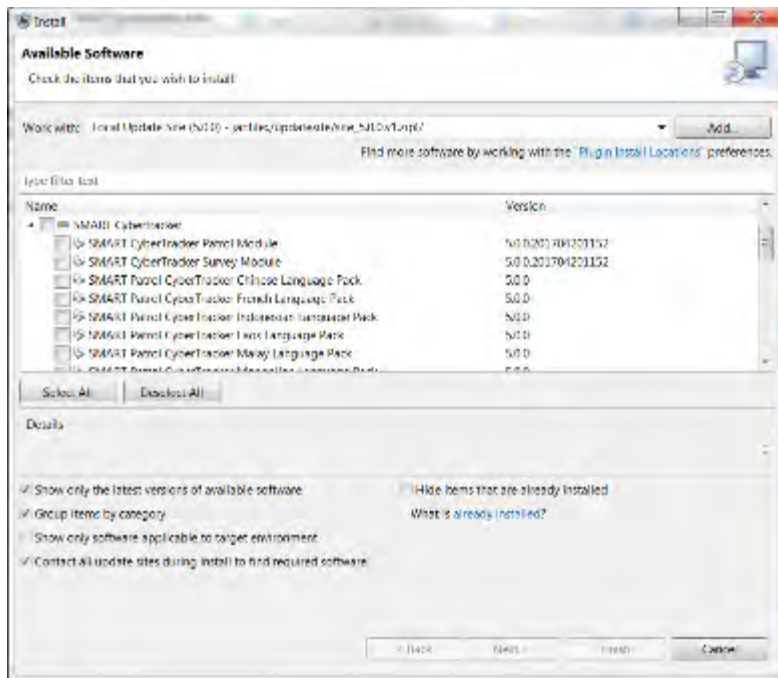
Patrol Details - Expanding of this window will allow for a detailed view of the CyberTracker.



- Select a single patrol then click the icon **Import From Device** (right-click will bring up same functions)
- Select **multiple patrols** and then assign them as **New Patrols**
- Review the patrols and observations

Internationalization

Much like the base application of SMART, the CyberTracker plug-in supports multiple languages. The installation of CyberTracker language packs are required before the supported languages will be shown in the plug-in.



To install the packs:

- From the menu select **File > Install New Plugins**
- Select "**Local Update Site - jar:file:./updatesite/site_6.2.0.v14.zip!/"**
- Click on the arrow next to ‘**SMART CyberTracker**’ to show the language pack options
- Select your **language**
- Click **Next**
- Complete the install process for the Plug-in and **restart SMART**

If you wish to help translate the software into additional languages, contact your SMART Partnership member lead, who will guide you through the translation process. You can also email info@smartconservationtools.org for assistance.

Optional Practice Exercises

The exercises and examples covered in this module have covered the core functionality of the SMART-CyberTracker plug-in but did not cover all aspects of the software. Additional practice exercises are a good way to increase your skills with the SMART-CyberTracker software.

Exercise 1 - Configurable Data Model

In the previous examples you made some minor changes to the configurable data model but did not explore some of the more advanced manipulations.

- **Build up a multi-tier (multi-group) model using groups and sub-groups**

- In the final tier (category) chose a category with a tree attribute and flatten it
- Select a few attributes and assign default values and make then not visible
- Edit the list of a list attribute (reorder and disable)
- Upload the new data model to the CyberTracker PDA
- Collect data and transfer the data back to SMART

Exercise 2 - Patrol Configuration

In the previous examples, there was no customization to the patrol configurations. For this example you will set the patrol configuration parameters using the visible and default value options.

- Create a CyberTracker application with a few of the screens set to not visible and the default values set
- Create a CyberTracker application with 100% of the screens made not visible and all values set with default values
- Upload the new data model to the CyberTracker PDA
- Collect data and transfer the data back to SMART

Exercise 3 - Internationalization

After installing the language packs and translation packs of interest.

- Edit the Configurable Data Model and provide translations for the categories, attributes and values
- Upload to the PDA using the alternate language
- Collect data and transfer the patrols back to SMART

<End of Module 9 – CyberTracker Plug-In>

MODULE 10: Entity Plug-In

Objective

This Training Module will provide instruction on how to install and use the Entity plug-in, which is used for collecting and monitoring data on fixed or moving (transient) entities.

- Installing the Entity plug-in in SMART
- Creating Entities
- Configuring Entities
- Adding Data Model entries for Entities
- Recording Entity Observations
- Querying Entity Observations

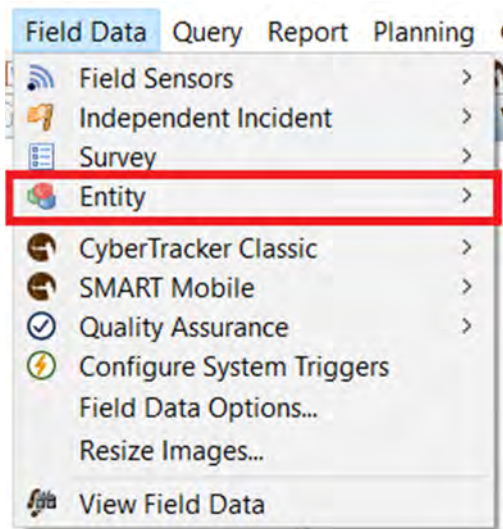
Detailed Steps

The Entity plug-in is an optional plug-in designed to monitor information about specific features (entities) within the Conservation Area. In this module, you will learn the process of setting up and configuring Entities in a manner that will allow for the recording of field information related to the Entities. The last steps in this training module will demonstrate the retrieval, querying and mapping of the Entities.

Installing the Entity plug-in in SMART

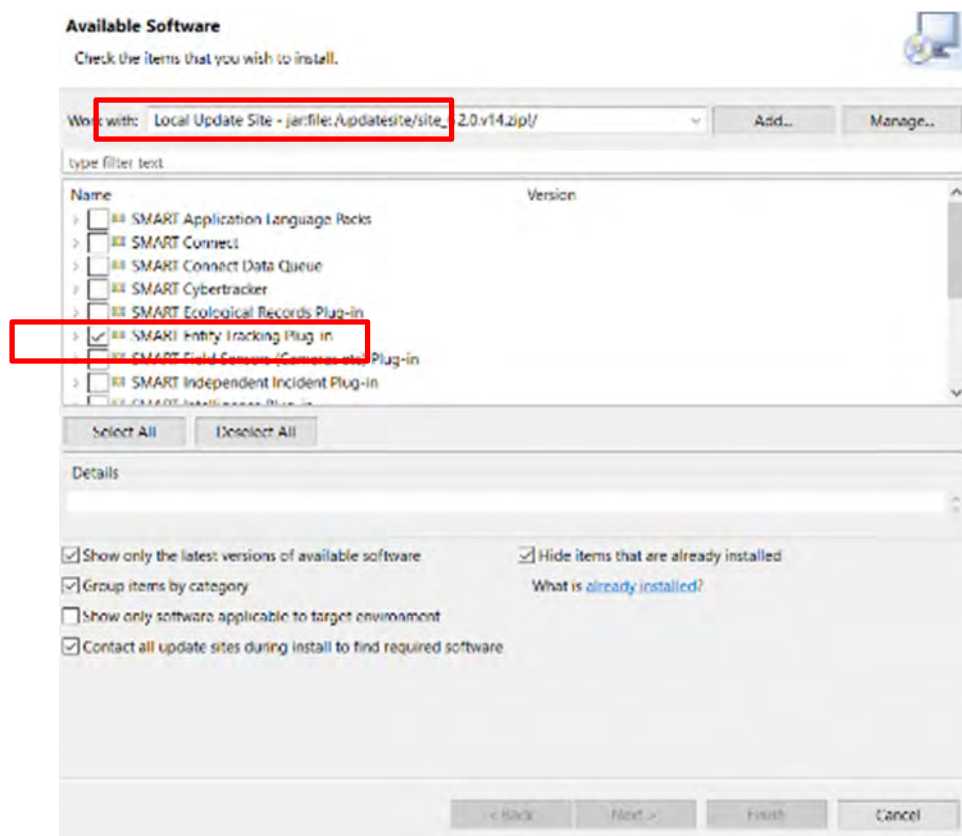
***Note:** The Entity plug-in is an optional plug-in that must be installed before proceeding with this training module.*

If you are unsure whether your installation of SMART has the Entity plug-in installed, check if you have the **Entity** option available under **Field Data** in the menu:



If you already have the Entity plug-in installed on your computer then skip the following step.

- From the menu select **File > Install New Plugins**



- Select the **Local Update Site** from the drop-down list
- Check the box next to **SMART Entity Tracking Plug-in**
- Click **Next**

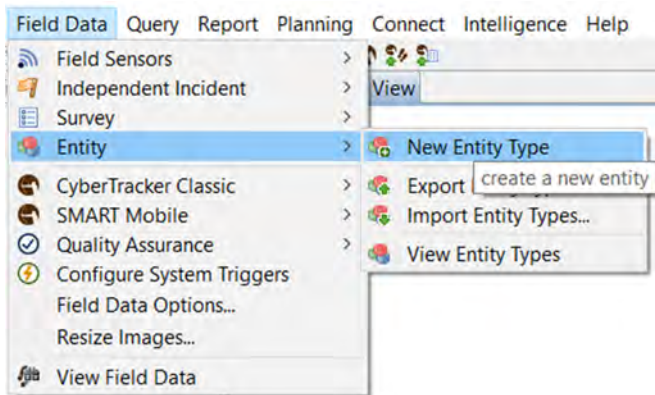
- Complete the install process for the Plug-in and **restart** SMART

Note: After the installation SMART requires a restart and users will have to log back into the Conservation Area.

Creating Entities

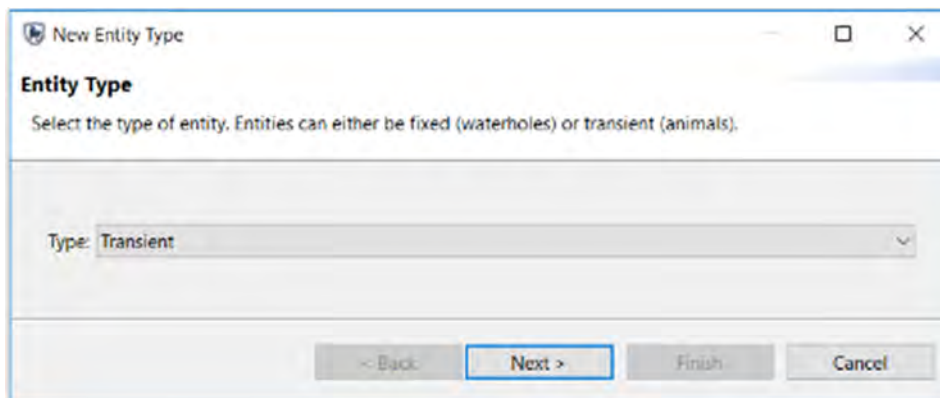
As with many aspects of SMART, some configuration is required before users are able to record and track the entities. Entities can be a fixed feature that does not change location over time (such as a gate, bridge, lake, or vegetation plot) or a feature that moves (such as a tagged animal). The locations of transient features are recorded through the regular patrol or independent observations data forms. Fixed Entities have their locations entered directly into the Entities interface once it has been completed.

Entities are organized into Entity Types that allow for monitoring and tracking of related features (species, suspects, vegetation plots). The first step in the process is to create the Entity Type.



- From the menu click **Field Data > Entity > New Entity Type**

You will first create a transient Entity Type that will represent an animal species.



- Select **Transient** then click **Next**

- Enter **Rhino** for the Entity Type and click **Next** then **Finish**

Fixed Entity

- Repeat the process but select **Fixed** instead of Transient
- Enter **Gate** for the Entity Type and click **Next** then **Finish**

Entity Overview

The overview page contains four tabs that are found at the bottom of the main window.

Entities - creation and management of individual entities or for importing/exporting entities

Configuration - sets up the available attributes for the entity type

Sightings - a quick query framework that returns the tabular results of the entity sightings

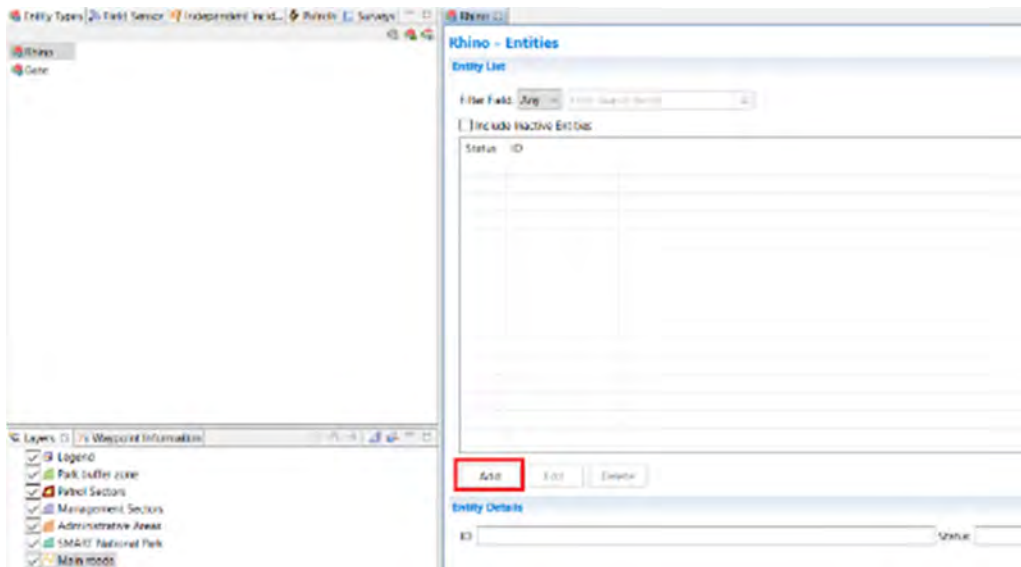
Map - opens a mapping interface showing the locations of the entities

Adding Individual Entities

After creating the two Entity types for a fixed and transient feature, you will now go through the steps of creating individual members.

Transient Entities

Transient entities are created without any location information, because the location information will come from patrols or surveys.

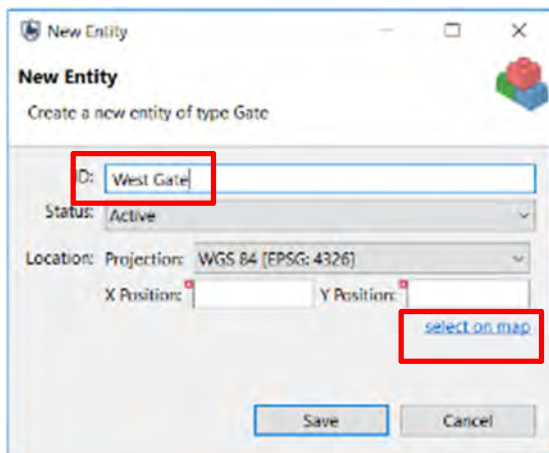


- In the overview window double-click the Rhino Entity Type then click **Add**
- Provide a name / ID for the entity member (e.g. *many animals are given their own names*) then click **Save**
- Repeat the process and **add more entries** for this entity feature

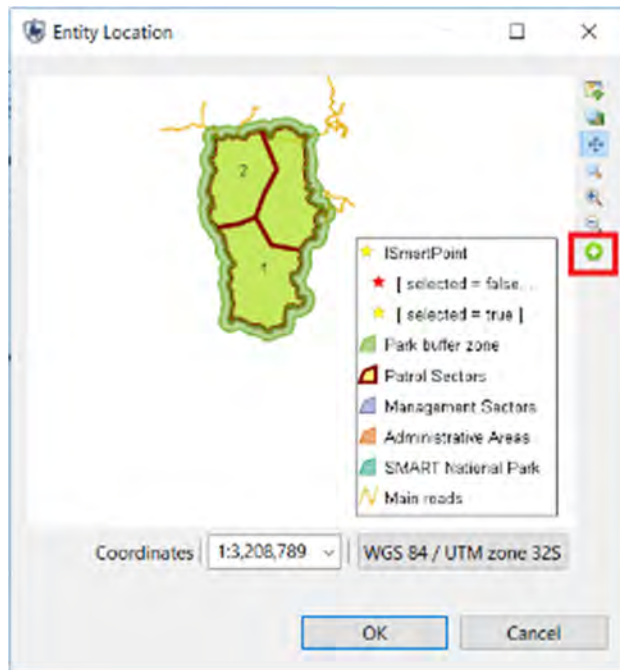
Fixed Entities

Fixed entities require users to add the location information when creating the individual entries. Positional information can be entered if the coordinates are known, or specified via a mapping interface if the exact location is not known.

- In the overview window double click to select the second Entity Type (Gates) then click **Add**



- Provide an **ID/label** for the entity member then click **select on map** for position else if position known enter in X Position, Y Position boxes. Select the appropriate **Projection**

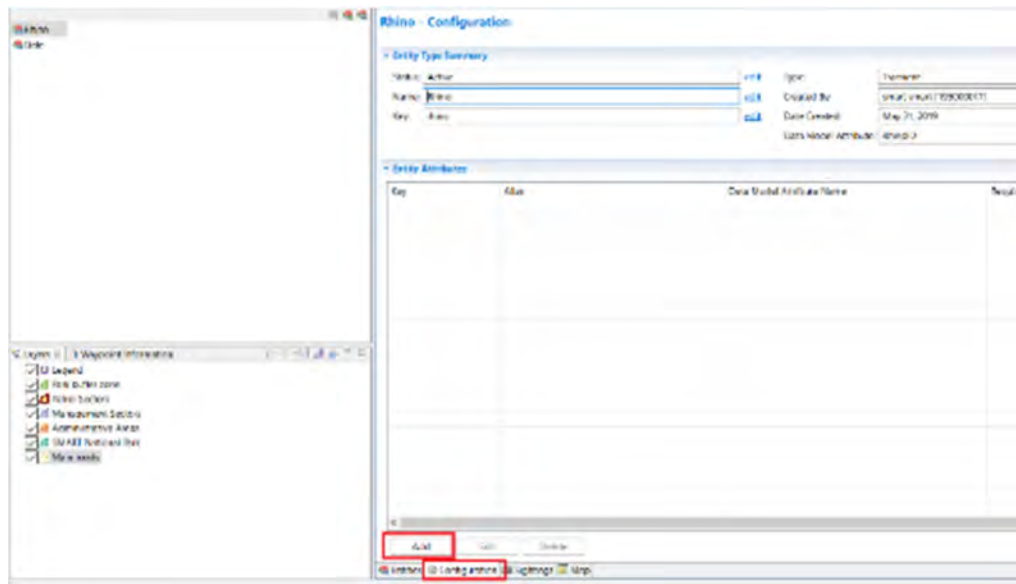


- Select the **Add Point** icon and select a location then click **OK** then **Save**
- Repeat the process and add a **few more individual members** to the fixed group

Configuring Entities

At this point, you should have a few entries for both fixed and transient entities. Currently these entities have very little information related to them other than a name, status, and if fixed, a location. The next steps will be to configure the entities with the information that you wish to collect and monitor for these entity groups.

Each entity type will likely require a unique set of attributes and possibly new category entries in the Conservation Area data model.

