

OS Open Greenspace

Getting started guide

Responsibility for this document

Rachael Evans, Technical Product Manager, is responsible for the content of this document.

Change history

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1.0	Feb 2017	First issue

The impacts of the instructions described in this document have been assessed and where appropriate, changed, in accordance with the requirements set out in Ordnance Survey's Equality Scheme.

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Contents

Section	Page no
OBTAINING OS OPEN GREENSPACE DATA	4
INTRODUCTION	4
MEDIA 4	
LOADING OS OPEN GREENSPACE DATA	4
QGIS 4	
LOADING AND DISPLAYING THE ESRI® SHAPEFILE SUPPLY	4
MERGING THE ESRI SHAPEFILE SUPPLY	6
STYLING THE ESRI SHAPEFILE SUPPLY	9
REMOVING DUPLICATE FEATURES FROM MERGED DATA	17
LOADING AND DISPLAYING THE GML SUPPLY	19
ESRI [®] ARCGIS [®]	22
LOADING AND DISPLAYING SHAPEFILE SUPPLY	22
LOADING MULTIPLE SHAPEFILES FOR LARGER AREAS OF INTEREST	27
MERGING SHAPEFILES AND REMOVING DUPLICATE FEATURES FROM THE DA	TA27
LOADING AND DISPLAYING THE GML SUPPLY	31
POSTGIS	35
LOADING AND DISPLAYING THE ESRI® SHAPEFILE SUPPLY	35
VIEWING THE DATA IN QGIS	
USING MULTIPLE SHAPEFILES IN POSTGIS	41
REMOVING DUPLICATE FEATURES IN POSTGIS	41
LOADING GML DATA INTO POSTGIS	43
MAPINFO PROFESSIONAL [®]	44
LOADING AND DISPLAYING THE SHAPEFILE SUPPLY	44
STYLING THE DATA	46
MERGING MULTIPLE . TAB FILES IN MAPINFO PROFESSIONAL	50
DELETING DUPLICATE ENTRIES FROM THE MERGED TABLE	51
LOADING GML DATA INTO MAPINFO PROFESSIONAL	52
CADCORP MAP MODELLER	54
LOADING ESRI SHAPEFILE SUPPLY	54
LOADING GML SUPPLY	54

OBTAINING OS OPEN GREENSPACE DATA

INTRODUCTION

From May 2017, Ordnance Survey will release a new product, OS Open Greenspace. This product will contain information on greenspace sites and their access points and it will be an open data product. This Getting Started Guide illustrates how to load and style OS Open Greenspace data into several commonly used GI applications. The procedures described here are similar to those for other OS OpenData products outlined in their respective Getting Started Guides.

OS Open Greenspace can be downloaded from the OS OpenData web site from May 2017. It will be available as either ESRI shapefile or GML format. The data will be available in 100x 100km tiles, but features will not be clipped at tile edges, resulting in what is called 'hairy' tiles. In the ESRI Shapefile release, the product will comprise two elements, the greenspace site, and the access points. The GML release will simply contain both elements in one file.

MEDIA

There are currently no plans to make this product available on hard media supply.

LOADING OS OPEN GREENSPACE DATA

QGIS

It is assumed that the user will have already set the default co-ordinate reference system in QGIS to British National Grid (EPSG 27700). Instructions on how to do this can be found in the QGIS Getting Started Guide:

http://www.ordnancesurvey.co.uk/docs/support/opensource-gis-guide-04-qgis-intro.pdf

LOADING AND DISPLAYING THE ESRI® SHAPEFILE SUPPLY

Open QGIS. Select 'Add Vector Layer' from the left-hand toolbar.



Click on the 'browse' button in the next window.

🌠 Add vect	tor layer		? X
-Source t	уре		
File	Directory	O Database	Protocol
Encoding	System		•
Source			
Dataset			Browse
		Open	Cancel Help

In the next window, navigate to the folder in which the data has been stored following download.

🌠 Open an OGR Supported Vector Laye	r		×
Solution of the second	e (ESRI Sha 🕨 data 🔍 🗲	Search data	م
Organize 🔻 New folder			• 🖬 🔞
 Downloads Recent Places Libraries OneDrive Libraries Documents Music Pictures Videos 	TF_AccessPoint.shp		
P Computer P OSDisk (C:) P Data_Drive (D:) P OS_Data (\\os2k33) (I:) P ShareFor1Month (\\os2k05) (K ▼			
File name:	•	ESRI Shapefiles (* Open	*.shp *.SHP) ▼ Cancel

Select the files which need to be loaded and then click 'open'.

🥖 Open an OGR Supported Vector Laye	er		×
O S Open Greenspac	e (ESRI Sha 🕨 data 🛛 👻 🍫	Search data	Q
Organize 🔻 New folder			• 🔟 🔞
 Downloads Recent Places Libraries OneDrive Libraries Documents Music Pictures Videos Music (C:) Data_Drive (D:) OSDisk (C:) 	TF_AccessPoint.shp		
File name: "TF_	GreenspaceSite.shp" "TF_Access1 🔻	ESRI Shapefiles (*.sh	ip *.SHP) ▼
		Open	Cancel

Click 'open' again in the following window:

Ø	Add vect	or layer				9	x
ſ	Source t	уре					
	File	O Directory	0	Database	Proto	col	
	Encoding	System					•
	Source						
	Dataset	Greenspace (ESRI	Shape File) TF	:\data\TF_Gree	enspaceSite.shp	Brow	se
				Open	Cancel		lelp

The data will now load into QGIS and will look something like the following:



The data will be loaded un-styled. It will be noted that the data will be loaded by tile reference as shown in the layers panel window of QGIS on the left-hand side of the screen. For small amounts of data, loading in this way will be perfectly acceptable. However, for larger areas, it will be more manageable to merge the data together to load larger areas as one file.

MERGING THE ESRI SHAPEFILE SUPPLY

The user may need to load more than one 10000km² grid square to cover the required area. The user will need to extract the relevant shapefiles from each tile into a folder. In the final release of data, the individual shapefiles will be prefixed with their National Grid 100km grid square reference letters as shown below:



In OS Open Greenspace, there are two elements of the shapefile data, one for the Greenspace sites and one for the access points. These two elements will need to be merged separately from each other, so that the user will obtain a larger shapefile for the sites and one for the access points.

It is recommended that the user copies each of these elements into a new empty folder before merging is carried out. In the example below, the Access Points for two tiles of OS Open Greenspace have been copied into a 'Merged_Data' folder. This will need to be repeated for the Greenspace sites



To merge the shapefiles together in QGIS, from the main menu, select 'vector' then 'data management tools'. The 'merge shapefiles to one' option is towards the bottom of the list of options.



In the next window, the user will need to define if the shapefiles to be merged are either points, lines or polygons. OS Open Greenspace contains two layers, the Access Points are point data and the Greenspace Sites layer is a polygon layer. Additionally, the folder where the files to be merged will sit needs to specified. In this example, all the files in the folder specified will be merged, which is easier than defining individual files. Finally, an output folder and file name for the merged shapefile needs to be selected. The user can also specify if they want the newly-merged file to be automatically added to the map canvass. Click 'OK' when satisfied with the files to be merged and the name and location of the output file has been decided.

🕺 Merge shapefiles	8 ×
Select by layers in the folder	
Shapefile type	Polygon 🔻
Input directory	
reenspace_Data\sample_data_1701	2017\Merged_Data Browse
Output shapefile	
ole_data_17012017/Merged_Data/G	reenspaceArea.shp Browse
Add result to map canvas	
	0%
	0%
	OK Close

Click 'Close' on this window when the process is completed. If the user selected the 'add result to map canvass' box, the data will appear. In the example below, two tiles of OS Open Greenspace, containing Access Points and Greenspace sites in separate layers, have been merged and loaded.



When working with merged shapefiles of any kind, it is highly recommended that a spatial index be applied to each element of the data, particularly if the user is loading national sets of data. The performance improvement in rendering the data will be very noticeable. To do this, carry out the following procedure:

Right-click on the table in the layers pane on the left-hand side of the screen. In the context menu which appears click 'Properties'.



