# **R** Plugin Overview

### **Overview**

The R Plugin allows users to run R scripts directly from within SMART. Results of SMART queries can be sent directly to an R script and the results of the script viewed within SMART.

### Installation

The R plugin for SMART is installed in the same manner as all other SMART plugins.

Name	Version	
> 🔲 💷 SMART Connect Data Queue		
> 000 SMART Cybertracker		
> 000 SMART Ecological Records Plug-in		
> 🔲 💷 SMART Entity Tracking Plug-in		
> 000 SMART Field Sensors (Cameras etc) Plug-in		
III III SMART Independent Incident Plug-in		
> 000 SMART Intelligence Plug-in		
> 🗌 💷 SMART Planning Plug-in		
> 🗌 💷 SMART Profiles Plug-in		
🗸 🔽 💷 SMART R Scripts Plug-in		
🗹 🖗 SMART R Module (Required)	6.0.1.201807101617	
> 🗌 💷 SMART Triggers Plug-in		

The R software does not come with SMART. You must install this software separately. The software can be downloaded from <u>https://www.r-project.org</u>.

Once installed you must point SMART to the location of your R install. This is done via the 'File'->'System Preferences' menu. Select the 'R Preferences' page and on this page point the R Program to the location of the Rscript.exe file on your computer. This information is not shared via Connect so if you use Connect you will have to do this on each computer that uses SMART.

🚺 Preferences	– 🗆 X
GPS Babel Automatic Backups Map Rendering Options Plugin Install Locations R Preferences SMART Plans	R Program:*       C:\Program Files\R\R-3.5.0\bin\Rscript.exe       Browse         *This should point to the R script executable (Rscript.exe) file. This file is usually found in the bin directory for your R install.       R Software can be installed from <a href="http://www.r-project.org">http://www.r-project.org</a> The R logo is© 2016 The R Foundation. Licenced under the terms of the Creative Commons Attribution-ShareAlike 4.0 International license ( <a href="http://www.cc-BY-SA4.0">CC-BY-SA4.0</a> ). No modifications were made.         Restore Defaults       Apply
	Apply and Close Cancel

# **Configuring R Scripts**

Before using R Scripts in SMART you must import the script into SMART. To import scripts use the 'Query' -> 'Configure R Scripts' menu. Using this dialog you can import R scripts into SMART, give them names, and default parameters.

🗑 R Scripts — 🔲 🗙	🗊 R Script — 🗆 🗙
R Scripts Manage R Script in the system	R Script Update properties associated with R script
Sample R Script Add Edit Delete	Script File:       C:\Users\Emily\Desktop\smart_r_te:         Name:       Script Name         Default Script Parameters:         -size 49 -maxcount 34         Save         Cancel

## **Running R Scripts**

R Scripts are run from the query perspective.

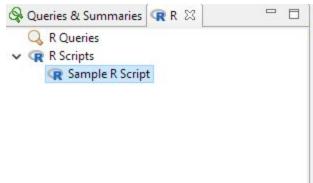
#### **Running From Query**

R Scripts can be configured directly from a set of queries. Select the queries from the query list, right click and select 'Run R Script'. The first time you will have to select 'Other' and select the script. Subsequent times the last run R script will appear in this menu. This will open the R script editor.

🛇 Queries & Summaries 🛛 🧟 🗸 💦 🗸		
type filter text		
<ul> <li>Conservation Area Queries</li> <li>Elephant carcasses - observations [000</li> <li>Human Activity [000017]</li> <li>Illegal logging observations [000009]</li> <li>Observations of hunting camps [00001</li> <li>Patrol coverage - km [000011]</li> <li>Patrol effort by Patrol ID [000012]</li> <li>Patrol effort by ranger [000013]</li> </ul>	10]	
Patrol effort by transport type [000014 Patrols with arrests [000008]	Open Query	
Snare observations [000015]	Run R Script	> Other
<ul> <li>My Queries</li> <li>Anti-poaching patrols [000002]</li> <li>Anti-poaching patrols on foot [00000</li> </ul>	Rename Translate	
🞉 Elephants Observations [000004]	🗙 Delete	
🌠 Number of threats by anti-poaching p 🕅 🕅 🕅	atrol (00	

### **Running R List View**

Double click on the script you want to run from the R view (next to the Query List).



#### **R Script Editor**

Once you open an R script the editor will be displayed. On the "Run" tab you configure the R script parameters, and the queries that should be run and provided as input to the script. On the "Results" tab you will see the output of running the queries. On the "Script" tab you can see the script and open it for editing.

When running the script each query is executed, the results saved to a temporary file, and the file provided as a parameter to the script. The Results tab will show the exact command run which you can use for debugging purposes.

SMART: SMART - Example Conservation Area					□ ×
File Conservation Area Patrol Field Data Query F	<u>Report Planning H</u> elp				
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😪 Queries & Summaries 🗬 R 🛛 🗙 🔒 🔻 🗖 🗖	🕞 Sample R Script 🔀				
type filter text            Conservation Area Queries	R Sample R Script				Script
Elephant carcasses - observations [000007] 発 Human Activity [000017] 疑 Illegal logging observations [000009] 疑 Observations of hunting camps [000010] 译 Patrol coverage - km [000011]	Parameters:				
Patrol effort by Patrol ID [000012]     Patrol effort by ranger [000013]     Patrol effort by transport type [000014]	Query Name	Date Filter		Export Format	
Patrols with arrests [000008]	🙀 Patrol effort by Patrol ID	Waypoint Date 🗸	All Dates 🗸 🗸	Comma Separated Values (*.csv)	~ <mark>{</mark>
Trophies seized [000016]	🙀 Patrol effort by transport type	Waypoint Date 🗸 🗸	All Dates $\vee$	Comma Separated Values (*.csv)	~ <mark>{</mark>
Anti-poaching patrols [000002] Anti-poaching patrols on foot [000003] Elephants Observations [000004] Number of threats by anti-poaching patrol [0 Poacher Encounters [000005]	Query	Participant and a second	ueries here to add to the les which are passed to	: R script input. the R script as parameters	
	<		Run Script		>
< >	🔹 Run 🛄 Results 🙀 Script				
🕕 Query error					

Once you've configured your R script with the queries, date ranges and formats you can save this configuration to re-run at a later date. These saved R "queries" appear in the R list view.

😵 Queries & Summaries	R R	22		R Patrol Location Analysis 🛛 🧟 R Sample R Sci	ript
✓ Q R Queries Q Patrol Location	Analy	/sis		R Patrol Location Analysis	
🗸 🙀 R Scripts	R	1		R Script: Sample R Script	
🕢 Sample R Scrip	t	Saved	R "queries	Parameters:	