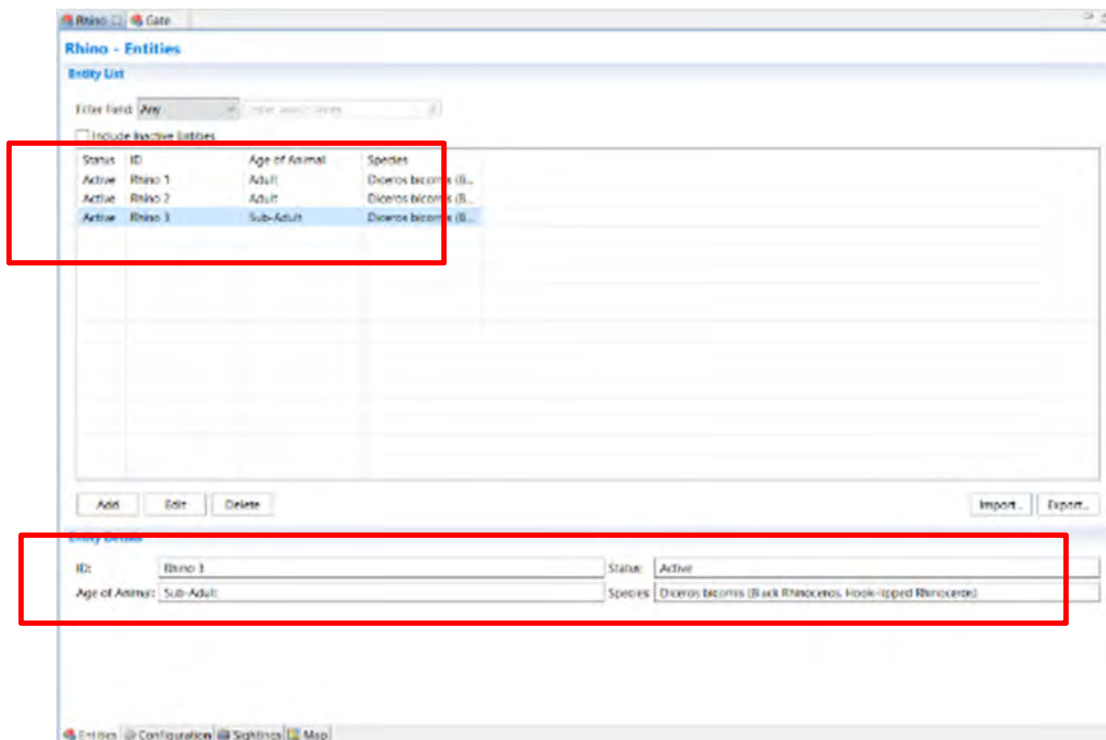


- Select the **Configuration** tab and click **Add**

Attributes added at this step are applied directly to the Entities and are generally considered fixed. *Examples: Name, Species, Date of Birth, Offspring.*

- Select the **Age of Animal** and **Species** attributes from the data model and apply them by checking their boxes and clicking **Finish**
- Return to the main **Entities** tab

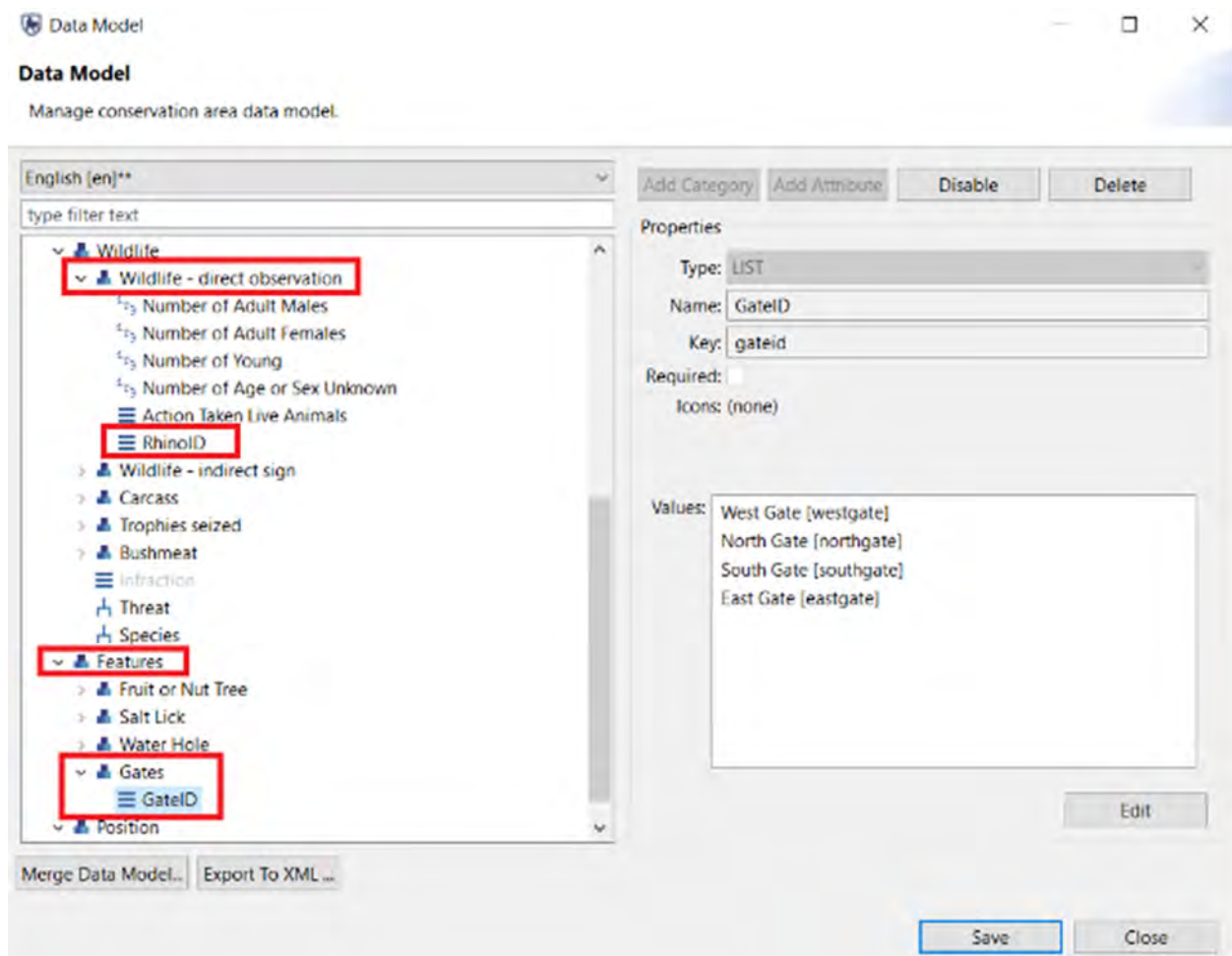
***Note:** If no appropriate attributes exist then you can create new ones for the Entity.*



- Double-click on each of your Rhino entities to populate the attributes for each individual.
- View the attributes in the **Entity Details** (lower window)
- Repeat this process for your **Gate Entities**

Adding Data Model Entries for Entities

When an Entity is created, an ID attribute is automatically created and added to the data model, but the attribute is not applied to any specific category. Before the Entity ID attribute can be recorded in a patrol observation, it must first be assigned to a category or categories.



- From the menu open the **Conservation Area Data Model**
- Add the **RhinoID** attribute to the category of **Wildlife - direct observation**
- Add a new category of **Gates** to the **Features** category
- Add the **GateID** attribute to the **Gates** category
- **Save and Close**

Creating Parent / Child Relations

Entities can be configured to provide a parent / child relationship. This can be done by referencing the automatically created ID for the entity member. An alias for the ID attribute can be applied to indicate parent(s) / child(ren).

Note: Aliases can be applied to any existing attribute.

[illegible]

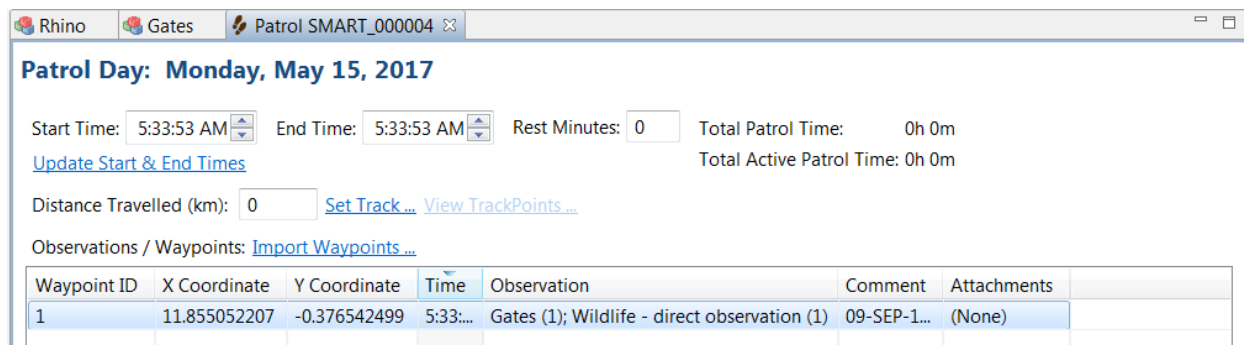
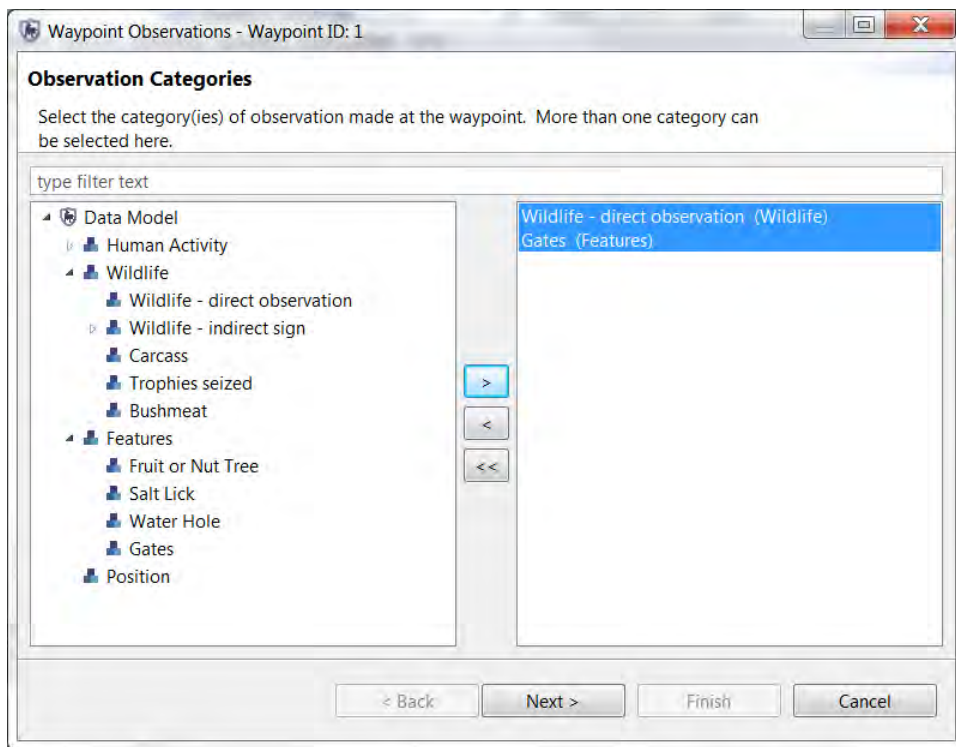
- Select the **Rhino** Entity Type and select the **Configuration** tab
- Click **Add** and select the **RhinoID** attribute
- Highlight **RhinoID** and click **Edit**
- In the **Name** field type in **Parent**
- Click **Save**
- Return to the **Entities tab** and **populate** the new **Parent attribute** to link two of your rhinos

Recording Entity Observations

After adding the Entity ID(s) to a data model category, it is now possible to record these Entities as part of a patrol.

- Create a sample patrol with a single waypoint with observations using the categories of **Wildlife - direct observation** and **Gates** along with their attributes.

- Repeat the process and add more observations to multiple waypoints in multiple locations.



Querying Entity Observations

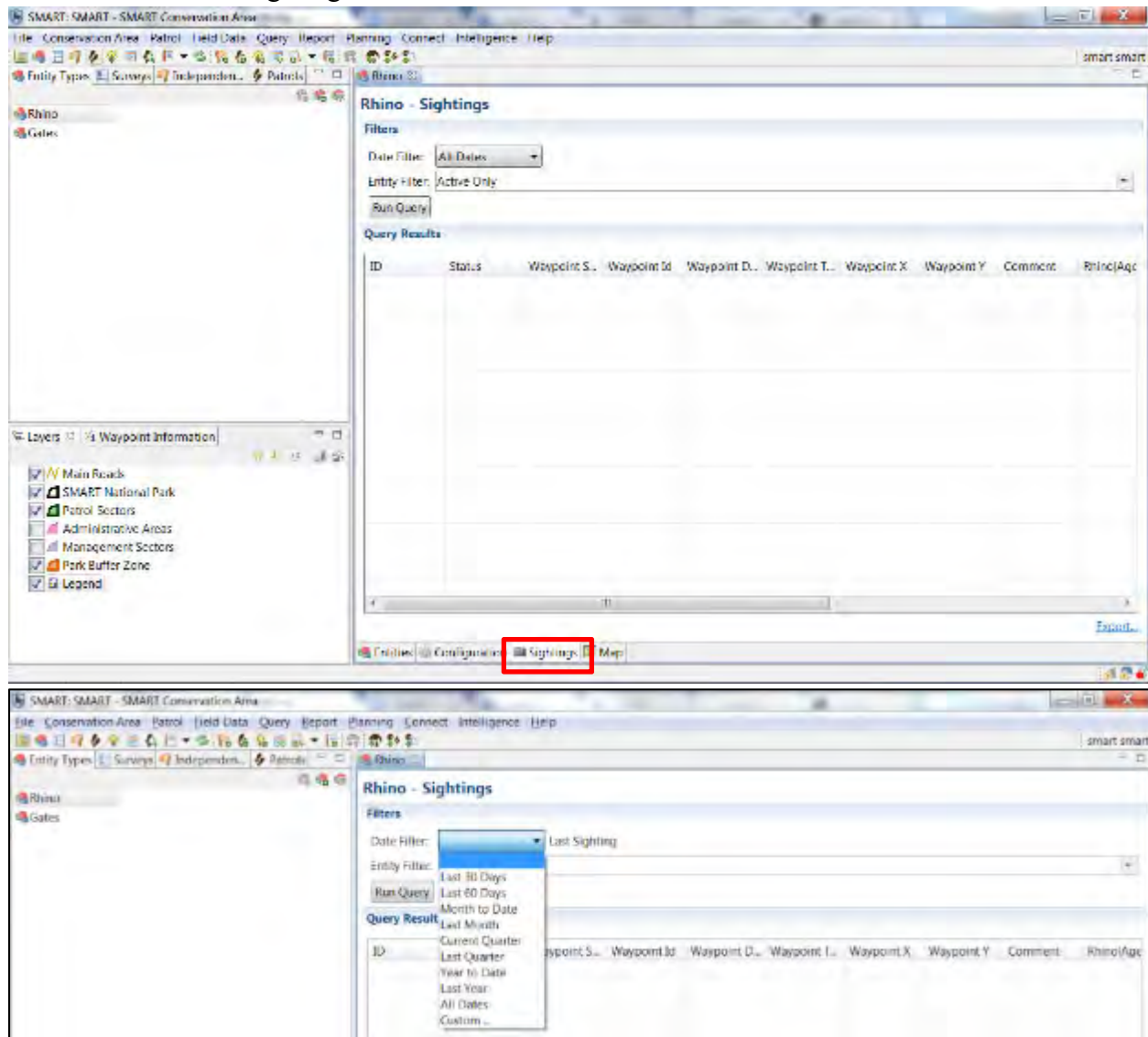
At this point in the training module, you will have:

- created Entities that are fixed in location or transient
- applied attributes to the Entities
- applied Entity IDs to data model categories
- recorded Entity information in a patrol

Note: all of these steps are necessary before any querying or reporting can occur

Entity Sightings

Entity querying on a basic tabular view is possible in the Entity Sightings tab. This table can be filtered for the Last Sighting or other date based filters.

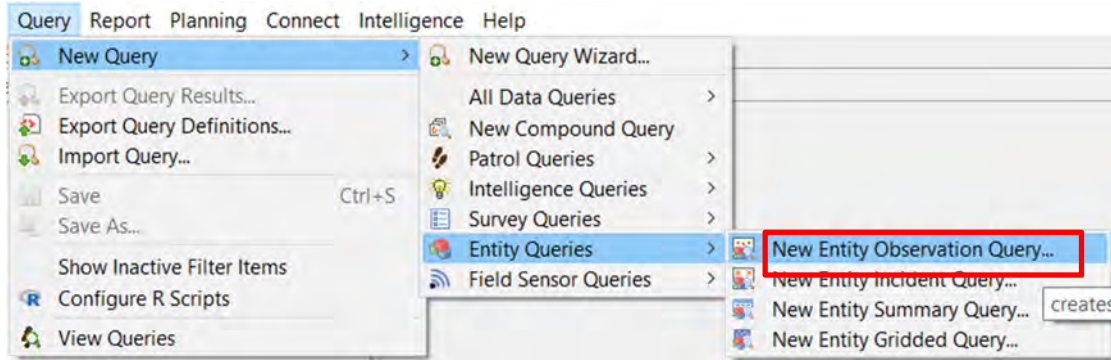


- Open the **Entity Sightings** tab and select the Date Filter of **Last Sighting**
- Repeat the process with **All Dates**

Building Queries in the Query Perspective

If more detailed queries are required, then users should use the query perspective and build the required queries using procedures learned in previous modules of the SMART Technical Training manual. The results from an Entity Query will be the same as for other queries; however Entity Queries will contain a specialized set of filters that access Entity Type attributes.

Note: The choice for an Entity Query will not be available if the Entity Tracking plug-in has not been installed.



- From the file menu select **Query > New Query > Entity Queries > New Entity Observation Query**
- In the Query Filter window build a query using the **Entity Type Filters**
- **Run and review** the results

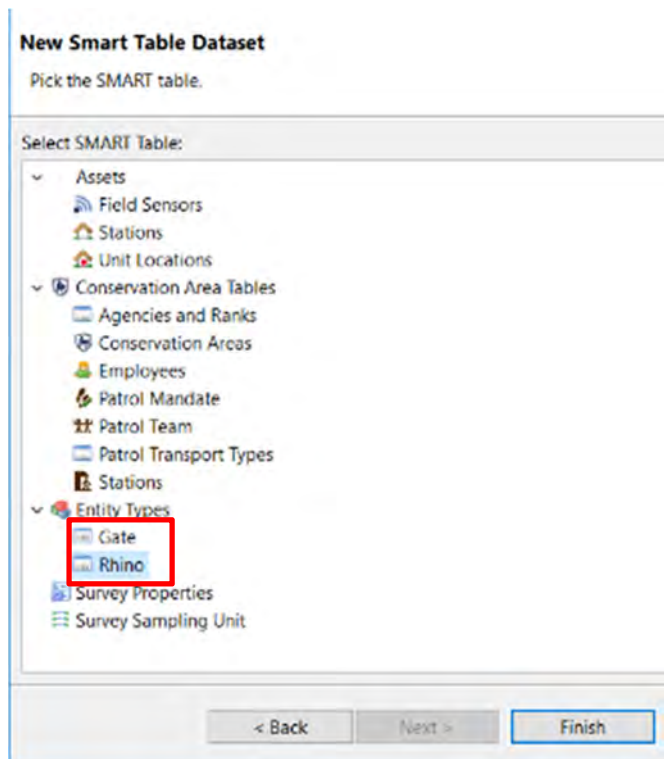
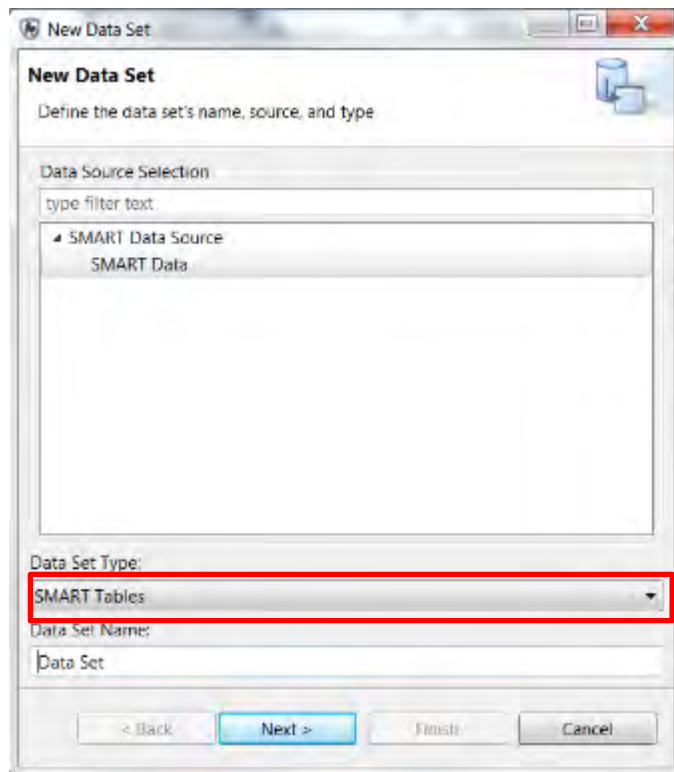
Optional Practice Exercises

The exercises and examples included in this training module have covered the core functionality of the SMART Entity Tracking plug-in, but do not cover all aspects of the plug-in. Additional practice exercises are a good way to increase your skills with this optional SMART plug-in.