In the next window, select the 'General' tab on the left and then click on the 'Create Spatial Index' button.

🕺 Layer Properties - Merg	ed_Greenspace_Sites General
General	▼ Layer info
	Layer name Merged_Greenspace_Sites displayed as Merged_Greenspace_Sites
Style Style	Layer source D:\Greenspace_Data\OS_Open_Greenspace\Merged_Greenspace_Sites.shp
(abc Labels	Data source encoding System
Fields	▼ Coordinate reference system
🎸 Rendering	Selected CRS (EPSG:27700, OSGB 1936 / British National Grid)
🧭 Display	Create spatial index Update extents
Actions	▼ Scale dependent visibility
Joins	Minimum (exclusive) I :100,000,000 Maximum (inclusive) III IIII IIIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
Diagrams	Provider feature filter
🥡 Metadata	
8 Variables	

Click 'OK' when this is done. If working with larger shapefiles, the user will notice a distinct improvement in performance in rendering and panning the data.

STYLING THE ESRI SHAPEFILE SUPPLY

At the time of writing this Getting Started Guide, the plan is to make available pre-defined style files for Open Greenspace in both ESRI shapefile and GML output. The style files for QGIS are files which have the .qml extension. These will be available to download from the Ordnance Survey Github pages from May 2017.

https://github.com/OrdnanceSurvey?page=2

It is also possible to style the Greenspace data manually using the tools available within QGIS to produce an output which suits the data user's needs.

To style an element of the data, right-click on the table in the layers pane and in the context menu, select 'Properties'.



In the next window, select the 'Style' tab on the left-hand side of the window. The user will see something like the following:

🕺 Layer Properties - Merge	ed_Greenspace_Sites Style		? ×
🔀 General	Single Symbol	_	
Vityle		Unit Milmeter Transparency 0% Color	
Fields		Symbols in group	Open Library
🞸 Rendering	4 Fill		
🧭 Display	Simple fill	corners diagonal dotted green land water	wine
Actions		corners alagonal dotted green iona water	wine
• Joins			
Diagrams			
🥡 Metadata			
S Variables			
	╋ = 2 6 ▲ ▼		Save Advanced 🔻
	▼ Layer rendering		
	Layer transparency	Eesture blanding mode Normal	
	Draw effects	Notified	
	Control feature rendering order		
	Style 🔻	OK Cancel A	Apply Help

It's now up to the user as to how to style the data. However, for the OS Open Greenspace data, a categorized approach, based upon the attributes within the data, is the logical approach.

Using the drop-down box in the style window, select 'Categorized' from the list of options.



In the next window, the user now needs to select the column within the data which is to be used for defining the categories. For the Greenspace Sites layer it will be 'function'.

🕺 Layer Properties - Merg	ed_Greenspace_Sites Style	
🔀 General	Categorized	
No Style	Column abc function v	
No otyle	Symbol Change Color ramp Random colors	
(abc Labels	Symbol Value Legend	

The user will now need to add all the categories which make up the different elements of the data. Click the 'classify' button towards the bottom of the window.



Once this has been done, a list of categories will now appear in the main window.

🕺 Layer Properties - Merged_G	ireenspace_Sites Style
General	Categorized
Colu	um abe function
abc Labels	mbol Change Color ramp Random colors Color ramp Random colors Edit Invert
Fields	Allotment Allotments Or Community Growing Spaces Bowling G., Bowling Green
Kendering	Cemetery Cemetery Golf Course Golf Course
🧭 Display	Other Spo Other Sports Facility Play Space Play Space
Actions	Playing Field Playing Field Public Par Public Park Or Garden
• Joins	Religious Religious Grounds Tennis Co Tennis Court
Diagrams	
🥡 Metadata	
Variables	
	Classify Add Delete Delete all Advanced
	Layer rendering
La	aver blending mode Normal Feature blending mode Normal
	Draw effects
	Control feature rendering order
	Style 🔻 OK Cancel Apply Help

Each of the categories will have been assigned a random style by QGIS. To change these, the user should select each category in turn, and using the tools within QGIS, assign their preferred style.



In this example, we are going to style the Allotments or Growing Spaces areas. Double-click on the feature in the list.

💉 Symbol selector	Unit Milimeter Transparency 0% Color	? ×
Fill Simple fil	corners diagonal dotted green land	water wine
		Save Advanced OK Cancel

The style assigned by QGIs is a simple fill. We are going to keep this but change the colour to something more appropriate. Click on the 'Simple fill' box beneath the 'Fill' entry.

🕺 Symbol selector					? ×
	Symbol layer ty	pe	Simple fill		•
	Colors	Fill	Border		
	Fill style	Solid			• 🗣
Eill	Border style	Solid Line			- 4
	Join style	Bevel			• 🗣
	Border width	0.260000		🗦 🖶 (Millimeter 🔻
	Offset X,Y	0.000000	0.000000	*	Millimeter 🔻
	Draw effect	s			☆
				ОК	Cancel

Another set of tools will now open. Select the drop-down next to 'Fill' in Colours



The user has the option to select from a choice of recent colours or copy, pick or choose a colour using the appropriate menu option. In this example, we will choose a recently used colour. We have also selected a transparent border for the feature.

🖉 Symbol selector		S ×
	Symbol layer type	Simple fill 💌
	Colors Fill	🕨 🖶 Border 😳 😳 💭
	Fill style	• 🖶
A Fill	Border style Solid Line	• 🗣
Simple fill	Join style Revel	• 🗣
	Border width 0.260000	Milimeter V
	Offset X,Y 0.000000	▲ 0.000000 ▲ Milimeter ▼
	Draw effects	ֶּשֶׁר (
		OK Cancel

Click 'OK' when finished.

	🗶 Layer Properties - Merged_Greenspace_Sites Style					
	\mathbf{X}	General	🔁 Categoriz	zed 🔻		
		Style	Column abc	function	3	
	Style		Symbol		Change Color ramp Random colors	
	abc	Labels	Symbol	Value	Legend	
	Fields		Allotment	Allotments Or Community Growing Spaces		
			Bowling G	Bowling Green		
	🞸 Rendering	Rendering	V	Cemetery	Cemetery	
			Golf Course	Golf Course		

The new colour has been applied to Allotments and Growing Spaces. This will need to be repeated for all the remaining categories, using an appropriate colour for each. When finished, click 'OK' at the bottom of the window.



In the example above, we see that QGIS has applied the style to the Allotments features.

To load a predefined style file for OS Open Greenspace, click on the 'Style' button at the bottom of the window. Then click on 'Load Style'.



Another window will open to allow the user to browse to the location of the style file (ending in .qml).



In this example, we will select the Greenspace_Site.qml. Click 'Open'.

The window will now change to a view of the categories in the predefined style as determined by the style file.

🔁 Cat	egorized 🔻	
Column	abc function	3 -
Symbol	Change	Color ramp Random colors Edit Inve
Symbol	Value	Legend
V	Allotments Or Community Growing Spaces	Allotments Or Community Growing Spaces
V	Bowling Green	Bowling Green
V	Cemetery	Cemetery
V	Golf Course	Golf Course
V	Other Sports Facility	Other Sports Facility
V	Play Space Golf Course	Play Space
V	Playing Field	Playing Field
V	Public Park Or Garden	Public Park Or Garden
V	Religious Grounds	Religious Grounds
V	Tennis Court	Tennis Court
Class	ify Add Delete Delete	all Advanced
▼ Lay	er rendering	
Layer t	transparency	0
Layer l	olending mode Normal	▼ Feature blending mode Normal ▼

Then, click 'Apply' followed by 'Open'.

ОК	Cancel	Apply	
		0	4

The styling will now be applied to the data. In this case, the Greenspace Sites will be styled.



The data will now look something like the above. Styling can also be applied to the Access Points by either styling manually or by adding a predefined style something like the below.



When using the predefined style files available from Github, it is important to consult the quick-start guide with those files for their correct use.

If the user wants to save a style file they have created, they should follow the procedure below:

Click on the layer for which the styling is to be saved. Right-click and select 'Properties' to bring up the properties window. Select the styling tab on the left-hand side of the window as previously.

🚀 Layer Properties - Merged_Greenspace_Sites Style							
General	at Cat	egorized 🔻					
	Column abc function				- 8		
💐 Style	Symbol	Change		Color ramp	Random colors		
(abc Labels	Symbol	Valua		Logond			
	Symbol	Alletments Or Commun	ity Crowing Spaces	Alletmon	to Or Community Crowing Space	^	
Fields		Anotherits Or Commun	ity growing spaces	Alloutien	Construction of Community Growing Space	5	
		Dowing Green		Dowing	Green		
🧉 Rendering		Cemetery		Cemeter	Ŷ		
	7	Golf Course		Golf Cou	irse		
🥏 Display	V	Other Sports Facility		Other Sp	ports Facility		
	V	Play Space		Play Spa	ice		
. O Actions	V	Playing Field		Playing F	Field		
	V	Public Park Or Garden			Public Park Or Garden		
10ins	V	Religious Grounds		Religious	s Grounds		
	V	Tennis Court		Tennis C	ourt		
Diagrams							
🥡 Metadata							
8 Variables							
	Class	sify Add I	Delete Delete	all			
	🔻 Lay	er rendering					
	Laver	transparency	D				
	20,0	a an open en ey					
	Layer	blending mode	Normal		 Feature blending mode 	Norma	
	📃 Dra	aw effects					
	Co	ntrol feature rendering order					
	Style	•			ОК	Cancel	

At the bottom, click on 'Style'.

There is now a context menu which allows the user to save the style as a QGIS Layer style file. Select that option.

cayer biending mode	Normai						
Draw effects							
Control feature rendering order							
Style 🔻	_						
Load Style							
Save Style 🕨	QGIS Layer Style File						
Save as Default	SLD File						

In the next window, the user will be prompted to give the style a name and save it to a location. It is suggested that the user saves the style in a new empty folder to make managing style files easier.

In the example, we are saving the style file as Greenspace Site.QML.

💋 Save layer properties as style file				×
Greenspace > OS_Open_Gr	eenspace 🕨 🔻	4	Search OS_Open_Greens	pace 🔎
Organize 🔻 New folder			## ·	• (2)
 ★ Favorites ▲ Merged ▲ OS Open ▲ Open ▲	i Greenspace (ESRI Sha i Greenspace (ESRI Sha i Greenspace (GML) TI i Greenspace (GML) Ti ace_Access_Points.qm ace_Site.qml	ape File ape File G II	e) TF e) TG	
File name: Greenspace_Site.qml Save as type: QGIS Layer Style File (*.qm	1)			•
) Hide Folders			Save	ncel

Click 'Save'. The file of type should be a QGIS Layer Style file, as we are not saving the style into a database or as a Styled Layer Descriptor in this instance. The style file is now saved and can be loaded into QGIS in future to style updated OS Open Greenspace data or data from a different location. It should be noted that this process needs to be repeated for the Access Points file in the OS Open Greenspace data as separate style files for the access point and greenspace sites shapefiles will need to be produced.

REMOVING DUPLICATE FEATURES FROM MERGED DATA

OS Open Greenspace data is supplied as 'hairy tiles' with features which cross a 100km tile edge being supplied in both tiles in which the feature appears. In many instances, the user will simply wish to use the Greenspace data as merged. In this case, there will be no need to remove duplicate features along the tile edges as the features will display perfectly clearly with one duplicate feature overlying the other.

There may, however, be instances where the user wishes to carry out some form of analysis using feature counts contained within the data. In this case, the data will need to have the duplicate features removed. There are several ways within QGIS to achieve this. There are also several plugins for QGIS which can be installed to carry out this function, in particular, one called 'MMQGIS'. However, methods using these options are not described here.

The 'Dissolve' function in QGIS which is part of standard functionality will effectively carry out this procedure. In the example described below, we are going to de-duplicate the merged OS Open Greenspace file that we created in the section on merging shapefiles in this guide. In this example described, we have the file loaded into the map window.



From the main menu, select 'vector' then 'geoprocessing tools' followed by 'dissolve'. Another window will then appear.

🔏 Dissolve	? X
Input vector layer	
Merged_Greenspace_Sites	-
Use only selected features	
Dissolve field	
lid	-
Output shapefile	
OS_Open_Greenspace/Dissolved_Greenspace_Sites.shp	Browse
Add result to canvas	
0% OK	Close

The user will need to select the input vector layer to be de-duplicated; in this case, the

Merged_Greenspace_Sites file is already selected. The dissolve field is set to 'id' which will be the field in the data which will be searched for duplicate features. Finally, the user will need to specify an output folder and file name for the de-duplicated data. Once this is done, the user can specify whether the newly created file can be added to the current map canvass. Click 'OK' to start the process.



OS Open Greenspace V1.0 Feb 2017 Ordnance Survey © 2017 Page 18 of 55 A message appears once the process is complete. In this example, we have asked QGIS to automatically load the dissolved file. Once again, it is highly recommended that the dissolved file be given a spatial index using the method previously described to improve rendering performance.

Compared with the data which contains duplicates, the de-duplicated data should contain fewer features. This can be confirmed by either running a COUNT query in an expression window or by simply opening the attribute table of the data and comparing the number of features.

Ø I	🕺 Merged_Greenspace_Sites :: Features total: 4473, filtered: 4473, selected: 0								
1	/ 🗟 🔁 🖥 🔓 🖕 🖕 📽 🗇 🗭 🖺 🗮 💈 🤰								
	id	function	distName 1	distName2	distName3	distNam 🔺			
0	45CEA0D4-5011	Allotments Or Co	NULL	NULL	NULL	NULL			
1	45CEA0D3-A638	Playing Field	NULL	NULL	NULL	NULL			
2	45CEA144-9D0C	Play Space	NULL	NULL	NULL	NULL			
3	45CEA0D0-F266	Play Space	NULL	NULL	NULL	NULL			
4	45CEA144-9CED	Other Sports Faci	Woodlands Stables	NULL	NULL	NULL			

In the example above, which is the original merged file, there are a total of 4473 features as seen in the attribute table.

Ø	🕺 Dissolved_Greenspace_Sites :: Features total: 4468, filtered: 4468, selected: 0							
/	B 2 🖪 i	j 🛛 🗧 🔽	- <mark>-</mark> 🗈 💠 🕻	D 🗈 🗎 🛙		2?		
	id	function	distName 1	distName2	distName3	distNam 🔺		
0	45CEA17C-B730	Religious Grounds	Heartsease Lane	NULL	NULL	NULL		
1	45CEA148-0479	Religious Grounds	St Mary's Church	NULL	NULL	NULL		
2	45CEA146-A509	Bowling Green	NULL	NULL	NULL	NULL		
3	45CEA104-EC9D	Public Park Or Ga	Sheringham Park	NULL	NULL	NULL		
4	45CEA15F-94D2	Playing Field	NULL	NULL	NULL	NULL		
-	45CEA0D4-4F7E	Other Sports Faci	NULL	NULL	NULL	NULL		

In this example, which is the dissolved file, there are now only 4468 features in the layer, so the duplicate features have been removed.

Styling can now be applied to the dissolved file if required. The same style files created earlier or downloaded from Github should work with the dissolved file because no column headers or other changes have been made to attribution.

LOADING AND DISPLAYING THE GML SUPPLY

Open QGIS. Select 'open vector layer' from the left-hand toolbar.

V

In the resulting window, click 'browse' to open the window, which will allow the user to select the .GML files to be loaded. The user will need to specify that a .GML (geography mark-up language) file needs to be opened from the drop-down menu at the bottom of the window.