Exercise 1 - Building Entities into Reports

For this optional exercise you will need to build a report showing the recent activity of the new Entities.

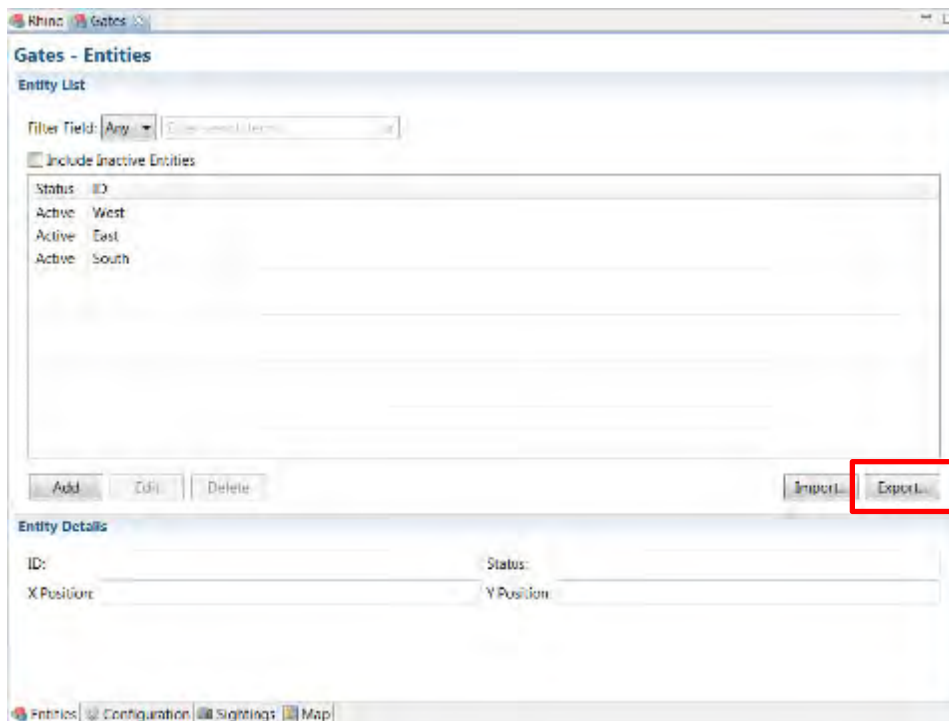
- Prepare a few **queries** for use in the report and add them to the report



- Add the **Entity Tracking tables** to the Report framework
- Create a new map object that shows the location of the Entities

Exercise 2 - Exporting & Importing Entities into other Conservation Areas

The Entity Tracking plug-in has similar functionality to other components of SMART and allows for Entity Types to be created in one Conservation Area and then exported for use in a different Conservation Area. After creating new Entity Types and configuring each one with the appropriate attributes:



- Export the selected **Entity Type**
- **Logout** of the current Conservation Area and **login to a different Conservation Area**
- Import the **Entity (csv) files** into the other Conservation Area

<End of Module 10: Entity Plug-in>

MODULE 11: Independent Incident Plug-in

Objective

This Training Module will provide instruction on how to install and use the Independent Incident plug-in, which is used for collecting and monitoring data that have come from sources other than the regular patrols or surveys.

- Installing the Independent Incident plug-in in SMART
- Creating Independent Incidents
- Configuring Independent Incidents
- Recording Independent Incident Observations
- Querying Independent Incident Observations

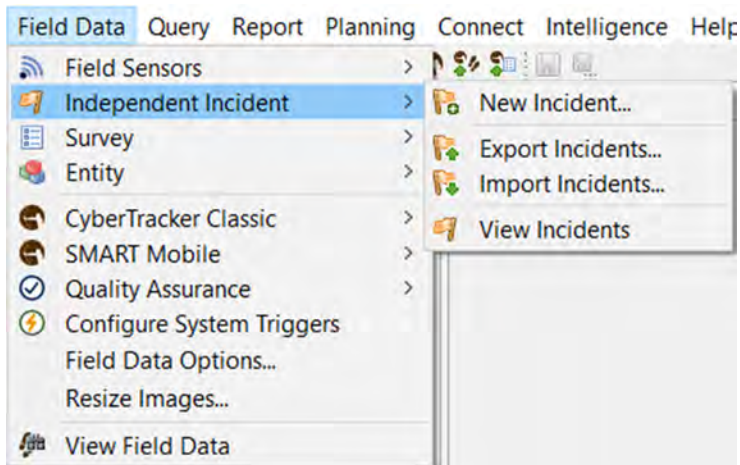
Detailed Steps

The Independent Incidents plug-in is an optional addition designed to record and query observations from sources other than standard patrols or surveys. While patrols and surveys are the primary sources of field information, other sources of information (researchers, NGOs, community and public) could potentially provide valuable information that would be difficult to enter into SMART without this optional plug-in.

Installing the Independent Incident plug-in in SMART

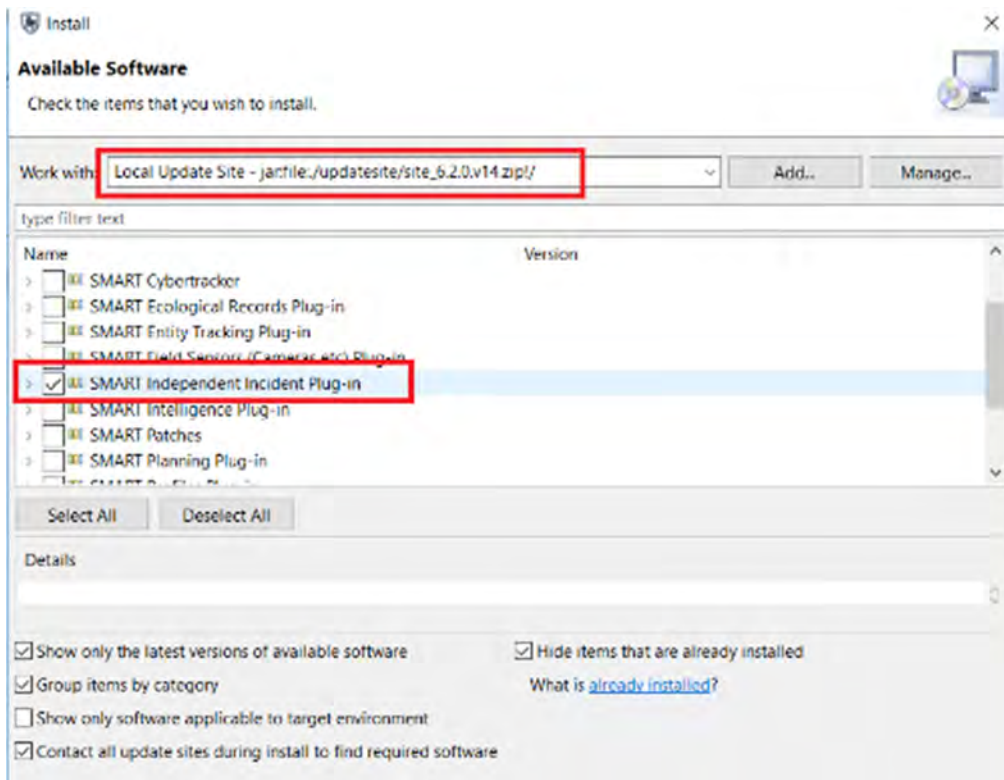
Note: The Independent Incident plug-in is an optional plug-in that must be installed before proceeding with this training Module.

If you are unsure whether your installation of SMART has the Independent Incident plug-in installed, check if you have the **Independent Incident** option available under **Field Data** in the menu:



If you already have the Independent Incident plug-in installed on your computer, then skip the following step.

- From the menu select **File - Install New Plugins**



- Select the **Local Update Site**
- Check the box next to **SMART Independent Incident Plug-in**
- Click **Next**
- Complete the install process for the Plug-in and **restart SMART**


Note: After the installation, SMART will require a restart and users must log back into the Conservation Area.

Creating Independent Incidents

The creation of Independent Incidents in SMART is done through a simple wizard that guides users through the steps necessary to complete the process.

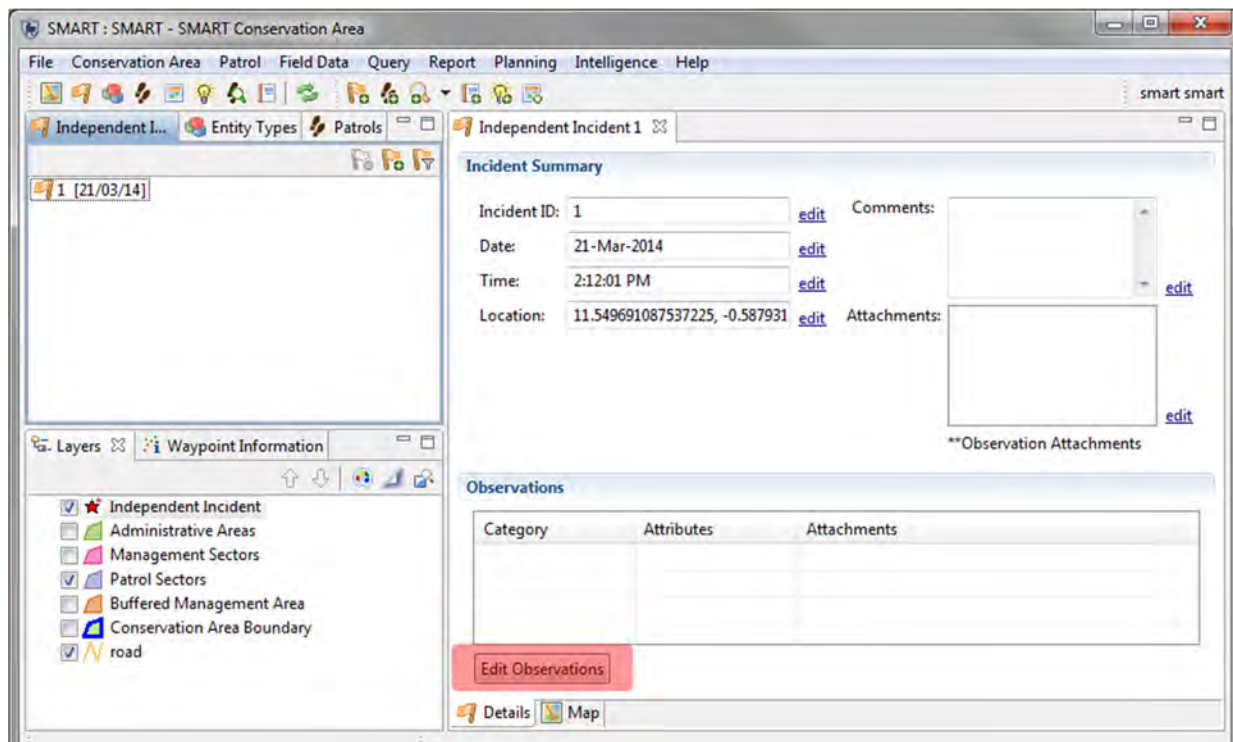
- From the menu select **Field Data > Independent Incident > New Incident**
- Use the default **Incident ID** and click **Next**
- Enter a **Date** and **Time**

The Location information for the Independent Incident can be entered directly into the X/Y fields if the exact coordinates are known. If the coordinate information is not known, the location can be specified via a mapping interface.

- Click **Select on Map ...** to open the mapping interface
- Select a **location** within the Conservation Area using the add point tool 
- Click **OK**
- Click **Next** through the remaining screens, then **Finish**

After the final steps have been completed, the Independent Incident overview window will open. If there are any edits or corrections to the Independent Incident information click the "edit" link located to the right of the information.

Once the wizard has finished, the Independent Incident is in a similar state that a patrol would be in, at initial creation. The base information for the date, time, location and other attributes has been set, but the actual observation has not yet been entered into SMART.



- To enter in the Independent Incident information click **Edit Observations**

The observation interface will open as it would for a standard observation.

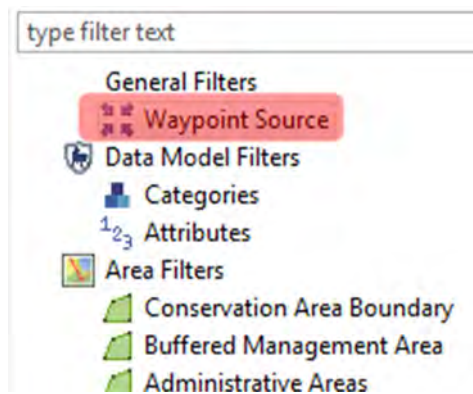
- Enter observation information for the **Independent Incident**
- Repeat the entire process of creating and adding information for **a few more Independent Incidents**

***Note:** Attachments can be applied individually to the Independent Incident location and to each and every observation associated with the Independent Incident.*

Querying Independent Incident Observations

Querying Independent Incidents is done through the query perspective - All Data Queries.

To isolate Independent Incidents, users will use the General Filter of "Waypoint Source". The results will include only the observations that were created in the Independent Incident interface.



- From the menu create a new query from the option of **All Data Query > Observation Query**
- Select **Independent Incident** from the **General Filters > Waypoint Source**
- Run the query and view the results in the **tabular and mapping tabs**

Optional Practice Exercises

The exercises and examples included in this module have covered the core functionality of the SMART Independent Incident plug-in but do not cover all aspects of the plug-in. Additional practice exercises are a good way to increase your skills with this optional SMART plug-in.

Exercise 1 - Creating Independent Incident Reports

For this optional exercise, you will build a report showing the recent activity of the new Independent Incidents that have occurred in the Conservation Area for the last year.

- Prepare a few **queries** for use in the report and add them to the report framework
- Add the new queries to the report
- Include a map of the incident locations

<End of Module 11: Independent Incident Plug-in>

MODULE 12: Ecological Records Plug-In

Objective

This module will provide instructions on how to install and use the Ecological Records plug-in for recording and analyzing field survey data.

- Installing the Ecological Records plug-in
- Creating and configuring survey designs
- Setting up surveys and missions
- Mission results data entry
- Querying survey data

Detailed Steps

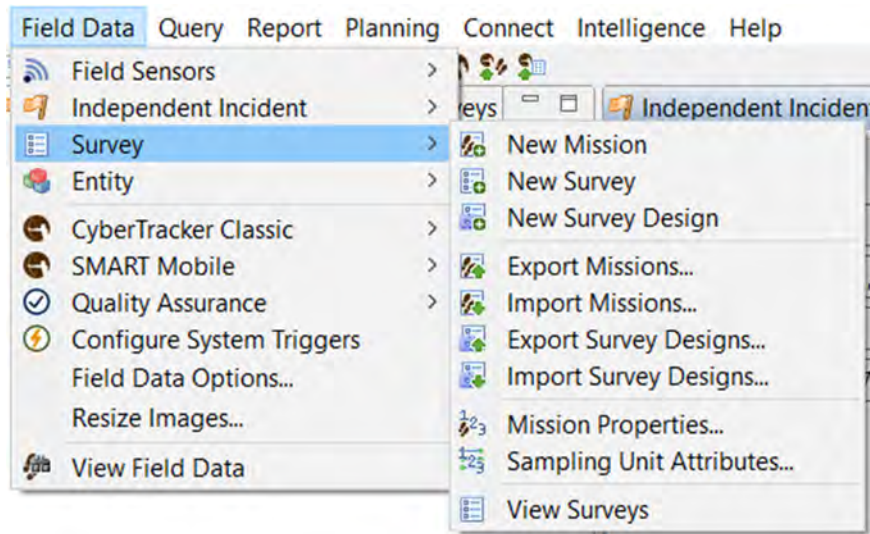
SMART - Ecological Records is an optional plug-in that allows SMART users to manage Ecological surveys in a framework that closely resembles SMART's Patrol framework. This training module will start with installing the plug-in and move through the steps of configuring, populating and querying survey information.

The Ecological Records (Survey) plug-in is an extension to SMART and the information in this training module covers these particular features and functionality. The expectation of this training module is that users should already be familiar with the features and functionality of SMART, as some elements will be mentioned but not explained.

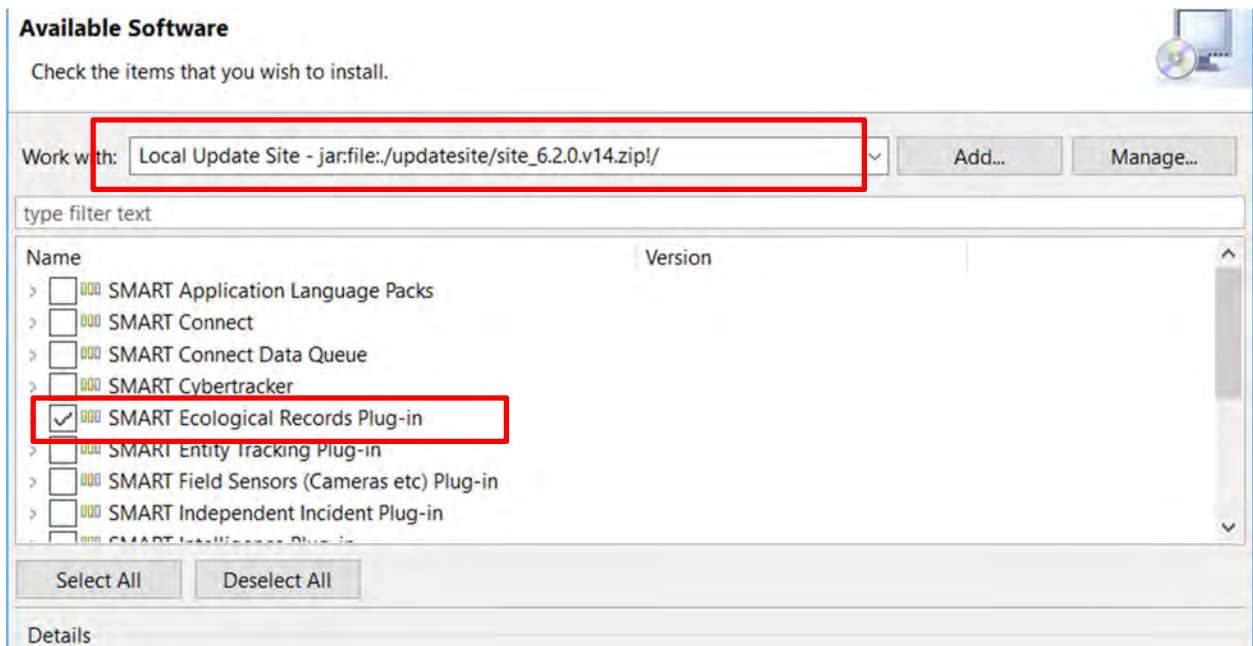
Installing the Ecological Records plug-in

***Note:** The Ecological Records plug-in is an optional plug-in that must be installed before proceeding with this training module.*

If you are unsure whether your installation of SMART has the Independent Incident plug-in installed, check if you have the **Survey** option available under **Field Data** in the menu:



To install the Ecological Records plug-in:



- Select the **Local Update Site** from the drop-down list
- Check the **box** next to SMART Ecological Records Plug-in
- Click **Next**
- Complete the install process for the Plug-in and **restart** SMART

Note: After the installation of the Ecological Records plug-in, SMART requires a restart and users will have to log back into the Conservation Area.

Importing Module 12 Conservation Area

To set the working environment you will import a Conservation Area containing the components for completing this module.