💋 Open an OGR Supported Vecto	r Layer		×
😋 🔍 🗢 🚺 « OS Open Greer	nspace (GML) TF 🕨 data 🛛 👻 🍕	Search data	٩
Organize 🔻 New folder		••• •	
 Downloads Recent Places Libraries OneDrive 	OSOpenGreenspace_TF.gml		
 ➢ Libraries ➢ Documents J Music ➢ Pictures ☑ Videos 			
🍋 Computer 🏐 OSDisk (C:)			
Data_Drive (D:)			
₩ US_Data (\\os2k33) (I:) ₩ ShareFor1Month (\\os2k05	5) (k -		
File name:	OSOpenGreenspace_TF.gml	Geography Markup Lar	nguage [👻 Cancel

Select the file and then click 'open' twice. The .GML data for the OS Open Greenspace contains two elements which make up the data, namely access points and greenspace sites. After selecting the .GML files to load and clicking 'open', an additional window will appear:

Select v	ector layers to a	dd	6	×
ayer ID	Layer name	Number of features	Geometry type	
0	AccessPoint GreenspaceSite	3655 2772	Point MultiPolygon	
			OK Select All C	ancel

The user should select the elements from the data which are needed and then click 'OK'. If both are selected, the user will see something like the example below (the polygons being the greenspace sites and the points being the access points):



The data can now be styled using a predefined style file (.QML file) as described previously or using the tools within QGIS. Please note that style files created for the shapefile supply of the data may not work with GML supply without modifications. It is highly recommended that style files created specifically for the GML supply be used. The styled data will appear in similar fashion to that shown below. In this instance the style files created for the ESRI shapefile supply do work for the .GML data without modifications.



It should be noted that rendering performance of the data within QGIS will be much poorer than in the case of the shapefile format, as GML data cannot be spatially indexed. It should also be noted that multiple 100 x 100km tiles of OS Open Greenspace .GML data cannot easily be merged together, as with the shapefile option. Consequently, rendering performance will also be much slower. In addition, it is not easy to de-duplicate features along tile edges using common spatial geoprocessing tools within QGIS. As a result, the GML data itself will have to be queried using code scripts to highlight and remove duplicate features within a text editor. The other option would be to use the QGIS facility of saving out the .GML data as shapefiles and then carrying out additional data processing on the shapefiles instead. However, there would be little point in this as one of the OS Open Greenspace supply options is ESRI Shapefile.

ESRI[®] ARCGIS[®]

LOADING AND DISPLAYING SHAPEFILE SUPPLY

There are two possible ways of loading and displaying the shapefile data in ESRI ArcGIS. The shapefile data can be loaded straight into ArcGIS. However, if more than one 100 x 100km tile is being loaded, the rendering performance can become an issue. The recommended way of loading the data is to use a file geodatabase to house the data. This is the method which will be described in this guide.

Open ArcCatalog. Choose a folder where the file geodatabase is to be created.



Right click on the folder and in the context menu select 'new' and then 'File Geodatabase'. Give the new file geodatabase a suitable name for ease of reference by highlighting the geodatabase and typing a new name.

∃ 🖻 OS_Open_Greenspace
🗉 🚞 Merged
표 🚞 OS Open Greenspace (ESRI Shape File
표 🚞 OS Open Greenspace (ESRI Shape File
🗉 🚞 OS Open Greenspace (GML) TF
🗉 🚞 OS Open Greenspace (GML) TG
🗄 🧾 OS_Open_Greenspace.gdb

Once created, right click on the file geodatabase, and select 'import' and then 'feature class (multiple)'.

OS Open Greenspace (GML)	TG				
Dissolved_Greenspace_Sites.	P	Сору	Ctrl+C		
😳 Merged_Access_Points.shp	È	Paste	Ctrl+V	L	
Merged_Greenspace_Sites.sh OSMM Greenspace	×	Delete			
ample_data_17012017		Rename	F2	L	
D:\OS_Highways	2	Refresh	F5	L	
D:\OS_OpenMap_Topography		Administration	•	1	
D:\OS_OpenRoads		Distributed Geodatak	nase 🕨	L	
D:\OS_Water_Network			ase v		
		New	•		
D:\Pgdumps		Import	•		Feature Class (single)
D:\RASTER		Export	+		Feature Class (multiple)
D:\Resilience_Direct D:\Styling	Q	Share as Geodata Ser	vice		Table (singl
D:\Temp	PP-	Properties			Table (mult

In the next window, browse to the location where the data sits which is to be imported. Because the individual shape files begin with the 100km prefix letters, it is possible to import more than one OS Open Greenspace tile into the geodatabase as per user requirements.

💕 Feature Class to Geodatabase (multiple)		
Input Features		^
Output Geodatabase		
D:\Greenspace_Data\OS_Open_Greenspace\OS_Open_Greenspace.gdb		
		Ŧ
OK Cancel Environments	Show Help >>	

Click on the button to the right of the blank window under 'input features' and navigate to the folder(s) where the OS Open Greenspace shapefile data resides.

Input Features				×
Look in:	lata oint.shp aceSite.shp	 ▲ I ## 	• 🎦 🕅 🖴	
Name: Show of type:	All filters listed			Add Cancel

Select all the shapefiles that are required in the window and click 'add'.

🗊 Feature Class to Geodatabase (multiple)	
Input Features	A
D:\Greenspace_Data\OS_Open_Greenspace\OS Open Greenspace (ESRI Shape File) TF\da D:\Greenspace_Data\OS_Open_Greenspace\OS Open Greenspace (ESRI Shape File) TF\da D:\Greenspace_Data\OS_Open_Greenspace\OS Open Greenspace (ESRI Shape File) TG\da D:\Greenspace_Data\OS_Open_Greenspace\OS Open Greenspace (ESRI Shape File) TG\da	ita\T ita\T ita\T ita\T ita\T ita\T ↓
Output Geodatabase D:\Greenspace_Data\OS_Open_Greenspace\OS_Open_Greenspace.gdb	
OK Cancel Environments	Show Help >>

The shapefiles selected will now appear as a list in the import feature class window. The output file geodatabase should default to the one which has been previously selected. Click 'OK'. The window will close and now ArcCatalog will import the features classes into the file geodatabase. A dialog box will appear when the process is complete.

If the file geodatabase is now highlighted, a list of the imported features classes should be visible. In this example, two shapefiles covering the 100km areas TR and TG have been imported. This has created four new feature classes in the file geodatabase - two for access points and two for greenspace sites.

talog Tree 🛛 📮 🗙	Contents Preview Description	
Folder Connections	Name	Type
🗄 🚘 C:\Users\ICoskun\Documents\ArcGIS	- Nome	Type
🗄 🔚 C:\Users\ICoskun\Documents\Ilhan\Trair	TF_AccessPoint	File Geodatabase Feature Class
🗄 🔚 D:\Addressing	I III TF_GreenspaceSite	File Geodatabase Feature Class
🕀 🔚 D:\Customer_Data	TG_AccessPoint	File Geodatabase Feature Class
🗄 🛅 D:\EPSG_Project	I G_GreenspaceSite	File Geodatabase Feature Class
🗄 🚞 D:\Event Data		
🖃 🚝 D:\Greenspace_Data		
🗄 🚞 Enhanced		
🗆 🚞 OS_Open_Greenspace		
🕀 🚞 Merged		
표 🚞 OS Open Greenspace (ESRI Shape		
표 🚞 OS Open Greenspace (ESRI Shape		
표 🚞 OS Open Greenspace (GML) TF		
표 🚞 OS Open Greenspace (GML) TG		
OS_Open_Greenspace.gdb		
TF_AccessPoint		
☑ TF_GreenspaceSite		
TG_AccessPoint		
I TG_GreenspaceSite		
	1	

A useful point to note is that loading the shapefiles into a file geodatabase will automatically add spatial indexes to the data in the import process. There is therefore no need to manually add one once the data has been loaded, which would be the case if shapefiles had been loaded into ArcGIS without using the file geodatabase option. As has been previously mentioned, the addition of a spatial index greatly improves rendering performance.

Start ArcMap. Click on the 'import data' button in the top toolbar.



In the window that appears, navigate to the location of the file geodatabase just created. Select the feature classes that are required and click 'add'.