- Log out and import the Conservation Area file SMART_ER_Module12.bak.zip located in the Module 12 folder
- After the import, log in to ER - Ecological Records (Survey) using "smart" as both the User Name and Password

Creating and Configuring Survey Designs

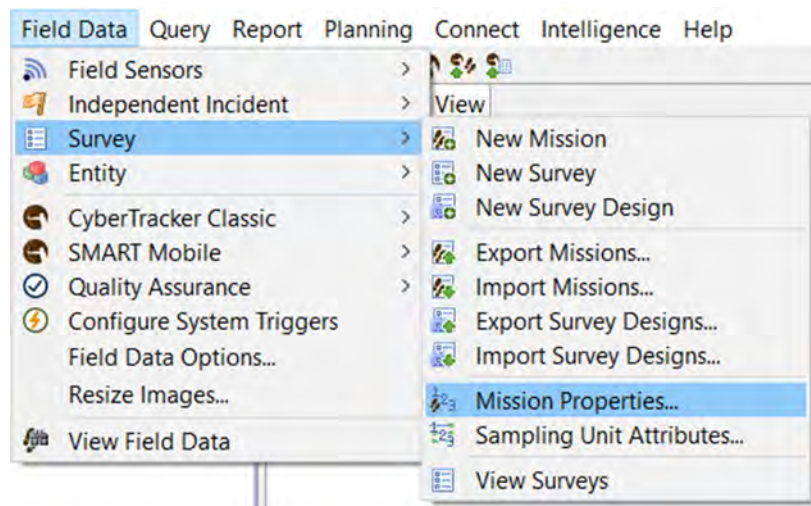
Creating Mission Properties

A mission describes the act of going out into the field to gather survey information. Missions generally involve a group of members visiting one or more sampling units and making a collection of observations. Each mission is associated with a survey.

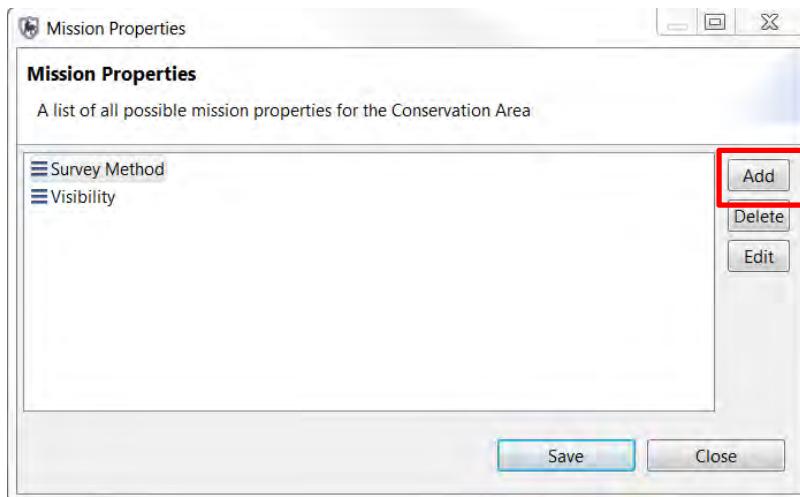
Mission properties are attributes that are common to all survey missions. These attributes are configured globally and are later applied to individual missions.

Mission properties are created in the same way as standard data model attributes are created (*see Module 7 - Data Model Management*).

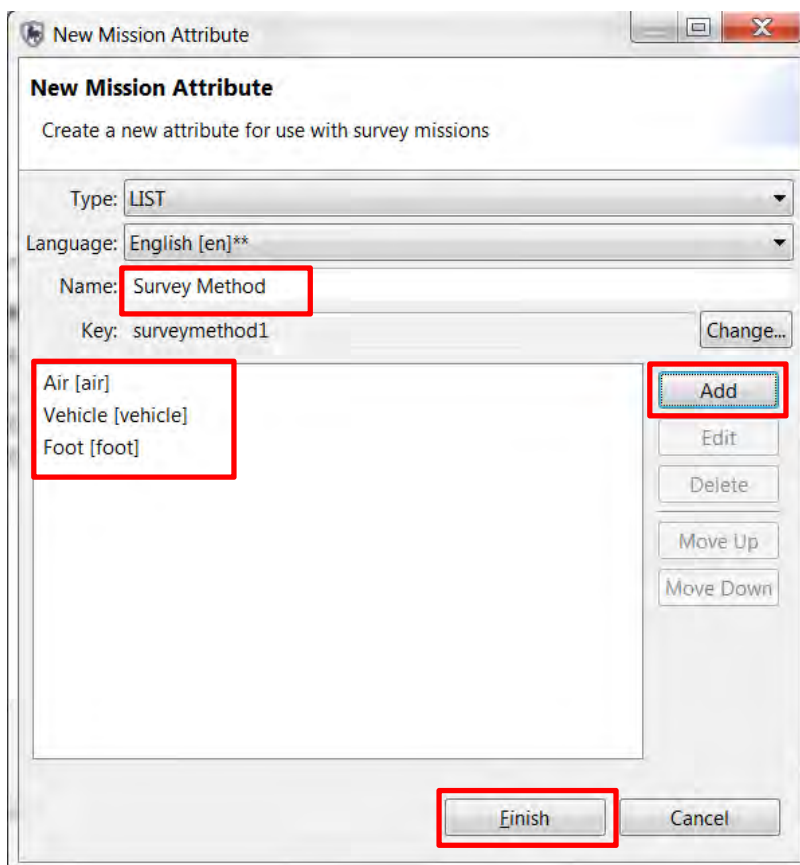
The first step of this module is to create two Mission property attributes:



- From the menu select **Field Data > Survey > Mission Properties**

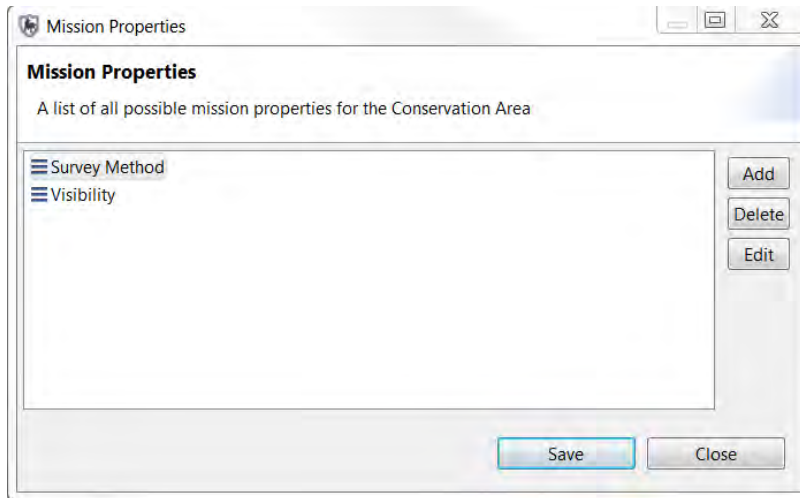


- Click **Add**



- Select **List** under **Type**
- Type **Survey Method** in the Name box
- Click **Add**
 - Add **three list choices** (Air, Vehicle and Foot)
- Click **Finish**
- Add a second List attribute called **Visibility** with these choices: **High, Low, Moderate**

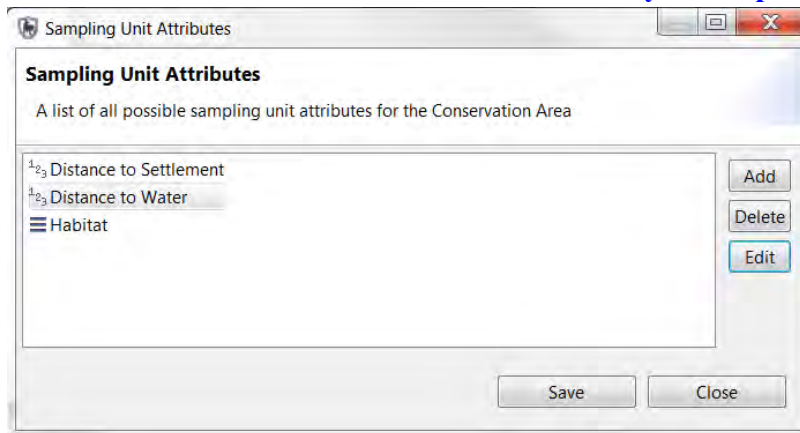
- Select **Save** and **Close**



Sampling Unit Attributes

A sampling unit is a transect or plot where observations are made one or more times. Plots (points) may occur along a transect (lines). Attributes are associated with a single sampling unit.

- From the menu select **Field Data > Survey > Sampling Unit Attributes**



- Add three attributes: In this example, there are:
 - **Habitat** (list with 3 attributes) – **Forest, Grasslands, Swamp**
 - **Distance to Water** (numeric)
 - **Distance to Settlement** (numeric)
- Select **Save** and **Close**

Sampling Unit attributes are configured globally and are later applied to individual survey designs.

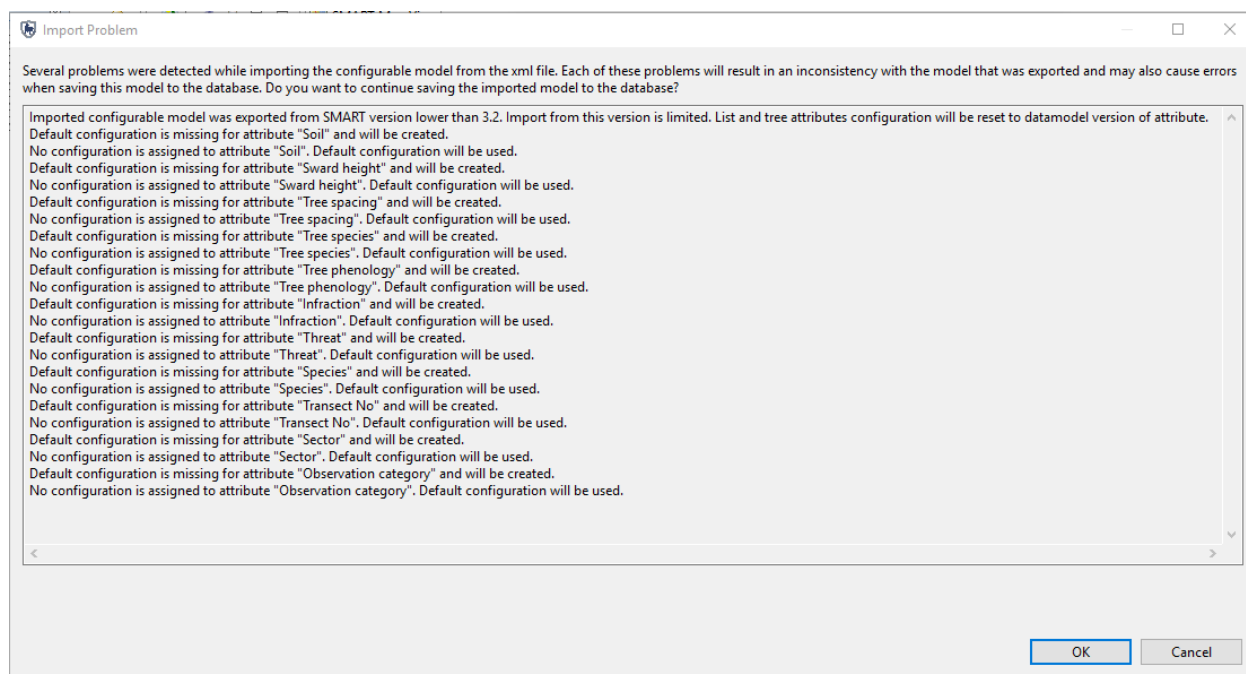
Creating a Configurable Data Model

Using a Configurable Data Model as part of the survey design is ***entirely optional***. The default data model for the Conservation Area could be used with the Ecological Records (Survey) module if a Configurable Data Model is not required. For this training module, you will go through the steps to link a Survey Design to a Configurable Data Model.

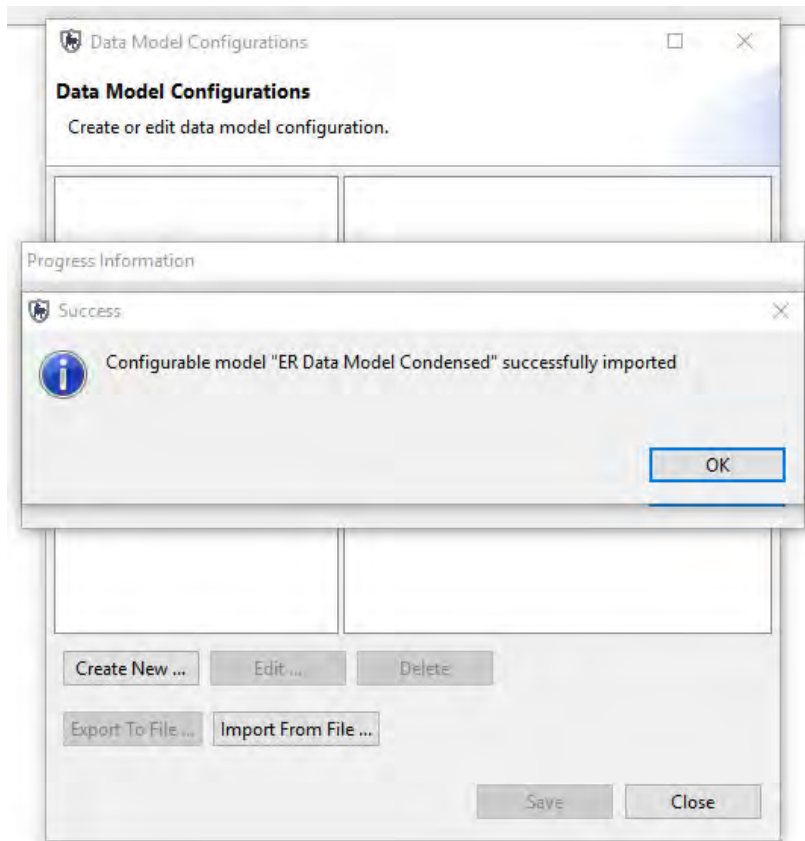
Note: A Configurable data model can be assigned to more than one survey design. The survey observation categories and attributes must first be defined in the Conservation Area data model (see the Data Model Management training module for details).

For this Module, you will import a predefined Configurable model:

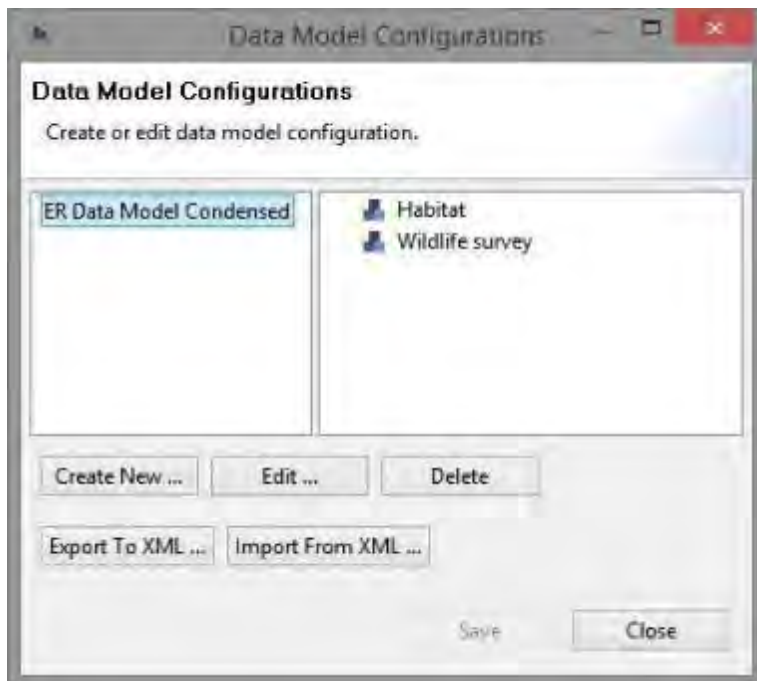
- From the menu select **Conservation Area > Configurable Model...**
- Click **Import From File...**
- In the Module 12 folder select **ER Data Model Condensed.xml** and **Open** it
- You may see the following error – it is ok. Select **OK**.



- Once you see the message, 'Configurable model "ER Data Model Condensed" successfully imported', select **OK**



- Select **Close**



Creating a Survey Design

The survey design is a template for the survey data collection. This includes the survey properties, mission properties, and sampling unit definition, but not any data. The data associated with a survey design is represented by surveys and missions.

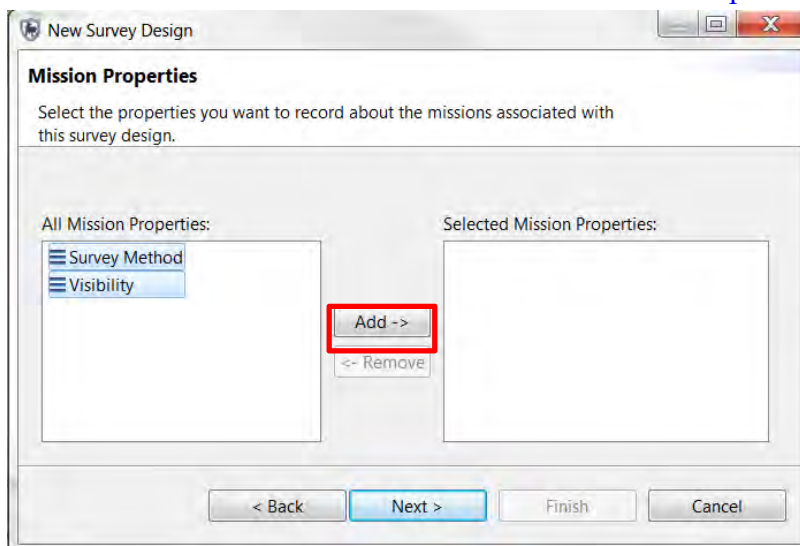
- From the menu select **Field Data > Survey > New Survey Design**
- Enter **ER Training Survey** for the Name and click **Next**.

Note: Survey Dates are optional and could be used to limit the Surveys and Missions associated with the Survey Design.

- Leave the date **unchecked** and click **Next**

Note: As with Patrol observations, the Survey Design can be set up with Record Distance & Direction as well as the Observer.

- Observation Options are optional, but for this example check **both options** then click **Next**
- Select **ER Data Model Condensed** from the drop down list and click **Next**



- Select the **Mission Properties** on the left
- Click **Add** to move them to the **right**
- Click **Next**

Survey Properties

Properties that will be associated with this survey design. Double click to edit.

Name	Value
Sampling Unit Type	Line Transect
Number of Sampling Units	6
Sampling Unit Length	40

Add
Delete

< Back Next > Finish Cancel

- Click **Add** to add a few Survey Properties by **double clicking** each item to edit.
- Fill in the survey properties as shown above
- Click **Next**.
- Add a **Description** for the Survey Design
- Click **Finish** to complete the Survey Design

ER Training Survey: Design Summary

[Translate...](#)

Survey Design Details

Name: [edit](#) Status: [edit](#)

Start Date: Key: [edit](#)

End Date: [edit](#)

Configurable Model: [edit](#)

Observation Options: ☒ Distance & Direction ☒ Observer [edit](#)

Description: [edit](#)

Properties:

Name	Value
Sampling Unit Type	Line Transect
Number of Sampling Units	6
Sampling Unit Length	40

[edit](#)

Mission Properties

Additional properties that will be collected by each mission associated with this survey design.

☒ Surveymethod

☒ visibility

[edit](#)

Summary **Sampling Units** Survey Data

You have created the initial framework of the Survey Design and will continue to develop the Survey Design by adding Sampling Units and then Surveys and Missions.

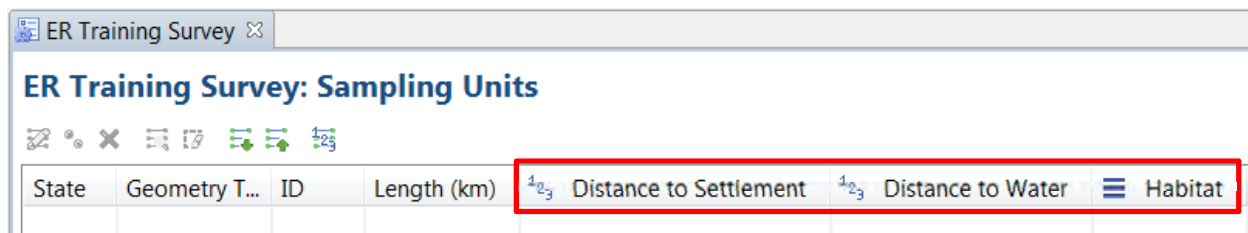
- Select the tab **Sampling Units** tab at the bottom of the Summary page.