Add Data	×
Look in: 间 (05_0pen_Greenspace.gdb 🔹 🛧 🏠 🎲 🔛 🔁 🐨 🚳
 TF_AccessP TF_Greensp TG_AccessP TG_Greensp 	oint aceSite roint paceSite
Name:	TF_AccessPoint; TF_GreenspaceSite; TG_AccessPoint; TG_ Add
Show of type:	Datasets, Layers and Results Cancel

The data will load into ArcMap. Although ArcMap does put the shapefiles into a more logical sequence, the user can move the layers according to the desired preferences. The data will, of course, load in as un-styled data. ArcMap will assign a random style to the data.



The user can manually style each of the layer files by right-clicking on each of the loaded layers, selecting 'properties' and then 'symbology'. ArcMap contains an extensive range of tools to allow the user to apply various styles to each layer of the data and then save the work as an ArcGIS layer file. This procedure is not covered in this guide.

A set of ESRI layer files for OS Open Greenspace will be available for download from the GitHub web site at product launch. Follow the instructions in the Quick Start Guide which accompanies these files to apply the styling to the data. These style files will work with either a direct shapefile load in ArcMap or using the file geodatabase methodology described here.



The user should see something like the screenshot above when the process is complete.

If using a different set of layer files, the procedure for adding a style in ArcMap is as follows – this method can be used for many other data types. To add a style to a layer, simply right-click on a layer, select properties' and then 'symbology'.

Layer Properties	×
General Source Selection	on Display Symbology Fields Definition Query Labels Joins & Relates Time HTML Popup
Features	Draw all features using the same symbol. Import
Single symbol	Symbol
Quantities	Advanced
Charts	Auva <u>i</u> ceu
Multiple Attributes	
	Legend
	Label appearing next to the symbol in table of contents:
A CALL	Description Additional description appearing next to the symbol in your map's legend
\sim	
	OK Cancel Apply

In the layer properties window, select 'import' (the button below the tabs at the top). A list of available styles, drawn from the imported layer file will appear. Simply select the required style and click 'OK'. The symbol in the box will now change to the predefined style.

General	Source	Selection	Display	Symbology	Fields	Definition Qu	erv Labels	Joins & Relates	Time	HTML Popup	
how:			Dispidy								
Feature	\$		raw all fe	atures usir	ng the s	ame symbol			Import		
Singl	e symbol										
Categor	ies		Symbol								
Quantiti	es						Arth	anged -			
Charts							Auv	anceu 🔹			
Multiple	Attribut	tes				ļ					
			Logand								
			Legenu								
			Label appearing next to the symbol in table of contents:								
3.54	5 - 9 <u><</u> -1	2.4	Descri	otion							
~~	~~~ ^N	~									
-	~ 0	2	Additiona	al description	appearin	ig next to the	symbol in y	our map's legend			
{		N									
٤ ک	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	1									
		- -									

Click 'OK' again and the style will then be applied in ArcMap. Repeat this procedure for all the layers until the OS Open Greenspace data is styled to requirements. Labels for certain features can also be applied as needed.

LOADING MULTIPLE SHAPEFILES FOR LARGER AREAS OF INTEREST

If the user wants to load a larger area of interest, it is recommended that they merge the shapefiles together before loading into the file geodatabase. This procedure is described later in this guide. Doing this will also mean that the supplied layer files for styling will only need to be applied once to the data and all the styles will work properly.

If, however, the user simply wants to load multiple areas using the file geodatabase option, there is no mandatory requirement to merge shapefiles together.

MERGING SHAPEFILES AND REMOVING DUPLICATE FEATURES FROM THE DATA

As has already been stated, OS Open Greenspace is supplied as 'hairy tiles' with features which cross a tile edge being supplied in both tiles in which the feature appears. These duplicate features will occur if more than one 100 x 100km tile is loaded into a file geodatabase. In many instances, the user will not need to remove duplicate features along the tile edges as the features will display perfectly clearly with one duplicate feature overlying the other.

There may, however, be instances where the user wishes to carry out some form of analysis using feature counts contained within the data. In this case, the data will need to have the duplicate features removed.

To remove duplicate features in ArcMap, the user needs to merge the tiles together before removing the duplicate features. This procedure can take some time, so the user should consider if this is really needed.

Firstly, the tiles need to be merged together to create new features classes within the file geodatabase containing the original data (or to a completely new file geodatabase or shapefile if required).



Using either ArcMap or ArcCatalog, from the main menu, select 'Geoprocessing' followed by 'merge'. In the next window, select the layers to be merged. In this example two features classes, the Greenspace Sites layers for TF and TG are being merged together. All the attribution is being copied into the new features class though the user can specify what attributes need to be copied. The user can also specify the output required. This can be a new feature class within a file geodatabase or a shapefile. In this example a new feature class containing the merged data will be created.

Merge
Input Datasets
D:\Greenspace_Data\OS_Open_Greenspace\OS_Open_Greenspace.gdb\TF_GreenspaceSite
D:\Greenspace_Data\OS_Open_Greenspace\OS_Open_Greenspace.gdb\TG_GreenspaceSite
Output Dataset
D:\Greenspace_Data\OS_Open_Greenspace\Open_Greenspace_Sites_Merged.shp
Field Map (optional)
·· id (Text) ·· function (Text) ·· distName 1 (Text)
OK Cancel Environments Show Help >>

Output Dataset	
Look in: TF_AccessF TF_Greensp	OS_Open_Greenspace.gdb → 全 🟠 🐼 🏥 → 🖆 🖆 🗊 🗞 Point paceSite
TG_Access	Point paceSite
Name:	Open_Greenspace_Sites_Merged Save
Save as type:	Feature classes Cancel

Click 'OK' when all the feature classes (or shapefiles) to be merged have been selected. Using this method, a number of OS Open Greenspace tiles can be merged together, although only two are shown in this example. ArcGIS will then merge the files and load the newly-created feature class (or a shapefile if that was being used), into the map window. Depending on the sizes and number of tiles being merged, this could take some time. A dialog box will appear when the process is finished.

In the example shown below, a new feature class within the original file geodatabase used to hold the data has been created. This new feature class is called 'Open_Greenspace_Sites_Merged' and covers the entire area of the two separate feature classes previously loaded into the geodatabase. This new feature class has been styled using the ESRI style file for OS Open Greenspace data which will be available from Github. It's important to follow the instructions in the Quick Start guide, provided with these files, to get the right result.



The 'Dissolve' function in ArcGIS will remove the duplicated features along the tile boundaries. This procedure can be carried out in either ArcCatalog or ArcMap. Firstly select 'Geoprocessing' and then 'Dissolve' from the main menu.

ection	Geo	processing Cus	tomize	Winde	ows	P
> - 1:	~	Buffer		5	i 🗖	
	$\overline{}$	Clip		+		
	$\overline{}$	Intersect		F	• •	-
	$\overline{}$	Union				
	$\overline{}$	Merge				
	1	Dissolve				_

The user will then need to specify which merged file from which duplicate features are to be removed. In this example, we are looking at the Open_Greenspace_Sites_Merged feature class.

We are going to save the de-duplicated data as a feature class within the original file geodatabase called 'OpenGreenspace_Sites_Dissolved'. All the dissolve fields in the box need to be ticked <u>except the ObjectID</u> <u>field</u> as otherwise the attribution will not be carried over to the new dissolved file. Once complete, the new dissolved feature class will be loaded into ArcMap. This new dissolved feature class will contain no duplicate features. This procedure could also be performed using shapefiles simply loaded into ArcMap without using a file geodatabase.



The new feature class can now be styled as previously described. A count using the attribute table on both the original merged file and the dissolved file will confirm that the dissolved shapefile contains fewer features. The count below shows the merged feature class with duplicates contains 4,473 features.



The count below shows that the dissolved feature class contains 4,468 features.



LOADING AND DISPLAYING THE GML SUPPLY

The GML data can be imported into ArcGIS using the Quick Import function in Arc Toolbox. The data will be imported un-styled. Users should also note that due to the large file sizes of some of the 100 x 100km grid tiles especially within larger cities, this import may take time to process.