ER Training Survey: Sampling Units

Icons: Add, Delete, Copy, Paste, Undo, Redo, Refresh, Help


- After the Sampling Units window opens select the **configure sampling unit** attributes icon at the top of sampling units window
- Select all 3 previously created Sampling Unit Attributes and add them to the Survey Sampling Unit Attributes
- Click **OK**

At this point, you should see the attributes added to the Sampling Units window.



The sampling units (and their attributes) are imported from an external source. Sampling units (and their attributes) can be imported from ESRI Shapefiles or text files (tab, comma, semi-colon, colon delimited). You will import from both sources with the import wizard.

Wildlife sampling transects will be imported first.

- Click the **icon import** sampling units from a file 
- Select **Import new sampling units** and click **Next**
- Select **Transects (Lines)** and then **Next**
- Browse to the folder **Module 12** and select the Shapefile "**SampleUnit_transect.shp**",
- **Open** and click **Next**

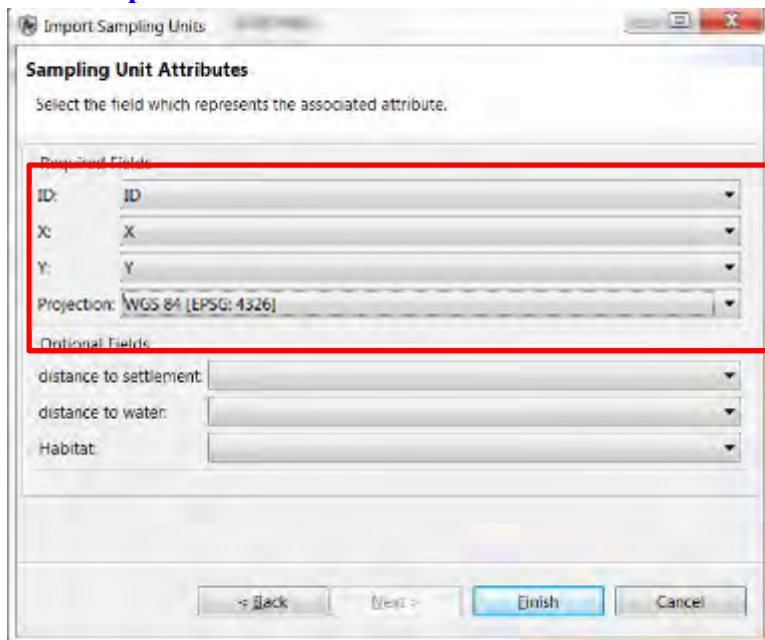
The following screen allows for attribute mapping between what is in the imported Shapefile and the Survey Design template. The file being imported does not contain some of the necessary information, so for the most part you will leave the default settings.

- Select **SU_ID** for the ID field
- Click **Finish** to complete the import process

At this point, the recently imported Sampling Unit attributes can be selected and then edited by using the icon to set the attributes. 

Another method of importing Sampling Units is to use a CSV file. You will use a CSV to create the next set of Sampling Units.

- Click the icon **import sampling units** from a file
- Select **Import new sampling units** then click **Next**
- Select **Plots (Points)** then click **Next**
- Browse to the folder Module 12 and select the CSV file "**SampleUnit_plots.csv**" and **Open** then **Next**.

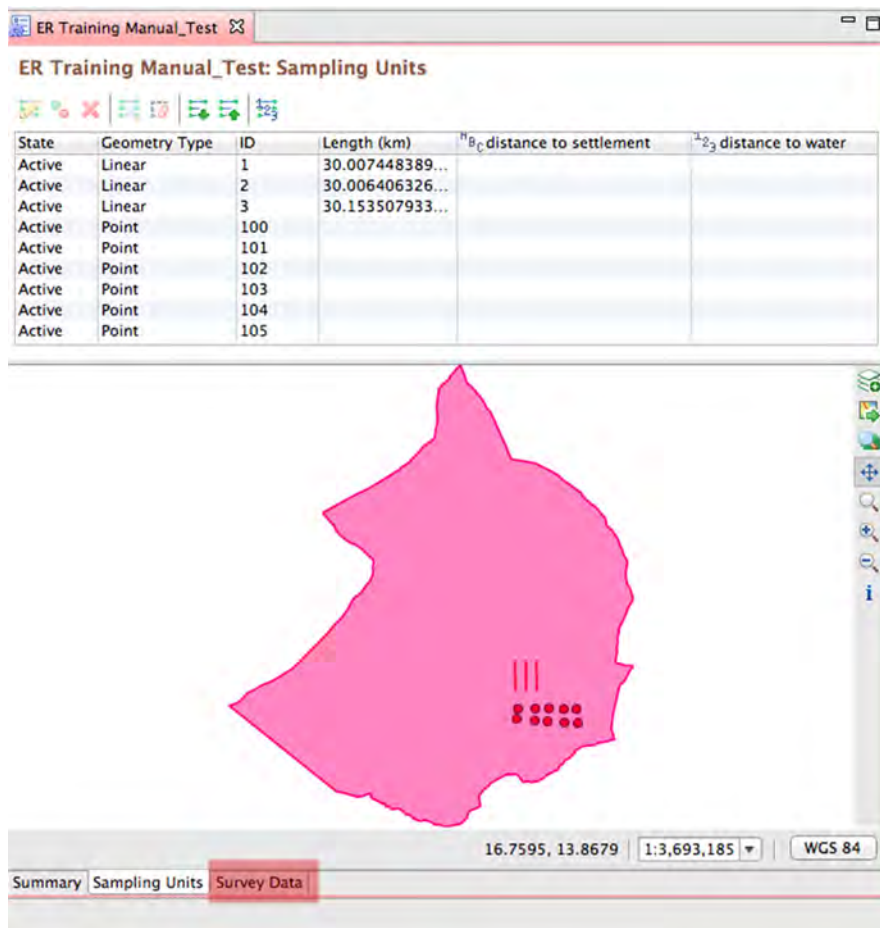


- Set the **ID, X, Y and Projection** fields as shown above then click **Finish**

Creating a Survey

You have now created a Survey Design template that will be used as a template for creating a Survey. Later on, Missions will be created to collect data for the Survey.

Survey – A collection of missions that represent a single complete set of survey data (visiting all sampling units, making required observations). A survey may be of any length and may consist of one or more missions. Each survey is associated with a survey design.



- Click the **Survey Data** tab on the bottom right



- In the Survey Data window click the icon "create a new survey"
- Enter Survey Id **1** and click **Next**
- Click **Finish** on the Survey Dates screen

Note: Date ranges in the survey have to be within the ranges for the survey design.

Creating a Mission

You have now created a Survey Design template and a survey that uses the template. The next step is to create individual missions that collect data for the Survey.

Mission – A mission is the act of going out into the field to gather survey information. Missions generally involve a group of members visiting one or more sampling units and making a collection of observations. Each mission is associated with a survey.



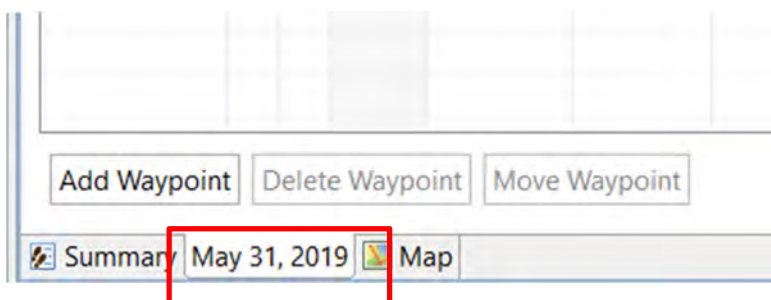
- In the Survey Data window, click the icon "**create a new mission**" for the survey created above.
- Follow the wizard through and fill out the required fields
- Click **Finish** to complete the mission wizard

***Note:** Missions are nested within Surveys and Surveys are nested within Survey Designs; thus any Mission date ranges have to be within the ranges for the survey design and the survey.*

- Double-click on the Mission to open the summary window

This summary screen mimics the summary screen used for Patrols. At this point you can update the information entered using the wizard as well as adding waypoint and observation information. Adding waypoints and observations are done in the same way as with patrols.

Importing Waypoints and Creating Tracks



- Select **the Mission Date Tab**
- Click **Import Waypoints**
- Select waypoint type **CSV File** and click **Next**
- Browse to the folder Module 12 and select the file "**Survey Waypoints.csv**"
- Choose "**Select which waypoints to import for**" and click **Next**

Import Waypoint Data

Select the appropriate columns in the CSV file to map to the required fields.

Required Columns

X coordinate: Longitude

Y coordinate: Latitude

Date: Date

Time (see help for valid formats): Time

Optional Columns

Waypoint ID: ID

Comments Field:

Data Options

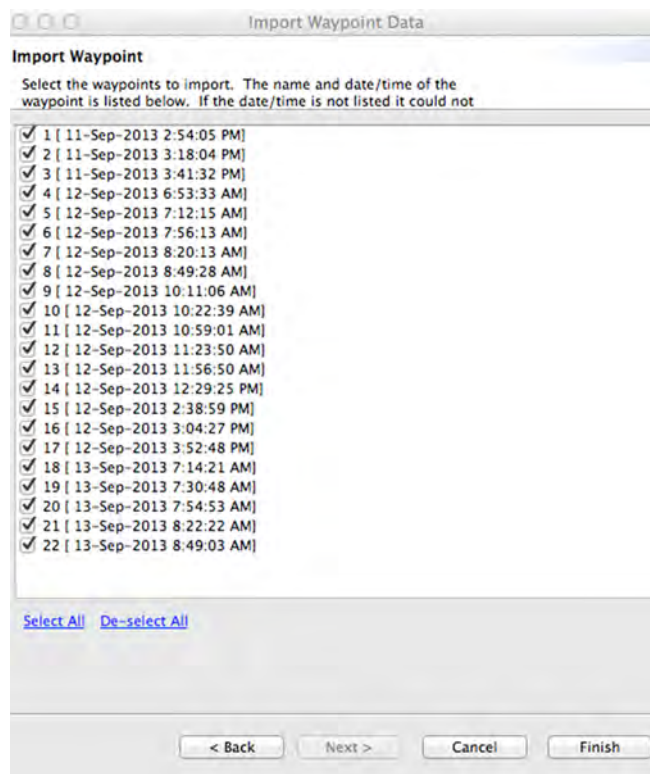
Coordinate Projection: WGS 84 [EPSG: 4326]

Date Format: d/M/y

☒ Skip the first row of column heading when importing.

< Back Next > Finish Cancel

- Complete the field matching as shown above



- Click **Next** and then choose **Select All** then click **Finish**
- Click on the **Map** tab to view the imported Waypoints

Importing and Editing Tracks

UK Training Survey 000-A May 15, 2017

Mission: Friday, May 31, 2019

Start Time: 06:00 AM End Time: 11:59 PM Rest Minutes: 0 Total Tracks: 246 On

Tracks

edit & import Distance Traveled (km): 0.0

Observations/Waypoints: [Import/Export...](#)

Waypoint ID	X	Y	Time	Direction	Distance	Sampling Unit	Observation	Comment	Attachment	Last Modified	Last Modified By
4	1	1	6:53			(None)	(None)		(None)	May 31, 2019	smart smart
5	1	1	7:12			(None)	(None)		(None)	May 31, 2019	smart smart
18	1	1	7:16			(None)	(None)		(None)	May 31, 2019	smart smart
19	1	1	7:19			(None)	(None)		(None)	May 31, 2019	smart smart
20	1	1	7:54			(None)	(None)		(None)	May 31, 2019	smart smart
6	1	1	7:56			(None)	(None)		(None)	May 31, 2019	smart smart
7	1	1	8:27			(None)	(None)		(None)	May 31, 2019	smart smart
21	1	1	8:27			(None)	(None)		(None)	May 31, 2019	smart smart
22	1	1	8:49			(None)	(None)		(None)	May 31, 2019	smart smart
8	1	1	8:49			(None)	(None)		(None)	May 31, 2019	smart smart
9	1	1	10:1			(None)	(None)		(None)	May 31, 2019	smart smart
10	1	1	10:2			(None)	(None)		(None)	May 31, 2019	smart smart
11	1	1	10:5			(None)	(None)		(None)	May 31, 2019	smart smart
12	1	1	11:2			(None)	(None)		(None)	May 31, 2019	smart smart
13	1	1	11:5			(None)	(None)		(None)	May 31, 2019	smart smart
14	1	1	12:2			(None)	(None)		(None)	May 31, 2019	smart smart
15	1	1	2:18			(None)	(None)		(None)	May 31, 2019	smart smart
1	1	1	2:54			(None)	(None)		(None)	May 31, 2019	smart smart
16	1	1	3:04			(None)	(None)		(None)	May 31, 2019	smart smart
2	1	1	3:18			(None)	(None)		(None)	May 31, 2019	smart smart
3	1	1	3:41			(None)	(None)		(None)	May 31, 2019	smart smart
17	1	1	3:57			(None)	(None)		(None)	May 31, 2019	smart smart

Add Waypoint Delete Waypoint Move Waypoint

Summary: May 31, 2019 May 31

- Select the **tab** at the bottom with the **date of the survey** to go to the **Mission Summary** screen
- Then click **edit & import** next to the **Tracks** box

Tracks - Training Survey 000-A May 15, 2017

Tracks - Training Survey 000-A May 15, 2017

Edit tracks for current day

Tracks Map Layers

import edit split merge delete

Track Id	Sampling Unit
Track	None

- Click the **Import** button
- Select **GPX File** then click **Next**

- Click **Add** and then browse to the folder Module 12 and select the file "**track1.gpx**", click **Open**
- Choose **Select which track to import for ...** and then click **Next**
- **Select All** then click **Finish**



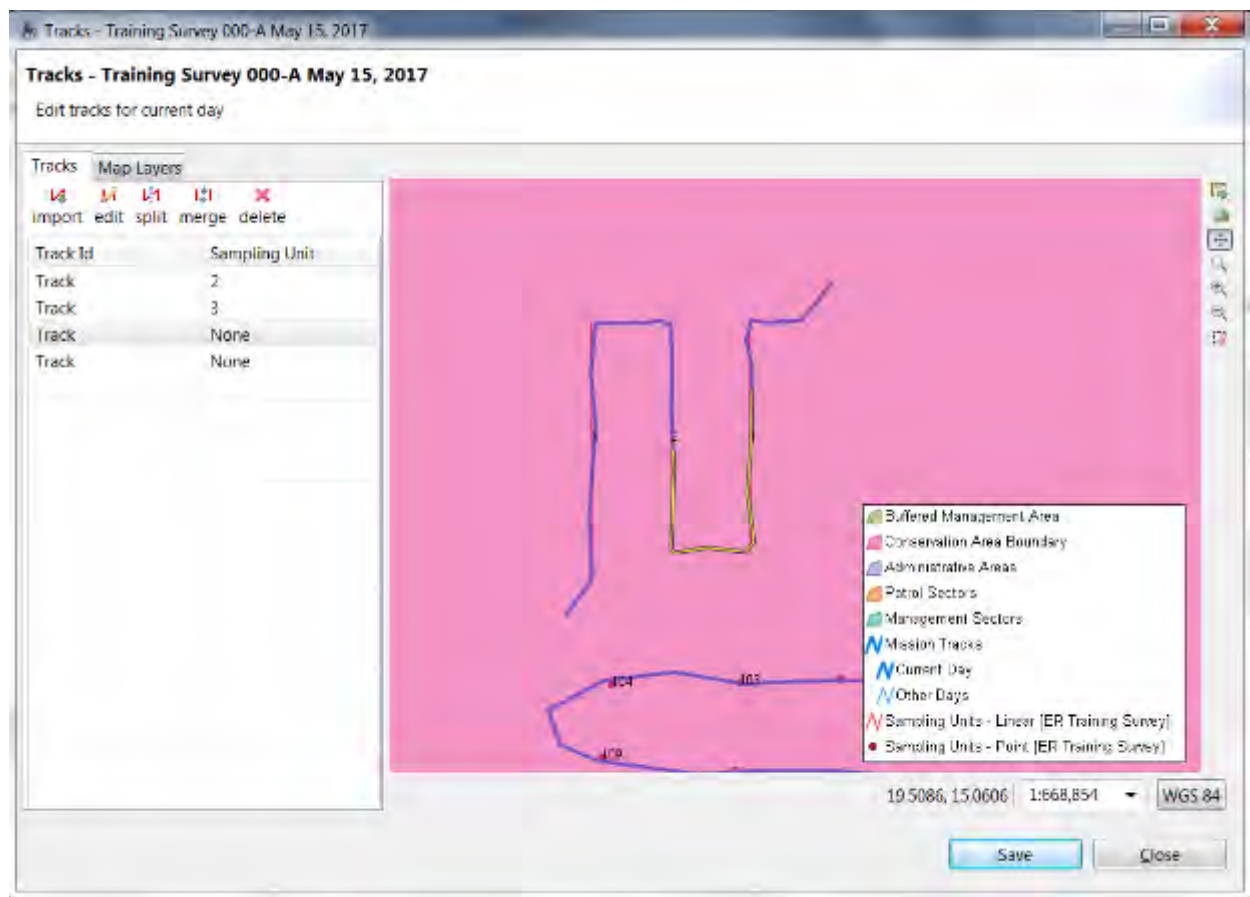
The Track Editor allows users to modify the imported track to delete unwanted vertices, split the track into sections or merge split tracks into larger units. For this portion of the training module, you will take the imported track and split the track into segments that will be matched to the already present Sampling Units.

The goal is to split the track at points where it no longer matches to the existing sampling units. This track will need to be split a total of six (6) times.

- Select the first **track**
- Click the **split icon** to activate the tool
- **Draw a line** across the selected track where you want it to **split** and then **save**
- **Repeat the process** of selecting the track, using the splitting tool and saving to split the track at the necessary points
- You will be prompted to save and click **Yes** when prompted

Matching Track Segment to Sampling Unit

After the track has been split, it can be matched to Sampling Units.



- Select the **track segment** and then select the matching **Sampling Unit**.
- **Save** when finished.

The same procedure will be repeated using a second track (Track2.gpx) and split into segments close to the Sampling Unit Points.

- Repeat the process of **importing, splitting and matching** using the file "**track2.gpx**"
- After the splitting and matching is completed, click **Save** and **Close** the editor

Importing Waypoints

After the tracks have been split and matched you will now import waypoints and populate some of them with observations.

- In the Mission Summary screen select **Import Waypoints**
- Select **GPX File** then click **Next**
- Click **Add** and Browse to the folder Module 12 and select the file "**waypoint1.gpx**" and **Open**
- Choose **select which waypoints to import for...**
- Assign all waypoints to the current day

- Repeat for **waypoint2.gpx**

Observations/Waypoints: [Import Waypoints ...](#)

Waypoint ID	X	Y	Time	Direction	Distance	Sampling Unit	Observation	Comment	Attachment
4	1..	1..	6:53:...			(None)	(None)		(None)
5	1..	1..	7:12:...			(None)	(None)		(None)
18	1..	1..	7:14:...			(None)	(None)		(None)
19	1..	1..	7:30:...			(None)	(None)		(None)
20	1..	1..	7:54:...			(None)	(None)		(None)
6	1..	1..	7:56:...			(None)	(None)		(None)
7	1..	1..	8:20:...			(None)	(None)		(None)
21	1..	1..	8:22:...			(None)	(None)		(None)
22	1..	1..	8:49:...			(None)	(None)		(None)
8	1..	1..	8:49:...			(None)	(None)		(None)
9	1..	1..	10:1:...			(None)	(None)		(None)
10	1..	1..	10:2:...			(None)	(None)		(None)
11	1..	1..	10:5:...			(None)	(None)		(None)
12	1..	1..	11:2:...			(None)	(None)		(None)
13	1..	1..	11:5:...			(None)	(None)		(None)
14	1..	1..	12:2:...			(None)	(None)		(None)

Mission waypoints can be linked to specific Sampling Units by clicking on the Sampling Unit cell for a specific waypoint and choosing from the dropdown choices.

- Populate the **Sampling Unit** for a few Waypoints

Mission Waypoint Observations

Creating observations for Mission Waypoints follows the same procedures as creating waypoints for Patrols, with the exception that the Survey Design that provides the framework for a Mission can be linked to a Configurable Data Model (if required) or to the default data model used by the Conservation Area.

The use of a Configurable Data Model can increase efficiency in data entry by allowing only the necessary data model items to be visible for Mission waypoints.

***Note:** A Configurable Data Model is entirely optional. When configuring the Ecological Records (Survey) you are welcome to use the default data model of the Conservation Area.*

For this training module you will be using a Configurable Data Model.

- Add observations to some **Mission Waypoints** using the configurable data model

***Note:** If no Configurable Data Model is present you should return to your Survey Design to ensure that the Survey Design is linked to a Configurable Data Model.*

After your first Mission has been created and contains observations, you will continue on to importing a predefined mission that will allow for various queries.

Importing Survey Designs and Missions

With the dependencies between Survey Designs and Missions, it is necessary to first import any Survey Designs associated with Missions.

- From the menu select **Field Data > Survey > Import Survey Designs...**
- Select **Import from file** then click **Next**
- Click **Add** then browse to the folder Module 12 and select the file "**Survey_Design_1.xml**" click open and then **Finish**.

The next step is to import the Mission that was built using the framework of the imported Survey Design.

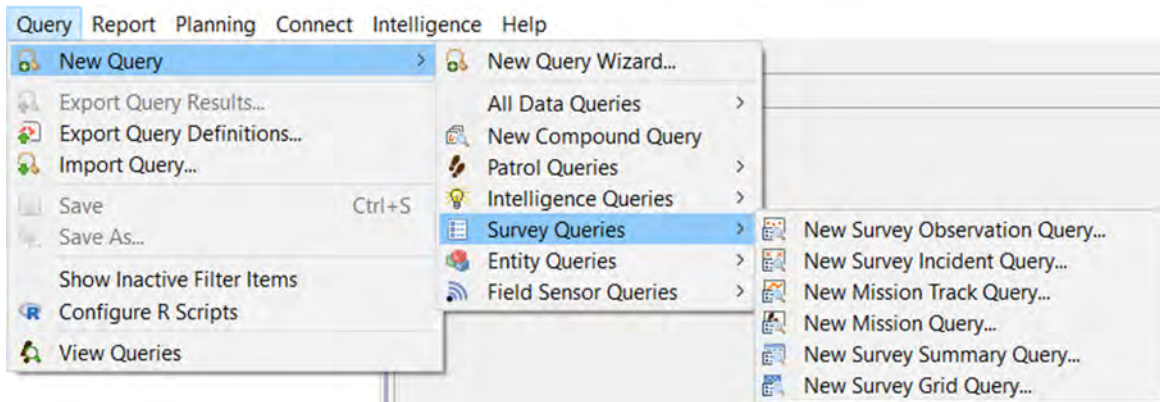
- From the menu select **Field Data > Survey > Import Missions...**
- Click **Add** then browse to the folder Module 12 and select the file "**Mission_1.zip**", click **Open** and then **Import**.

Review the imported mission and the associated observations before moving on to Querying Surveys.

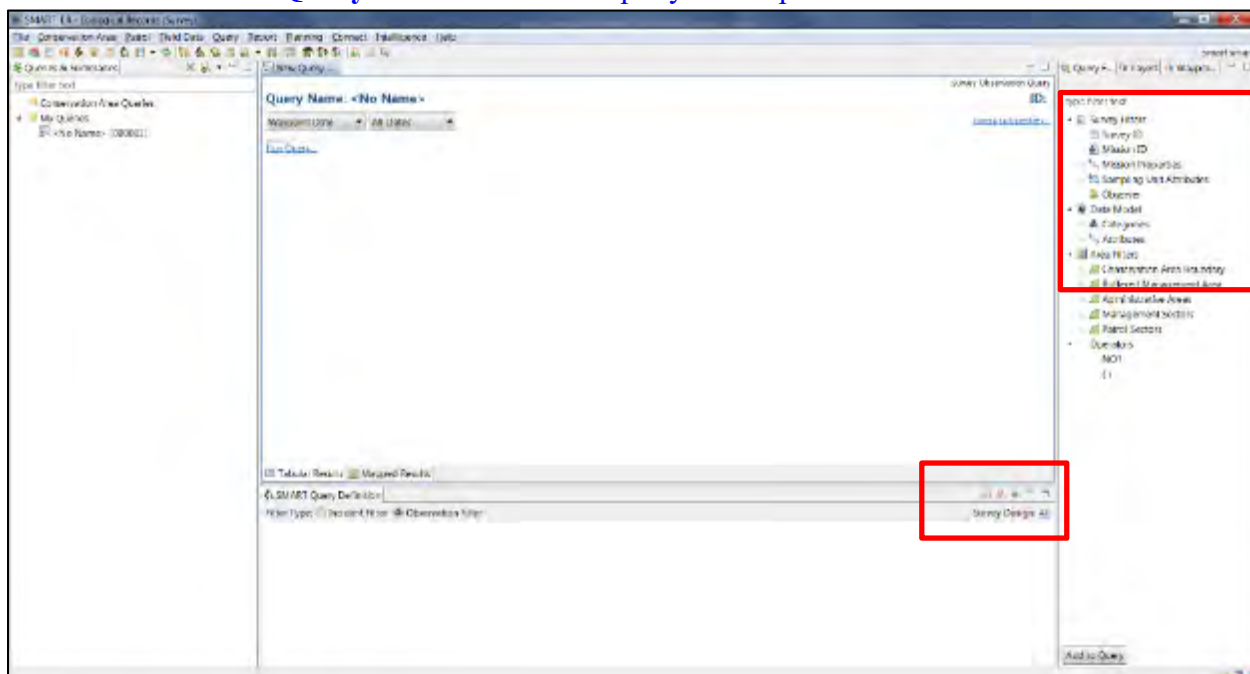
Querying Survey Data

As with the other SMART field datasets, several query output formats are available.

- **Survey observation** - Returns the observations that match the query filter.
- **Survey incident** - Returns all observations at any waypoint “incident” that matches the query filter.
- **Mission track** - Returns the tracks that were involved in the particular query.
- **Mission** - Returns missions based on the query parameters / values.
- **Survey summary** - Returns summaries of survey data.
- **Survey grid** - Spatial query that returns the observation or survey effort values in the form of a grid.



- From the menu select **Query > New Query > Survey Queries > New Survey Observation Query...** then review the query filter options



The default settings for Survey Queries has the Survey Design set to "All" (see image above).

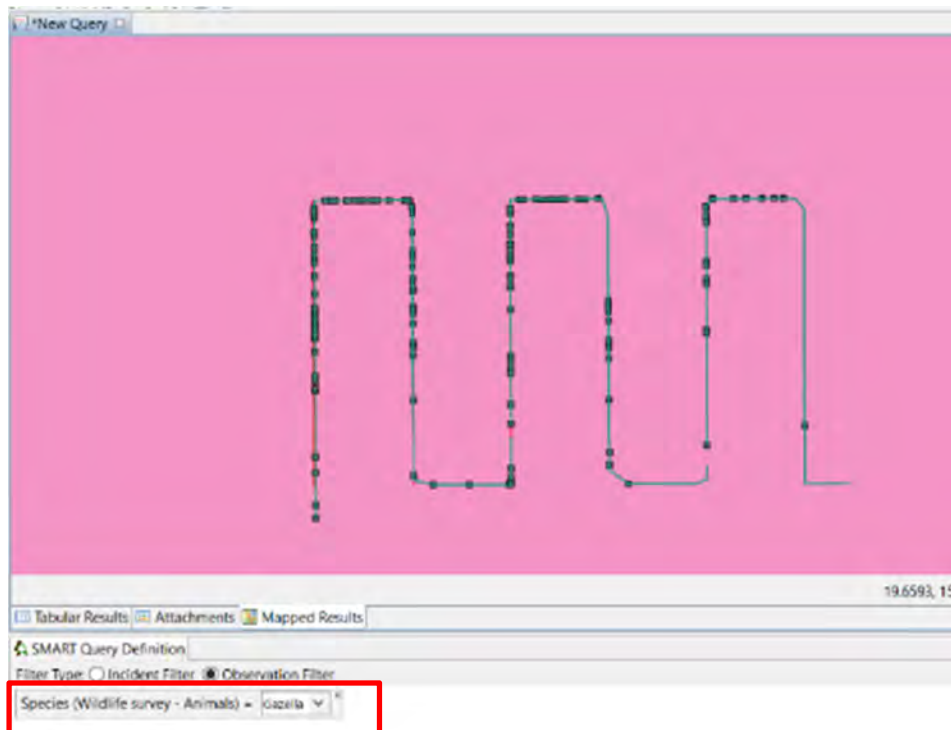
When a Survey Query has the Survey Design set to "All", the available query filters do not include Survey Design specific elements.

- Switch the Survey Design setting to **Survey Design 1**

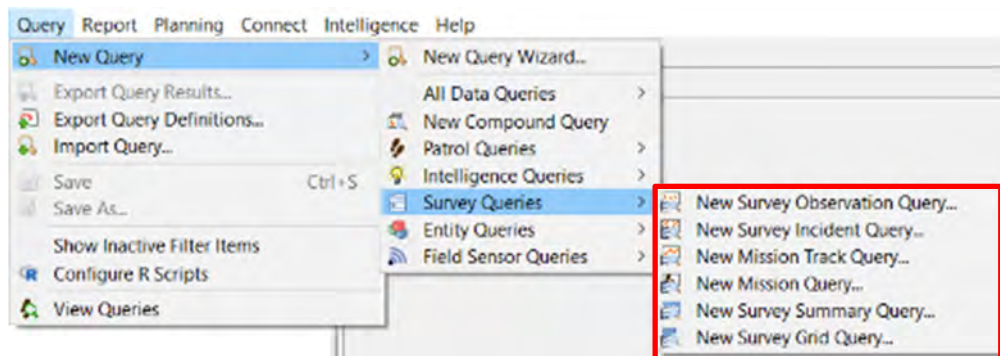
Building a Survey Query

Survey queries are built using the same procedures as other SMART queries, allowing users to build new queries to extract mission and survey data.

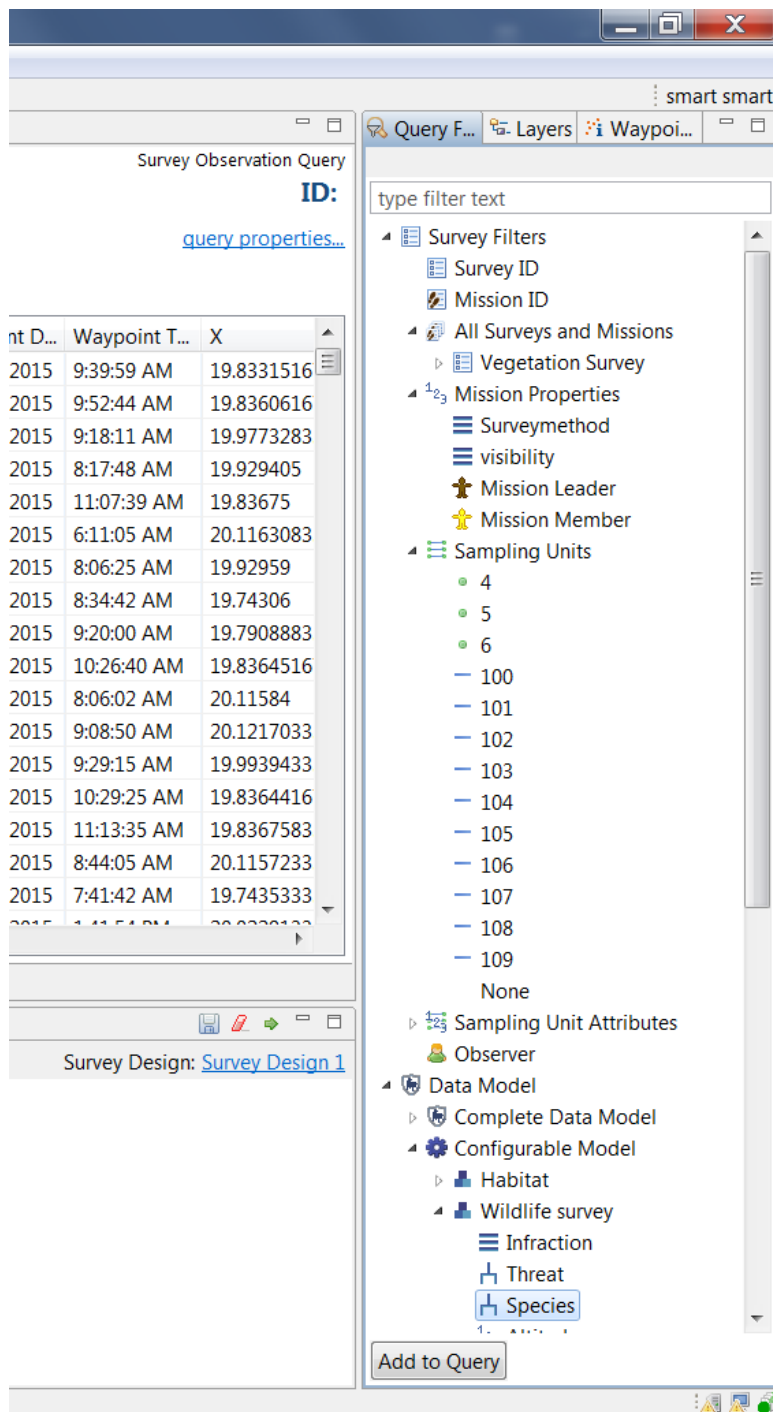
- In the SMART Query Definition window select **the Survey Design: Survey Design 1**
- From the Query Filter select **Configurable Model > Wildlife survey > Species = Gazella**
- Select **All Dates** from the **Date Filter**
- **Run** the query and **review** the tabular and mapped results



Now continue to build other types of Survey Queries.



Remember to choose a specific Survey Design in the SMART Query Definition window if you wish to query on specific Survey attributes.



Optional Exercises

This training module covered many of the fundamental aspects of configuring, populating and querying Ecological Records (Surveys), but purposefully did not cover all possible options.

For additional practice....

- Create new configurable data models.

- Import data using different data types (gpx, csv).
- Perform more complex editing on the Survey Tracks using the track editor.
- Create and run complex queries using specific Survey Design Filters.
- Link the results of a Survey to a report.

<End of Module 12 – Ecological Records>

MODULE 13: Connect Plug-In

Objective

This module will provide instructions on how to install and use the Connect plug-in to allow SMART users to upload, download and sync data with a Connect server.

- Installing the Connect Plug-in
- Connecting to a Connect Server
- Transferring Data to/from the Server
- Creating Alerts

Detailed Steps

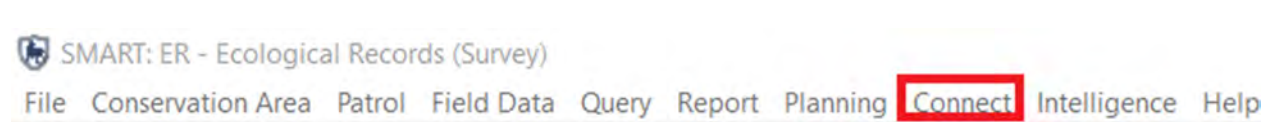
SMART Connect is an optional plug-in that allows SMART users to store and manage data on a web connected database. Connect users can upload entire Conservation Areas complete with patrols, field data, queries, reports and all other associated data. A distributed workforce can all work on the same Conservation Area and sync their changes on the server ensuring that all users are working with the most up-to-date version.

The Connect plug-in is an extension to SMART and the information in this training module covers particular features and functionality of the Connect plug-in. The expectation of this training module is that users should already be familiar with the features and functionality of SMART, as some elements will be mentioned but not explained.

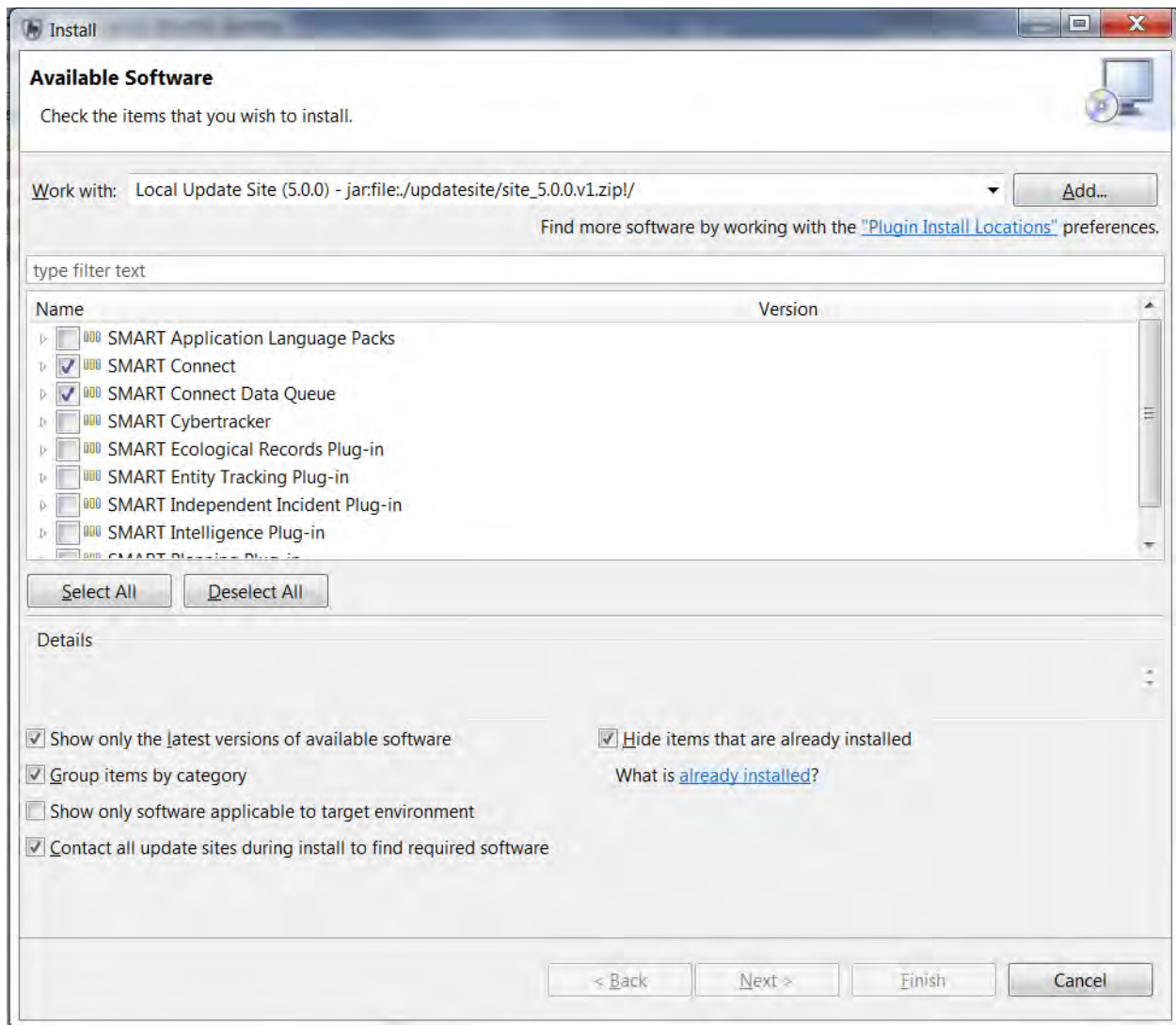
Installing the Connect Plug-in

Note: The Connect plug-in is an optional plug-in that must be installed before proceeding with this training module.