The user will need to specify the type of data being imported (in this case, GML data) and browse to the files where the .GML data is stored.

Q Specify [Data Source		X
Reader			
Format:	Markup Language Simple Fea	tures Level SF-0 Profile)	
Dataset:	nspace (GML) TG\data\OSOpe	enGreenspace_TG.gml*	📑
Paramet	ers) 🥺 Coord. System:	Read from source	
		ОК	Cancel

The quick import will create a new file geodatabase into which to import the data. Once the database location and name has been selected click 'OK' in the dialog box as shown below to start the quick import. It is important to note that all the .GML files which are required for import should be in the same folder as each other and not in separate folders as they are downloaded, e.g. one file in a folder called 'TG' and one in a different folder called 'TF'. If this is the case, the quick import process would have to be repeated for each folder. Placing all the .GML files in one folder will allow a multiple import at once as shown in the example below.

N Quick Import	
Input Dataset	*
OSOpenGreenspace_TF/OSOpenGreenspace_TG [GMLSF]	
Output Staging Geodatabase	_
D:\Greenspace_Data\OS_Open_Greenspace\OS_Open_Greenspace_GML_Data	
	T
OK Cancel Environments	Show Help >>

Once the quick import function has been completed, the data can be added using the usual 'add data' button in ArcMap and selecting all the layers from the newly created file geodatabase. The data will be loaded un-styled as shown in the example below.

Add Data	×
Look in: 间 (05_0pen_Greenspace_GML_Da 🔻 🏠 🏹 🏥 🗸 🖆 🎬 🗣
AccessPoint	t
FeatureColle	ection
News	
Name:	AccessPoint; GreenspaceSite Add
Show of type:	Datasets, Layers and Results Cancel

The resulting imported data will then appear in the ArcMap window and can then be styled to suit requirements. In the case of other .GML datasets, the user may have to manually select the column header of the appropriate table within the data on which to base the styling. This because in the GML imported data, the column header information is not shortened, as with the shapefile data. Shapefile data is limited to eight characters within the column header. GML imported data is not limited in this fashion. In the case of OS Open Greenspace data, this manual selection of column header is not required.



In the example below, we are matching the column 'function' in the ESRI .lyr file with the function column header in the imported GML data.

mport Symbology Ma	itching Dialog
Select field(s) from the in the imported symbolo	current layer to match to the field(s) used ogy definition:
Value Field	
function	
function	▼
Value Field	
Value Field	*
	OK Cancel



In this example, the supplied ESRI .lyr file has successfully styled the information from the imported .GML data according to information in the function column within the data. When 'OK' is clicked, the data appears as shown below:



POSTGIS

PostGIS is the geospatial extension to the free open source database application PostgreSQL. The PostGIS extension needs to be installed as part of the PostgreSQL install. Instructions of how to do this can be found on the OS Web Site:

http://www.ordnancesurvey.co.uk/docs/support/opensource-gis-guide-02-postgres-install.pdf

LOADING AND DISPLAYING THE ESRI® SHAPEFILE SUPPLY

Open 'PG Admin' from the Windows desktop and, using the menu options available, create a new database and a new schema within the database to hold the OS Open Greenspace data. It is recommended that the user not use the 'public' schema to hold the data itself.



In the example above, a database called 'osopendata' has been created along with a schema called 'open_greenspace' into which the data will be loaded.

As the data to be loaded comes in shapefile format, there is an easy to use PostGIS plugin available within PostgreSQL to load shapefile data.



Select 'plugins' from the main menu followed by 'PostGIS Shapefile and DBF Loader'

The next window allows the user firstly to view connection details and then to add files to the database. The first thing to do will be to test connection details. Click on the 'view connection details' button.

PostGIS connec	tion	Minimize
PostGIS Connect	IVIIIIII2C	
Username:	postgres	
Password:	•••••	
Server Host:	localhost	5432
Database:	osopendata	
	ОК	

The resulting box should contain the username and password already entered along with the host name. The database being used to contain the data should already be selected. Click 'OK'

	> Shapefile Impo	rt/Export N	lanager			x
PostGIS	Connection					
	۷	iew connec	tion details			
Import	Export					
Impo	t List					,
Shap	efile Schema Ta	ible Geo Co	olumn SRID	Mode R	lm	
		Add	File			
		Add	File			
Opt	ons Ir	Add mport	File About		Cancel	
Opt	ons Iı	Add mport	File About		Cancel]
Opt -Log Wir Connec	ons Ir dow tina: host=local	Add mport	File About	tores	Cancel	
Log Wir Connec passwo	ons Ir dow ting: host=local d='******** dbn	Add mport host port=5 ame=osop	File About 432 user=poe endata client_	stgres encoding	Cancel]
Log Wir Connec passwo Connec	ons Ir dow ting: host=local d='******** dbn tion succeeded.	Add mport host port=5 ame=osope	File About 432 user=po: endata client_	stgres encoding	Cancel g=UTF8	
Opt Log Wir Connec passwo Connec	ons Ir dow ting: host=local d='******** dbn tion succeeded.	Add mport host port=5 ame=osope	File About 432 user=pos endata client_	stgres encoding	Cancel	
Opt Log Wir Connec Dasswo Connec	ons Ir dow ting: host=local d='******* dbn tion succeeded.	Add	File About 432 user=po: endata client_	tgres encoding	Cancel	
Opt Log Wir Connec Connec	ons Ir dow ting: host=local d='******** dbn tion succeeded.	Add	File About i432 user=po: endata client_	stgres encoding	Cancel	
Opt Log Wir Connec Connec	ons Ir dow ting: host=local d='******** dbn tion succeeded.	Add	File About 432 user=pos endata client_	stgres encoding	Cancel	

If everything is working OK, 'connection succeeded' should appear in the Log Window.

Click the 'Add File' button.

t a Shape File	ta OS Open Greenspace Holding		2
[[[orcenspace_ba			
<u>^</u>	Name	 Size Modified 	
arch	TF_AccessPoint.shp	157.1 KB 07/02/201	7
cently Used	TF_GreenspaceSite.shp	1.7 MB 07/02/201	7
oskun	TG_AccessPoint.shp	93.1 KB 07/02/201	7
sktop	TG_GreenspaceSite.shp	1.0 MB 07/02/201	7
Disk (C:)			
ta_Drive (D:) 🛛 🗏			
_Data (\\os2k			
areFor1Mont			=
TS_F (\\wv67			
mmercial (\)			

In the next window, which appears, use the file tree in the 'Places' box on the left-hand side to navigate to the folder in which the OS Open Greenspace shapefiles data sit. A list of the files will appear in the main window. The user can load one or all the files into the database. In the example above, all the shapefiles have been selected. Then, click 'Open'. If opening files from multiple 100 x 100km grid tiles, it is better to place the original shapefiles into a single folder.

	View connect	tion details				
port Export						
mort List						
Shapefile	Schema	Table	Geo Column	SRID	Mode	Rm
D:\Greenspace_Data\OS_Open_Gr	reenspace\Holding\TF_A open_green	space tf_accesspoint	geom	27700	Create	
D:\Greenspace_Data\OS_Open_Gr	reenspace\Holding\TF_C open_green	space tf_greenspacesite	geom	27700	Create	
D:\Greenspace_Data\OS_Open_Gr	reenspace\Holding\TG_ <mark>/</mark> open_green	space tg_accesspoint	geom	27700	Create	
D:\Greenspace_Data\OS_Open_Gr	reenspace\Holding\TG_(open_green	space tg_greenspacesite	geom	27700	Create	
		File				
	Add	1.0.5				
	Add	The second sec				
Options	Add Import	About			Canc	el
Options	Add Import	About			Cance	el
Options	Add	About			Cance	el
Options Window Inecting: host=localhost port=54 Inection succeeded.	Add Import 32 user=postgres password='*******	About	ent_encoding=	∶UTF8	Canco	el

Another window will open listing the selected shapefiles. The Schema and SRID will need to be changed. The schema will need to be changed to the schema in the database into which the data is being loaded (in this case 'open_greenspace'). The SRID (or co-ordinate reference system) will need to be changed to 27700, which is the code for British National Grid. This will need to be done for all the shapefiles being loaded. No other element will need to be changed. Once this has been done click 'Import'.