If you are unsure whether your installation of SMART has the SMART Connect plug-in installed, check if you have the **Connect** option available in the menu:



To install Connect plug-in:



- From the menu go to **File > Install New Plugins**
- Select the **Local Update Site** from the drop-down list
- **Check** the boxes next to the **SMART Connect** and **SMART Connect Data Queue** Plug-ins
- Click **Next**
- Complete the install process for the Plug-ins and **restart** SMART

***Note:** After the installation of the Connect plug-in, SMART requires a restart and users will have to log back into the Conservation Area.*

Connecting to a Connect Server

A Connect Server must already be created before a SMART desktop user can upload or download any data. In this Module, you will begin by uploading a newly created Conservation Area based on a clone of the Example Conservation Area. This new Conservation Area will be uploaded to the same Connect Server.

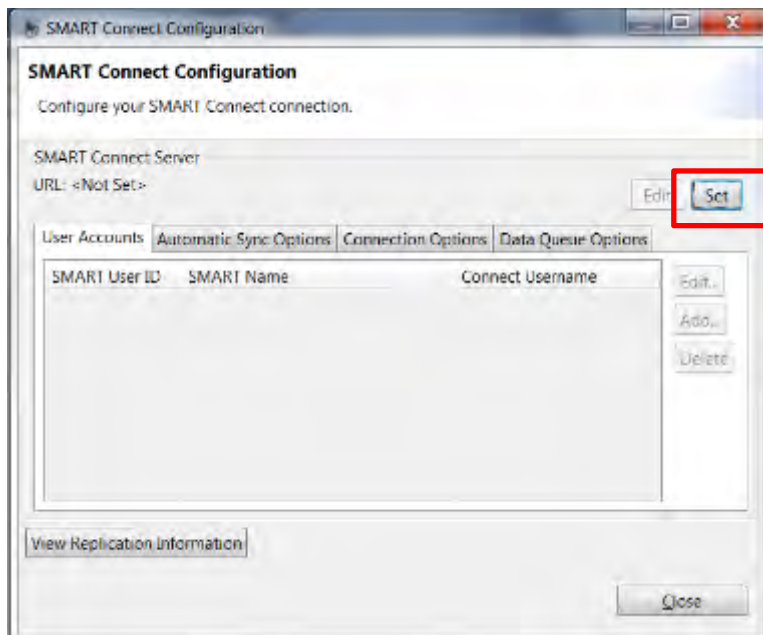
- **Logout** of the application.

After logging out from the Example Conservation Area, the application will restart.

- After restart, click the "**Advanced**" link.
- Click "**Create a New Conservation Area**" and create a new Conservation Area by cloning the SMART - Example Conservation Area.

***Note:** All training participants will be creating and uploading to the Connect server, so make sure you give the new CA a unique name that you can recognize later on.*

- After restart, log into your new Conservation Area
- Under the Connect menu select **Server Configuration...**



- Click the button "**Set**" to open the Connection wizard dialog
- Enter in the **Server URL** as provided by your instructor
- The **Security Certificate** will be found in the folder **Module 13**
- Progress through the wizard and enter in smart/smart into the Connect **username and password**. Use the **checkbox** to save the password then click "**Finish**"

Now you can upload your cloned Conservation Area to the Connect Server.

- Using the menu select **Connect > Upload Conservation Area to Connect**

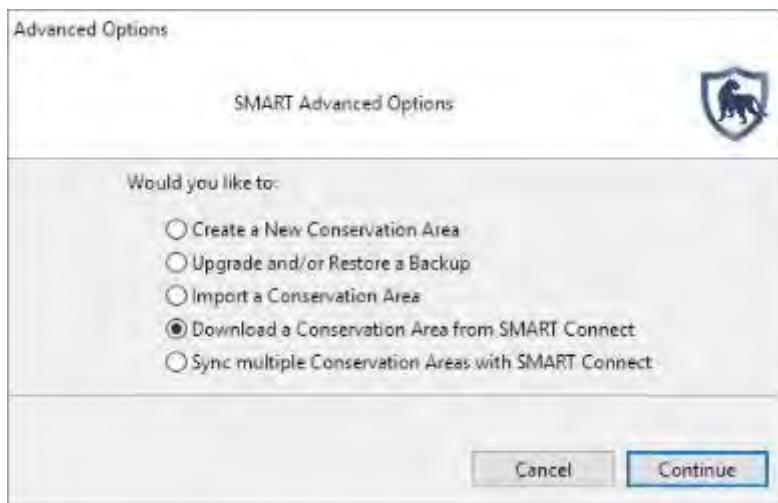
At this point your new Conservation Area will reside on the Connect Server, and you will move on to uploading and syncing changes. To best demonstrate the ability of Connect to manage the flow of data you will need to find a partner to work with.

After finding a partner the next steps are. ..

1. Download your partner's Conservation Area from the Connect Server
2. Choose one of the two Conservation Areas to work with
3. Make edits to the active Conservation Area
4. Sync Conservation Area changes with Connect
5. Compare results with your partner

Download a Conservation Area from Connect

- To download a Conservation Area from Connect you will need to log out of SMART and use the "**Advanced...**" link on the splash screen.



- Enter in the **Server URL** and the provided **Certificate** then proceed through the connection wizard.
- Select your partner's Conservation Area from the list and click "**Finish**"

Managing Conservation Area edits with Connect

Both you and your partner will agree to work on a single Conservation Area and both of you will log into the same Conservation Area.

- Make changes (**add, delete or edit**) data in the Conservation Area
- In the menu select **Connect > Upload Changes to Connect**
- **Re-enter** the connection parameters if required

***Note:** It is **highly recommended** to avoid making the same changes to the same data features in the Conservation Area (for example, both deleting the same employee). If the same feature is removed at the same time, then a conflict will occur and the desktop instance of the Conservation Area will have to be deleted and then re-downloaded from the server.*

- After individually uploading the changes to Connect, you will download any changes from Connect by using the menu item **Connect > Download Changes from Connect**
- Review the changes with your partner

The menu option of "**Sync All Changes to/from Connect**" will first download any existing changes from Connect then upload your local changes.












- Make more changes and **apply** them using the **Sync All Changes to/from Connect** option

Icon Status

In the lower right corner of the SMART application there are three sets of status icons. The refresh rates for these icons can be set using the menu option **Connect > Server Configuration**. A mouse right-click can force a status refresh.

	Up To Date	Changes Pending	Unknown State or Warning
--	------------	-----------------	--------------------------

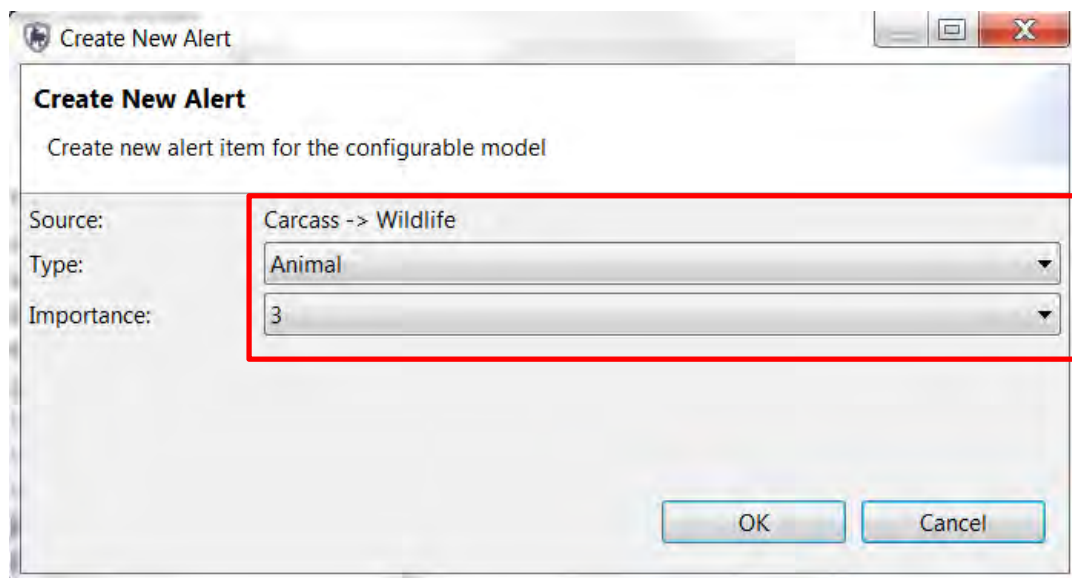
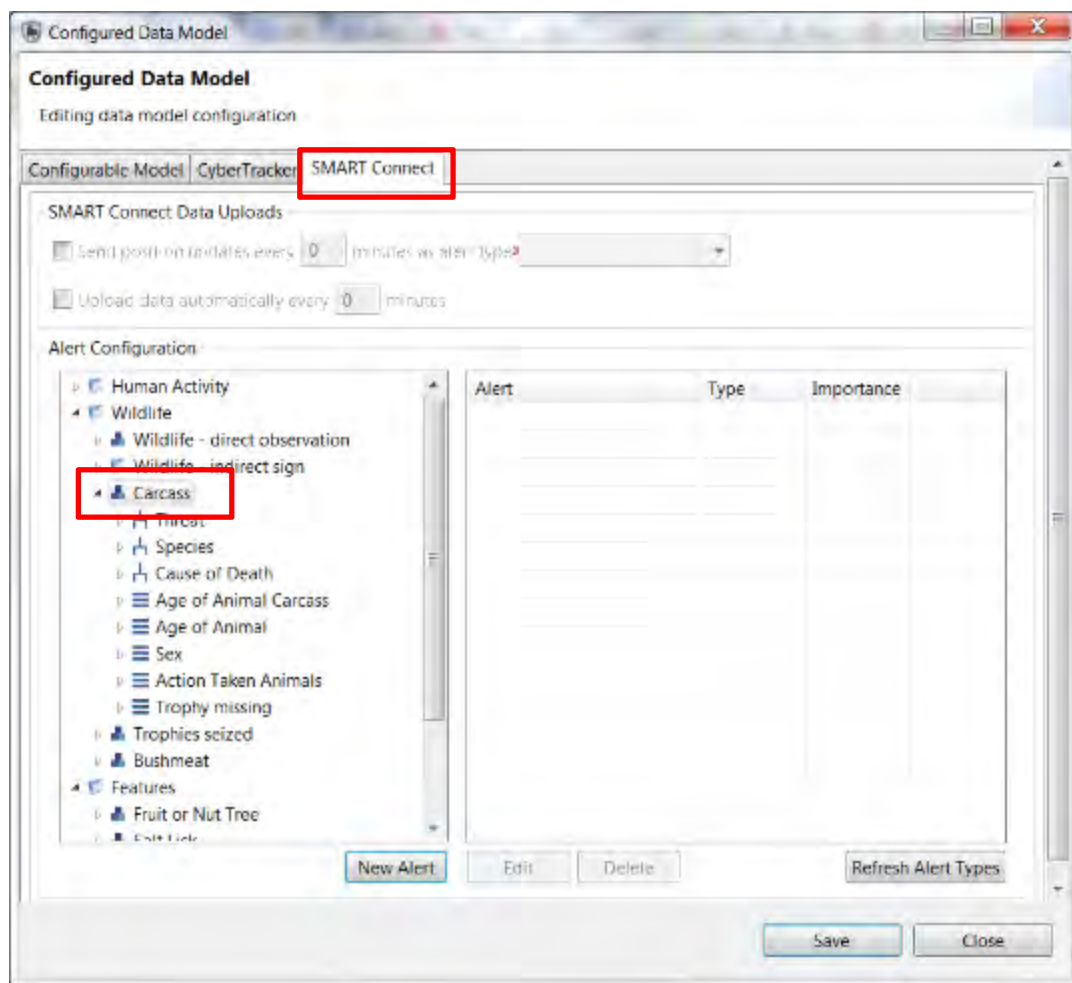
Local Changes			
Server Changes			
Data Queue			

SMART Connect - Alerts

SMART Connect allows CyberTracker users to attach alerts to specific branches or attributes in a configurable data model. In the field, when an observation with an associated alert is logged, the application will send notification via the mobile device's cellular network (if available) to the Connect Server and register the alert on the server.

Creating Alerts

Configurable models are used to define an alert that gets uploaded to CyberTracker. Alerts can be associated with the various components of a configurable data model (categories and/or attributes).



- Create a new Configurable Model using the Conservation Area Data Model and enter into Edit mode
- Open the Configurable Model and select the tab SMART Connect

- Select the **Carcass Category** then click **New Alert**
- If prompted enter in the connection parameters to SMART Connect
- Select **Carcass** and an **Importance level**
- Set a few more alerts using categories and/or attributes

Note: Alert types are managed through the web interface and only predefined Alert Types are available in the Configurable Model.

Viewing and Managing Alerts

Viewing and Managing Alerts takes place in a web browser, which is also available in the desktop environment. The following exercise can take place in SMART's internal web browser or an external one.

- To access the internal browser use the menu **Connect > Open Connect Browser**

If you prefer to use an external web browser (Firefox, Chrome, etc...) then the following steps can take place outside SMART desktop.

- Enter in the **URL** of your SMART Connect Server that is provided by your trainer
- Log into **Connect** and select the **Alerts** link on the left hand side



In the Alerts window there are three tabs:

Operational Map - viewing of alerts on predefined map, filtering of alerts

Create New Alert - manual creation of Alerts using a web form

View/Manage Alerts - edits and deletions of Alerts

- Practice viewing and filtering Alerts
- Create New Alerts
- Edit and Delete existing alerts

At this point in the Connect training module, you have learned the main functionality of Connect as a SMART desktop user with some exposure to the SMART Connect web interface. A separate document containing a more comprehensive usage of SMART Connect exists and is primarily intended for System Administrators, program managers and non-desktop users of SMART.

For further information on SMART Connect refer to the document "**SMART CONNECT ADMINISTRATION**"

Optional Exercises

1. Automatic Sync Functions

SMART Connect has many options for automatic synchronization and data refresh rates, and for this optional exercise you will explore some of the automatic sync options.

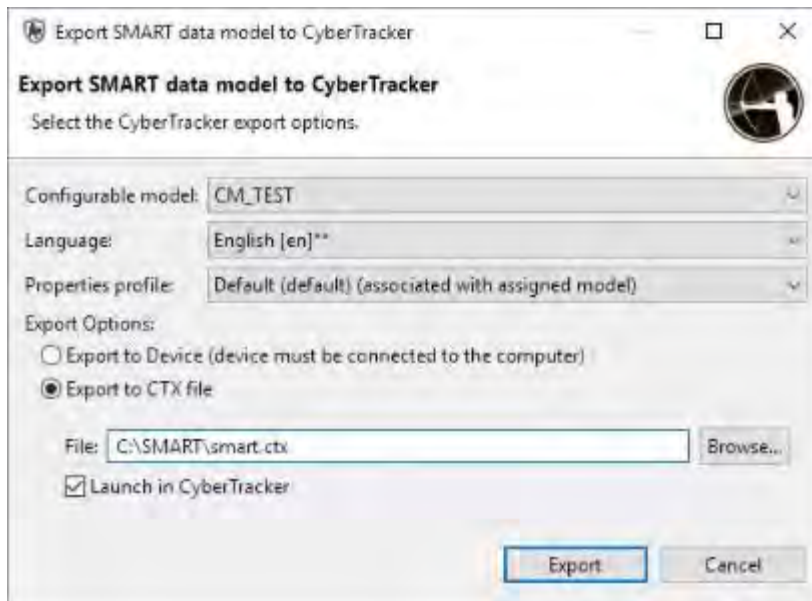
- Using the menu **Connect > Server Configuration** enter into **Edit** mode and select the **Automatic Sync Options** tab. Change the default settings and resume data editing with the new options or timings enabled.

2. Creation of Alerts Using Mobile Devices

After attaching alerts to a configurable model, you will then upload your configurable data model with alerts to your cellular mobile device. Head outside and collect observations with associated alerts. If your mobile device, CyberTracker and SMART Connect are all properly configured the alerts should be transferred to your SMART Connect system and be available for viewing from the web interface.

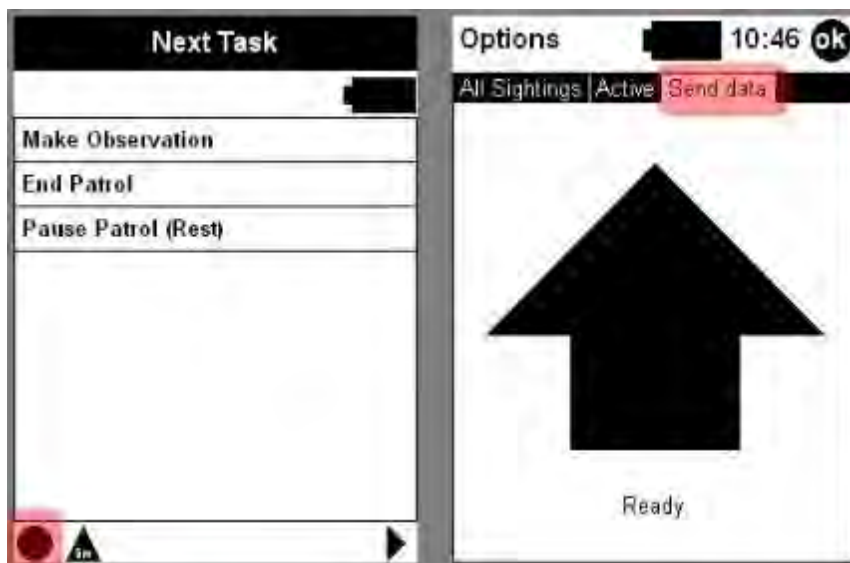
3. Use Desktop CyberTracker to Produce Alerts

If a cellular network isn't available or the system hasn't been configured for cellular transfers, a secondary approach to generating alerts can take place using the desktop CyberTracker application. After applying alerts to a configurable data model export a patrol to CyberTracker.



In CyberTracker, use the test application to begin a new patrol and collect observations with Alerts.

- After collecting observations with Alerts click on the **circle** in the lower left corner then click the **"Send data"** tab
- Then **click the arrow** to begin the transfer



After the transfer is complete you will need to open a web browser and log into SMART Connect and view the alerts using the Operational Map tab.

<End of Module 13 – Connect Plug-In>

APPENDIX 1: Setting up devices and troubleshooting with Cybertracker-SMART plug-in

Background

This document provides basic information for mobile device configuration and recommended settings.