At the end of the procedure, the log window at the bottom of the PostGIS import/export manager box should indicate that all the shapefiles have loaded successfully. However, one or two of the shapefiles (depending on the area of the country being loaded) <u>may</u> fail to load because the text encoding needs to be changed from UTF-8 to LATIN1. If this is the case, the user will need to close the plugin and start again selecting just the shapefiles which failed to load previously. The schema and SRID must be changed again and this time, the character encoding will need to be changed. This can be done by clicking the 'options' button;

Import Options	
LATIN1	DBF file character encoding
	Preserve case of column names
	Do not create 'bigint' columns
	Create spatial index automatically after load
	Load only attribute (dbf) data
	Load data using COPY rather than INSERT
	Load into GEOGRAPHY column
	Generate simple geometries instead of MULTI geometries
	ОК

Change the DBF character encoding to LATIN1 and click 'OK'.

Changing this should allow the import to complete successfully. For information, the shapefiles which are most likely to need this change to be made are either in Wales or Scotland. This is because files in these areas may contain text which may have accents within them which are not part of the UTF-8 character set.

	View connection de	etails				
port Export						
mport List						
Shapefile	Schema	Table	Geo Column	SRID	Mode	Rm
D:\Greenspace_Data\OS_Open_Greenspace\Holding\TF	_A open_greenspace	tf_accesspoint	geom	27700	Create	
D:\Greenspace_Data\OS_Open_Greenspace\Holding\TF	_G open_greenspace	tf_greenspacesite	geom	27700	Create	
D:\Greenspace_Data\OS_Open_Greenspace\Holding\TG	i_/ open_greenspace	tg_accesspoint	geom	27700	Create	
D:\Greenspace_Data\OS_Open_Greenspace\Holding\TG	(open_greenspace	tg_greenspacesite	geom	27700	Create	
	Add File					
	Additic					
Options Import		About			Canc	el
Options Import J Window J orring with configuration: tg_accesspoint, open_greens 5_AccessPoint.shp, mode=c, dump=1, simple=0, geogra spefile type: PointZ stGIS type: POintZ stGIS type: POint[4] spefile import completed.	pace, geom, u:\uree phy=0, index=1, sha	About nspace_vata\vs_vp pe=1, srid=27700	en_oreenspac	ce\Hoiai	Canc	el

Once the import has been completed, the user can check if the data is loaded properly by refreshing the schema in PGAdmin and opening the 'table' tree. If the data has loaded correctly, there should be the same number of OS Open Greenspace data tables in the schema as the number of shapefiles opened.



The data is now loaded into the PostGIS database and is now ready to be viewed in a GIS application. As QGIS, the open-source GIS, has been developed to work seamlessly with PostGIS, we will open and view the data using that application. However, any GI application which includes support for PostGIS can be used.

VIEWING THE DATA IN QGIS

In QGIS, click on the 'open PostGIS layer' button on the left-hand side of the window.



If the OS Open Greenspace data has been placed into an existing database, as in the example below, the user will simply need to open the connection to that database within QGIS. The open_greenspace schema should appear in the list of available schemas within that database.

🚀 Add PostGIS Table(s)			? ×
Connections			
osopendata			-
Connect New Edit	Delete	Load	Save
Schema Table	Comment	Column	Data Type
 boundaryline codepoint_o meridian2 open_greens open_names open_rivers open_roads openmap_local public strategi terrain50 vectormapdis 			
<			4
Also list tables with no geometry			Keep dialog open
Search options			
	Add Set	Filter Close	Help

If the database in which the OS Open Greenspace data sits is new, create a new database connection to the database by clicking the 'new' button. The following window appears and the information relating to the new database will need to be entered within the appropriate boxes:

🕺 Create a	New PostGIS connection	? ×					
Connect	ion Information						
Name	Test						
Service							
Host	Localhost						
Port	5432						
Database	test						
SSL mode	disable	•					
Authent	tication Configurations						
Usernam	e postgres	Save					
Passwore	d ••••••	Save					
	Test Connection						
Only s	how layers in the layer registries						
📃 Don't r	esolve type of unrestricted columns (GEOMETRY)						
Only lo	ook in the 'public' schema						
Also lis	t tables with no geometry						
Use es	Use estimated table metadata						
	OK Cancel	Help					

One the connection has been made, click on the + sign next to the schema to expand the list of tables. Select all the tables within OS Open Greenspace that need to be loaded to QGIS.

osopendata				•
Connect	New Edit	Delete	Load	Save
Schema	Table	Comment	Column	Data Type
 boundaryline codepoint_o meridian2 open greens 				
open_gr	tf_accesspoint		geom	Geometry
open_gr	tf_greenspacesite		geom	Geometry
open_gr	tg_accesspoint		geom	Geometry
open_gr	tg_greenspacesite		geom	Geometry
open_names				
open_rivers				
openman local				
public				
strategi				
terrain50				
vectormapdis				
•				
Also list tables wi	th no geometry			Keep dialog op
Search ontions				

Once all have been selected, click 'Add'.



The OS Open Greenspace data will load into QGIS. The data will need to be ordered and then styled appropriately using personalised style files or the style files available from GitHub published by Ordnance Survey. If using these published files, please consult the accompanying 'Quick Start Guide'. It should be noted that there is no need to add a spatial index to the data from PostGIS as those indexes were added automatically during the loading of the data into PostgreSQL.

USING MULTIPLE SHAPEFILES IN POSTGIS

It is possible to load multiple 100 x 100km grid tiles of data into the same schema in PostgreSQL. As the shapefiles have the 100km grid letters as a prefix in the filename, these files will go into separate tables in the schema. It will then be possible to view data across tile edges using QGIS or other GI applications which support PostGIS.

The screenshot above shows the access points and greenspace sites for two tiles, TG and TF loaded into QGIS from the greenspace schema. It should be noted that duplicate features will exist across the tile edges as the data is supplied as 'hairy tiles' as previously indicated.

REMOVING DUPLICATE FEATURES IN POSTGIS

As stated in the point above, if using multiple tiles of data in PostGIS, loading them as described, some features will be replicated across tile edges loaded in different tables of the same features, e.g. in the case of TF and TG. If the data is being used for contextual purposes only, this should not be an issue for the user. However, if the data is being used for any kind of analysis involving counts of features, these duplicates will need to be removed to avoid providing skewed results.

It is possible to remove these features using SQL commands in PostgreSQL itself.

• Using SQL Commands

Firstly, create a merged file containing the area required, using the merge shapefile feature in QGIS documented earlier. In this example, we are going to use the merged shapefile for TF and TG that was made previously and then load it into PostgreSQL using the shapefile loader plugin.



In the example above, two additional tables, merged_greenspace_sites and merged_access_points, have been added to the open_greenspace schema in PostgreSQL. Open the SQL window in PostgreSQL and type in the following command:

SELECT COUNT(id)

;

FROM open_greenspace.merged_greenspace_sites;

QL Editor	Graphical Query Builder
vious queries	
SELECT FROM of	COUNT(id) pen_greenspace.merged_greenspace_sites

The command returns the following result:



This shows that the number of features detected is 4,473, in this example.

The following command should now be typed into the SQL window;

CREATE TABLE open_greenspace.greenspacesites_dissolved AS

SELECT id, function, distname1, distname2, distname3, distname4, ST_UNION(geom) AS geom

FROM open_greenspace.merged_greenspace_sites

GROUP BY 1,2,3,4,5,6

;



The above command creates a new table called greenspacesites_dissolved in the schema with all the duplicate features removed. This can be verified by typing in the following command;

SELECT COUNT(id)

FROM open_greenspace.greenspacesites_dissolved

;



It can be seen from running this query that the number of features in the newly created table is less that in the original merged table. This indicates that the duplicate features along the tile edges have been removed. It will now be possible to load the dissolved table into QGIS and carry out the required analysis. This procedure will need to be repeated, using modified SQL commands pointing at the access points table, to remove duplicates in the access points elements of the OS Open Greenspace data.