Detailed Guidance

Setting up new tablets/mobile devices

Windows Mobile:

- Charge device and have fully charged before you begin set-up
- Go to Start>Settings>System>Backlight
 - o Go to the battery power tab
 - Check **Turn-off backlight if device is not used for** and **Turn on backlight when a button is pressed or the screen is tapped"**
 - Set time to 3 minutes (a good default, though feel free to adjust)
 - o Go to the brightness tab
 - Check **Use light sensor to adjust the brightness** OR **set brightness on battery power manually** (set lower if in low light situations like forest and higher if in bright areas).
 - o Click **Ok**
- In Start>Settings>System>GPS
 - o Go to the Access tab
 - Check **Manage GPS Automatically**. *Note: if you experience problems with Cybertracker connecting to the GPS (GPS screen never says "Acquiring" and instead goes to "Off"), try unchecking this option.*
 - o Go to the A-GPS tab (if present)
 - Uncheck **Enable GPS**
- In Start>Settings>Power>Advanced tab
 - o Check **On battery power**
 - o Under Turn off screen if device not used for, set the value to **5 minutes**
 - o Uncheck **On external power**
 - o click **Ok**
 - o For Trimble Juno T41 using an external battery pack only:
 - Under Ext Battery, select **External Battery Mode** for maximum battery life
- In Start>Settings>Connections>Wireless Manager
 - o Set Wifi and Bluetooth to **off**

OR

- Tap **WLAN**, tap **all** and turn wireless and Bluetooth **off**
- Press **X OR Done**

Android:

Note: Android devices vary in the details of where different settings are located, but this provides a rough, overall guide

- In Apps>Settings>Wireless and Networks
 - **Turn off** Wifi and Bluetooth in Apps>Settings
- In Apps>Settings>Personal>Security
 - Check **OK** for downloading information from unknown sources
 - Turn screen lock to **None** (if appropriate)
- In Apps>Settings>Device>Display
 - Select **sleep after 5 minutes**
 - Under Brightness, check “**Automatic brightness**, if available, otherwise **set a value appropriate for your site** (set lower if in low light situation like forest and higher if in bright areas)
 - Uncheck **auto-rotate screen**
- In Apps>Settings>Personal>Location access
 - Make sure **Allow access to location** is turned on
 - Set location to **use GPS/device only**
- In Apps>Settings>System>Data and Time
 - Uncheck **automatic date and time**
 - Set manually to local time and date using appropriate time zone

Note: If you remove the battery, the mobile device may revert to old settings, be sure to confirm the above settings before using the device

Adding CyberTracker to mobile devices

- If you need to install CyberTracker, prefer to Module 9 in the SMART training manual (found at smartconservationtools.org under “Support”)

Setting up CyberTracker within SMART

- Under Field Data>Cybertracker>Properties>General tab:
 - Check **Large Scroll Bars**
 - Check **Show GPS**
 - Check **Kiosk Mode** (if you want the device locked to only run SMART/Cybertracker)
 - Check **Can Pause** (if you want users to be able to pause the tracklog)
 - Check **Reset Screen on Next**
 - Set **Pin** (example: 1234) if you are using Kiosk Mode and be sure to remember your pin
 - Set **storage time** (a good default is 30, but this will depend on how often data are downloaded and checked)
- Under Field Data>Cybertracker>Properties>GPS:

- Set **sighting accuracy**, **Fix Count** and **Track accuracy** to **10** (these are good defaults, but can be adjusted, if necessary)
- Set Track Timer (track log) to the value appropriate for your situation
- Check **Use Time from GPS** (if not already checked)
- Set GMT/UTC offset to the appropriate value for your location
- Set coordinate format and UTM zone as appropriate for your site
- Set GPS Skip Timeout to longer than 3 seconds (probably 120). *Note: this is the amount of time that a user must wait before GPS acquisition can be skipped. If GPS is skipped, SMART will automatically assign 0,0 as the coordinates*
- Uncheck **both Manual GPS entry on Skip options**
- Check **Allow Skip of Manual GPS Entry**
- To Create a Field Map in CyberTracker for SMART
 - Open Cybertracker
 - Go to **File>New database**
 - Go to **View>Reports**
 - Click **New View...Select Map...Click OK**
 - Click **Edit View**.
 - Select the **Image** tab...go to **File**, select a **geotiff of your desired field map** (created in ArcGIS or similar). *Note that this must be a georeferenced jpeg, not a simple image file.*
 - Click **OK**
 - The new map should be displayed in the window. If not, click the world symbol on the map toolbar (upper left corner of the Map View window) to zoom to full extent.
 - Use the map navigation tools (zoom and pan) on the map toolbar so that the area you want for your field map takes up the entire window.
 - Click **Edit View...Select the Advanced** tab. Under **Field Map** there are three settings that determine the size and resolution of the field map (seen under **Advanced, Field Map**). These settings will vary depending on your image and the processing speed of the handheld device.
 - For moderate size images, 4000 field map width/height, and 1 for field map desired compression factor work well. It is recommended that you also experiment to see if the resolution of the image is sufficient on the handheld device and if map navigation on the device (zooming, drawing, etc.) is too slow due to large file size.
 - Once settings have been adjusted, click **OK**.
 - On the map toolbar click **Field Map**.
 - Select a **file name** and **location** (probably your SMART folder) to save the field map.
 - Click **Save**. This will create a .ecw file (a type of compressed georeferenced image file) that can be added as the field map in SMART.
 - To add the map to SMART, so that it will be downloaded to the handheld devices go to **Field Data>Cybertracker>Properties>Field Map**, select the **ecw file** you have created.

Troubleshooting with downloading data

If you experience issues downloading data, we recommend you try the below steps.

- Ensure tablet is turned on and unlocked before downloading
- Connect tablet to computer with USB cable; make sure SMART is running but that the CyberTracker program (not the plug-in, but the actual program) is closed
- Sometimes data gets ‘orphaned’ on download from CT devices to SMART desktop. If it’s telling you there are no patrols on import (when you know there are) – check for the ctx file in Documents>Cybertracker>System>Orphans on your computer. Then use the Import File option to get it in SMART/CT import interface.

Multi Leg Patrols

- If you are planning a multi-leg patrol, start the patrol with two devices.
- Record data in one device for the initial patrol leg where all members are together (leg A in Module 3, Field practical – Data collection for Multi-leg Patrols section of the SMART training manual).
- Upon splitting the patrol into multiple legs (leg B and leg C in Module 3, Field practical – Data collection for Multi-leg Patrols section of the training manual), a device will be carried by each patrol team. Both teams will need to begin a new patrol in order to enter the relevant patrol data for the new patrol legs.
- Upon completion of the patrol, patrols should be imported into SMART as multiple legs from the same patrol.

Multi Day Patrols

- When collecting data with CyberTracker you will treat each day as a separate patrol, even on multi-day patrols.
- Field teams will end the patrol at the completion of the first day’s patrolling, then begin a new patrol at the start of the next day.
- When importing data into SMART, you will first import Day 1 of the patrol, then add each subsequent day of the patrol as a new leg of that patrol.

Using Mobile Devices

GPS Signal

- To verify if you have signal for track log and GPS points, look at the triangle
 - o A triangle means that the GPS track log is working and a black triangle is when a point is being collected
 - o A triangle with slash through it means you are not getting a signal
- If you are not getting GPS signal, **skip GPS point** will appear at the bottom of the screen, after some time delay
 - o This can be set in **CyberTracker Default Properties – GPS tab under Skip Button Timeout** (this is number of seconds to time out)

Data management

- Data should be downloaded as often as is possible to mitigate against loss of data through damage or loss of device. However most devices can store many weeks of data, depending largely on how many photos are taken during regular data collection.
- Data is deleted from the device once it is downloaded.

Battery Life

- Test units in the field to see how long batteries will last with current GPS setting

- Change how frequently track points are taken if needed (Under CyberTracker Default Properties > GPS tab > Track Timer) – more time between points will lead to longer battery life but less accurate track log

Kiosk Mode

- When using Kiosk Mode, you can't turn off the devices while CyberTracker is on. You need to log out of CyberTracker using the pin to turn device off.

Software Updates

- *Whenever you update CyberTracker or SMART, you will need to re-export the configurable model to the device to make sure the changes take effect. Ensure that all patrols are imported before doing this.*

Troubleshooting Windows Mobile connections to PCs running Windows 7 and Windows 8

Windows 7 and 8 use the application “Windows Mobile Device Center” (WMDC) to communicate with handheld devices running the Windows Mobile/Windows Embedded Handheld operating systems. Some users have experienced difficulty getting the devices to connect to WMDC/their computers. Below is a series of steps that may help in establishing a connection with Windows Mobile devices.

- When attempting these fixes, make sure you are logged on to an account on the computer with full administrative rights.
- If you are not able to establish a connection with a Windows Mobile handheld, try the following steps.
- **After each step try reconnecting the device to see if a connection can be established.** Note that in some cases, it may take 2-3 minutes for WMDC to begin communicating with the device.

1. Windows Updates

-If possible, make sure that your machine has all Windows updates (<http://update.microsoft.com/>). Even one missing update can cause issues.

2. Manually start WMDC

-Normally, WMDC should start automatically when a Windows Mobile handheld is connected.
-In the rare cases this doesn't happen, try manually running WMDC (**Start>All Programs>Windows Mobile Device Center**) before connecting the handheld.

3. Device connection settings

-On the handheld device go to: **Start>Settings>Connections>USB to PC**.
-Check **Enable advanced network functionality**, or if it is already checked, uncheck it.

4. Check WMDC Connection settings

-Run WMDC. Go to **Settings > Connection Settings...check Allow USB connections**.

5. Check WMDC version

-Make sure that the latest WMDC is installed (version 6.1.6965 or later), and that you have the correct version (32 or 64 bit) for your computer.
-You can check if your computer is 32 or 64 bit by going to **Start ...** right-clicking on **Computer ...** clicking **Properties**. WMDC can be downloaded from:

- **32-bit version download**

<http://www.microsoft.com/downloads/details.aspx?FamilyId=46F72DF1-E46A-4A5F-A791-09F07AAA1914&displaylang=en>

- **64-bit version download**

<http://www.microsoft.com/downloads/details.aspx?FamilyId=4F68EB56-7825-43B2-AC89-2030ED98ED95&displaylang=en>

-If you need to uninstall WMDC, see instructions at the end of this document.

-To reinstall, double click the install file and follow the steps in 6, below.

6. Make sure the .NET Framework 3.5 is installed on your computer prior to installing WMDC

-Uninstall WMDC (see end of this document)

-Make sure your computer is connected to the Internet.

-Windows 7: go to **Start >Control Panel >Programs and Features**.

-Windows 8: Right-click the **Start** window, click **All Apps**, under the Windows system list, click the **control panel** icon, go to **Programs and Features**.

-Select **Turn Windows features on or off**.

-Select the **Microsoft .NET Framework 3.5.1** check box 5.

-Click **OK**.

-Reinstall WMDC (see 4, above, for download links if needed).

7. Make sure that your virus scanner is not blocking connections.

-If you know how, check that your anti-virus software is not stopping or blocking the files wmdc.exe or wmdcbase.exe.

-Alternatively, turn off your anti-virus and then try connecting the handheld. If the device is able to connect with your anti-virus turned off, consider uninstalling and trying a different anti-virus software.

-Turn on your antivirus after you complete this step.

8. Uninstall/reinstall Windows Mobile drivers

-Connect the handheld to the computer

-Go to **Control Panel > Device Manager**

-Look under **Network adapters** for **Microsoft Windows Mobile Remote Adapter**. If this is not present, skip to the next step. If it is present, right-click **Microsoft Windows Mobile Remote Adapter** and select **Uninstall**.

-Look under **Mobile Devices** for **Microsoft USB Sync**. If this is not present, skip to the next step. Otherwise, right-click **Microsoft USB Sync** and select **Uninstall**.

- Disconnect and reconnect the handheld device. The device driver for the handheld will reinstall and Windows Mobile Device Center should launch.

-If the connection still fails, repeat these steps, but without reconnecting the device at the end. Uninstall and reinstall WMDC, then reconnect the device again.

Uninstalling WMDC (Windows 7, but Windows 8 is generally the same)

1. Go to **Control Panel**.

2. Click **Programs ... Programs and Features**.
Note if you are using Classic View in Control Panel, double-click Programs and Features.
3. In the list of programs, click **Windows Mobile Device Center...** click **Uninstall**.
4. In the Programs and Features dialog box, click **yes**.
5. Repeat steps 1 through 4 to uninstall Windows Mobile Device Center Driver Update.

APPENDIX 2: CSV File Import Guidance

Background

You are able to import CSV files for both employees and waypoints. Step-by-step instructions can be found in the SMART training manual (<http://smartconservationtools.org/support>), guidance on the required file configuration and commonly encountered issues has been outlined below.

Detailed Guidance

Importing Employees

In order to populate the list of employees for a Conservation Area, one option is to import an existing employee list. This is also done in the Employee List page.

The “Import...” function will import a CSV file and auto-populate the Employees List.

The CSV file must have the following format:

ID,GIVEN NAME,FAMILY NAME,BIRTHDATE(yyyy-mm-dd),GENDER(M/F),
START EMPLOYMENT(yyyy-mm-dd),END EMPLOYMENT(yyyy-mm-dd), AGENCY,
RANK

Importing Waypoints

Similar to importing employees, you are able to import CSV for waypoints. There is guidance below on how to do those.

CSV File Configuration for Waypoints

X- Column - select the text from the first row of the file (header or value), which represents the column where the X co-ordinate values are stored

Y- Column - select the text from the first row of the file (header or value), which represents the column where the Y co-ordinate values are stored

Date - select the text from the first row of the file (header or value), which represents the column where the date values are stored

Time - select the text from the first row of the file (header or value), which represents the column where the time values are stored. Valid time formats are as follows:

1. HH:mm (24-hour time, no seconds given)
2. HH:mm:ss (24-hour time with seconds)

3. hh:mm am (12-hour time, no seconds followed by one of: "am", "pm", "AM" or "PM")
4. hh:mm:ss pm (same as above with seconds)
5. HH:mm GMT-08:00 (24-hour time, with a GMT + or - timezone)
6. HH:mm:ss GMT+03:00 (same as above with seconds)

Optional Columns

Waypoint ID - Select the text that represents the waypoint id you would like to use. Left blank the system will select the next highest number in the patrol-leg-day as the id.

Comments Field - Select the text that represents the comments you wish to be added to the waypoint. Left blank, the comments field in SMART will be blank.

Data Options

Coordinate Projection - Select what projection your X and Y coordinate data is stored in.

Date Format - The format your dates from the Date column are stored in. You may type into this field to describe your format if it does not match one of the listed formats.

Skip first row... - Check this box if you have a header row at the top of your data.

Common Issues with CSV Import

If you are experiencing an issue importing waypoints from CSV files, this document should provide clarification and guidance on how to address several frequently encountered issues. Often times, all that is required to get the import to work is a simple manipulation of the file. Many of the examples here illustrate how to make new columns with date and time in formats that can be easily imported. The CSV import functionality only loads Waypoints, not actual observations. This is useful for speeding data that comes in digital format, but it doesn't completely automate it.

Files with date and time in the same column

You need to ensure date/time columns are correct. If date and time information is combined in one column, you have two options to correct it.

Option 1:

- 1) Copy the combined date/time column to another column.

2) Rename the header on the original column "Date" and format that entire column to be of type, "date" using the default date format. This can be done by following the below steps:

- a) Select the entire column and right click
- b) Select the 'format cells' option
- c) Select the 'number' tab at the top of the box
- d) Select 'date'

3) Rename the copied column's header "Time" and format that entire column to be of type, "time" (leave the default time type on the right). This can be done by following the below steps:

- a) Select the entire column and right click
- b) Select the 'format cells' option
- c) Select the 'number' tab at the top of the box
- d) Select 'time'

4) Save the file.

5) When using the import tool, select the columns for date and time as the two columns you edited and renamed the headers.

6) If you have other relevant columns in your file, select the fields and options accordingly. For example, if you have a column for Waypoint ID entitled 'Waypoint', fill out the options as shown in the below image.

Required Columns

X coordinate: Longitude

Y coordinate: Latitude

Date: date

Time (see help for valid formats): time

Optional Columns

Waypoint ID: Waypoint

Comments Field:

Data Options

Coordinate Projection: WGS 84 [EPSG: 4326]

Date Format: M/d/yyyy

☒ Skip the first row of column heading when importing.

< Back Next > Finish Cancel

7) Press finish and the points should load correctly.

Option 2:

***NOTE:** for this example we are assuming date-time is in column A. If your date-time is in a different column, such as column G, then replace any column A references or formulas with G.*

- 1) We are going to make new, separate columns for date and time. So, rename column A to "Date-Time", so you are not confused with the new date column we create.
- 2) Create a new header in the next available empty column and label it "Date"
- 3) Enter the formula: =LEFT(A2,10) into row 2, then copy/paste that into all the remaining rows. You should get just the date portion in that row.

a) As previously mentioned, if your date-time is in a different column, such as column G, then you would replace the 'A' in this formula =LEFT(A2,10) with a G. The formula would read =LEFT(G2,10)

NOTE: the number 10(ten) indicates the number of characters to use. In this example and most of the time, the format is 10 characters, such as 01/21/2001 or 2003/12/25. But, if your format has more or less, you will need to modify the number. For example, if you use Feb-01-2002, then the number needs to be changed to 11.

b) If your resulting date format is not in the format of M/d/y (01/23/2001) format the date using the instructions in Option 1, step 2.

- 4) Create a new header in the next available empty column and label it "Time"
- 5) Enter the formula: =RIGHT(A2,8) into row 2, then copy/paste that into all the remaining rows. You should get just the time portion in that row.

a) Same comment as above, if your date-time is in column G (or any other column), then you would replace the 'A' in this formula =RIGHT(A2,8) with a G. For example, it would read =RIGHT(G2,10)

NOTE: Again, change the number 8(eight) to the number of characters in your time format. In many examples, time the format is 8 characters, such as 01:31:01 or 14:22 PM (the space counts as one). But, if your format has more or less you will need to modify the number. For example, if you use 03:59:59 AM, the number should be changed to 11.

- 6) Save the file.
- 7) Open in a text editor and delete any rows at the end of the file with only commas in them. (If you paste your formulas into rows beyond the last one with data, you can create these empty rows).
- 8) Open in SMART and select the settings according to the format of your CSV file. Two different examples and the associated screenshots are provided below.

a) If you had an additional column for Waypoint ID that was labeled 'No', an extra column for the comments field labeled 'Id_GPS' and your headers read: 'No', 'Id_GPS', 'Lat', 'Long'...then your screen would look like this:

This screenshot shows the 'Import Waypoint Data' dialog box. Under 'Required Columns', the fields are: X coordinate: Long, Y coordinate: Lat, Date: date, and Time (see help for valid formats): time. Under 'Optional Columns', the fields are: Waypoint ID: No and Comments Field: Id_GPS. Under 'Data Options', the fields are: Coordinate Projection: WGS 84 [EPSG: 4326] and Date Format: d/M/y. There is a checked checkbox for 'Skip the first row of column heading when importing.' At the bottom are buttons for '< Back', 'Next >', 'Finish', and 'Cancel'.

b) If you did not have additional columns for Waypoint ID or comments and your columns read: 'latitude', 'longitude'... then your screen would look like this:

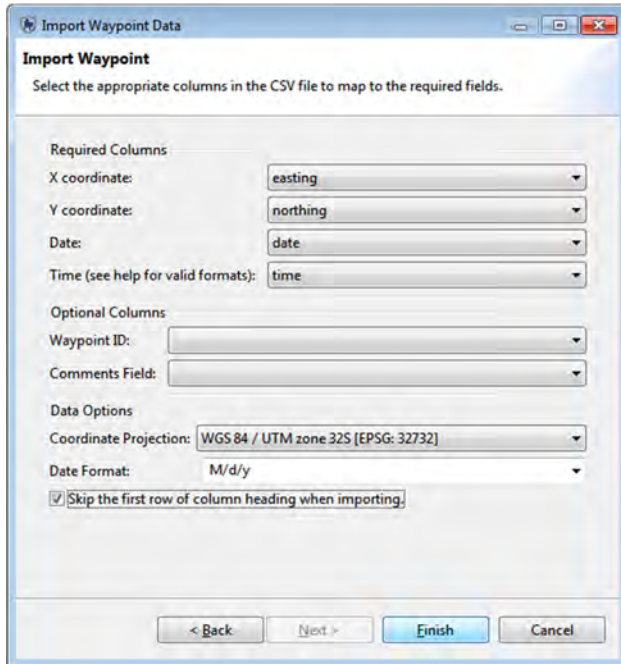
This screenshot shows the 'Import Waypoint Data' dialog box with different values. Under 'Required Columns', the fields are: X coordinate: Longitude, Y coordinate: Latitude, Date: Date, and Time (see help for valid formats): Time. Under 'Optional Columns', the fields are: Waypoint ID: (empty) and Comments Field: (empty). Under 'Data Options', the fields are: Coordinate Projection: WGS 84 [EPSG: 4326] and Date Format: M/d/y. There is a checked checkbox for 'Skip the first row of column heading when importing.' At the bottom are buttons for '< Back', 'Next >', 'Finish', and 'Cancel'.

Files with no date or time

If you are importing a CSV file without a date or time, presumably you know what day this patrol was undertaken. From there, you can assign arbitrary times. This step is necessary since time is required.

- 1) Add a date column header and put the correct date in row 2, copy it to the rest of the column.
- 2) In the next available, empty column add a time column header, and then set all times to noon or whatever time is most appropriate.
 - a) One option would be to create a formula to add 10 minutes to each row.

3) Set the properties to the values according to your file. The screenshot below provides an example of how the values should be set if your X coordinate column was labeled 'easting' and your Y coordinate column was labeled 'northing'. *NOTE: the projection should be modified to the correct UTM zone.*



4) Press finish and the points should load.

Files without column headers in the first row

If you are importing a CSV file with rows above the column headers, you will need to remove the additional rows so the column headers appear as the first row. Follow the below steps.

- 1) If you need the information that appears in the current rows above the column headers, take a copy for your records.
- 2) Delete X number of rows (however many proceed the column headers), so you are left with just the column headers.