• Using a graphical method in QGIS

An alternative way to do what has been described above would be to merge the required shapefiles together and de-duplicate using QGIS as described earlier in this document. The user will then have a set of de-duplicated shapefiles which can then be loaded into PostgreSQL/PostGIS and displayed in QGIS using the methods described previously.

LOADING GML DATA INTO POSTGIS

It is possible to load the GML supply data into PostgreSQL using sets of SQL commands, as there is no GUI PostGIS loader for GML data. These SQL commands would create the tables, indexes and load the data. As this data is supplied in shapefile format which can be loaded using the PostGIS shapefile loader plugin, the SQL method of loading the GML data will not be described in this guide.

MAPINFO PROFESSIONAL®

All current commonly used versions of MapInfo Professional can open ESRI shapefiles without direct translation. However, for ease of use within MapInfo, it is recommended that users use the universal translator within MapInfo to convert the shapefile supply to MapInfo .TAB files prior to loading the data. This will be described in the procedures for loading the data.

LOADING AND DISPLAYING THE SHAPEFILE SUPPLY

In MapInfo Professional, start universal translator from the 'Tools' menu.



Select the translate button at the top left hand side of the dialog box.

In the next box, the user will need to select the translation parameters required. These will include the format of the files being translated, the format to which the data is being translated and the location of the data.

In the example below, the greenspace sites and access points shapefiles from OS Open Greenspace data, in 100 x 100kms TF and TG have been selected and the MapInfo .TAB data will be stored in a separate folder from the source data to allow easier data management.

🔗 Set Trans	slation Parameters					
Reader						
Format:	Esri Shape 🔹 📖					
Dataset:	:n_Greenspace\Holding\TG_GreenspaceSite.shp 📖 📑					
Paramet	ers Coord. System: Read from source					
 Merge Separa Separa Writer 	Multiple Source Dataset Options Merge source datasets to one destination Separate destination for each source file Separate destination for each source directory					
Format:						
Dataset:	Penspace Data\OS Open Greenspace\MapInfo TAB					
Paramet	ers					
Help	OK Cancel					

Once selected, click 'OK'. The translation will then run.

A FME Quick Translator	×
File Log Help	
🔗 🔲 🖶 🗅 🚧 🎢 🌿	
TF_GreenspaceSite+mapinfo_type+mapinfo_region+id+%id+function+%functi TG_AccessPoint+mapinfo_type+mapinfo_point+id+%id+accessType+%accessTy TG_GreenspaceSite+mapinfo_type+mapinfo_region+id+%id+function+%functi	275 ▲ 21€ 170
Total Transformed Features Output	1029
	-=-=-=
=-=-==================================	-=-== 365 275 216
TG_GreenspaceSite (TG_GreenspaceSite) ====================================	170
<pre>====================================</pre>	-=-==
Translation finished	E
<	•

A message box will appear when the process is complete. The user will now have MapInfo .TAB files for the greenspace sites and access points within OS Open Greenspace data. This procedure should be repeated for any extra 100 x 100km tiles of OS Open Greenspace which are needed.

To load the created MapInfo .TAB files into MapInfo Professional simply click 'File – Open' and navigate to where the files sit. Select the file to be opened. Select 'new mapper' from the drop-down menu and click 'OK'. The data will contain two sets of tables, one for Greenspace Sites and one for access points. It should be noted that MapInfo will open the data un-styled as shown in the screenshot below:



STYLING THE DATA

Data loaded into MapInfo Professional, unlike many other GI applications, is better styled at translation stage because the .TAB format used by MapInfo can retain all the styling information applied in the translation process – it does not use separate styling files to apply a style to the data. OS Open Greenspace data currently is not supplied in MapInfo .TAB format. Therefore, there is no Ordnance Survey published styling information for use in MapInfo Professional. It is, however, possible to style the data manually in MapInfo and achieve a good result.

OS Open Greenspace data tables contain all the elements of the data within two MapInfo tables, as can be seen from the layers listing.



Therefore, to style an element of the OS Open Greenspace data, SQL commands will need to be used to query the original .TAB data, pick out the specific element to style and create a new .TAB file for that element. This procedure will take some time to carry out for the whole dataset. An example is provided here for guidance, but a better option would be to use a more specialised translation software application to convert and style the data in one procedure.

From the toolbar menu, click 'Query – Select'

Q	uery	Table	Options	Map	Window	Help
	Se	lect				
	SQ	L Select.				

In the next window, the user will need to type in the parameters to query the data. In this example, we are going to set up a query to select all the playing fields from the TF Greenspace Sites table that we have loaded. Click on the 'Assist' button and another window appears.

Select		23				
Select Records from Table: that Satisfy:	TF_GreenspaceSite	► Assist				
Store Results in Table:	Selection					
Sort Results by Column:	none	•				
🔽 Browse Results	🔲 Find Results In Cur	rent Map Window				
OK Cancel	Save Template	Load Template Help				
Expression						
Type an expression	n:					
function = "Playing) Field''	Columns 👤				
		Operators 生				
		Functions 👤				
OK Cancel Verify Help						

The expression above is one which will extract the playing fields from the original .TAB file. Click on 'Verify' to check if the expression is correct. MapInfo will allow us to save the results in a new table which we can give a name, we will call this Plyaing_Fields. Note also the Browse results box is ticked, so that once the query has been performed, we can browse the results in a table view.

Select	— X —
Select Records from Table:	TF_GreenspaceSite
that Satisfy:	function = "Playing Field" Assist
Store Results in Table:	Playing_Fields
Sort Results by Column:	none
Browse Results	Find Results In Current Map Window
OK Cancel	Save Template Load Template Help

Once satisfied, click 'OK'. Then click 'OK' in the next window and the query will run. The user should see something like the following:

id	function	distName1	distName2	distName3	distName4
45CEA0D3-A638-51CD-E053-2362A00A34C0	Playing Field				
45CEA144-971B-51CD-E053-2362A00A34C0	Playing Field				
45CEA144-97C1-51CD-E053-2362A00A34C0	Playing Field				
45CEA144-9A7F-51CD-E053-2362A00A34C0	Playing Field				
45CEA0D7-C7EE-51CD-E053-2362A00A34C0	Playing Field				
45CEA145-7E68-51CD-E053-2362A00A34C0	Playing Field				
45CEA250-86C6-51CD-E053-2362A00A34C0	Playing Field				
45CEA145-7851-51CD-E053-2362A00A34C0	Playing Field				
45CEA145-90DB-51CD-E053-2362A00A34C0	Playing Field				
45CEA145-7471-51CD-E053-2362A00A34C0	Playing Field				
45CEA145-6B0F-51CD-E053-2362A00A34C0	Playing Field				
45CEA145-6837-51CD-E053-2362A00A34C0	Playing Field				
45CEA0D6-6F9D-51CD-E053-2362A00A34C0	Playing Field				
45CEA145-4D36-51CD-E053-2362A00A34C0	Playing Field				
45CEA145-4CD4-51CD-E053-2362A00A34C0	Playing Field				
45CEA0D5-852F-51CD-E053-2362A00A34C0	Playing Field				
45CEA250-0701-51CD-E053-2362A00A34C0	Playing Field				
45CEA145-8F60-51CD-E053-2362A00A34C0	Playing Field				

This query will now need to be saved into a new table. Select 'File - Save Query'



In the next window give the query a name.

Save in:	퉬 MapInfo_TA	B 🗸	G 🦻	• 🔝 👏	2
Tables Directory	TF_AccessPo TF_Greenspa TG_AccessP TG_Greensp	oint.tab aceSite.tab oint.tab aceSite.tab			
Remote Tables					
Directory					
Directory					
	File name:	TF_Playing_Fields.TAB		•	Save
Workspaces Directory	Save as type:	MapInfo (*.tab)		•	Cancel
					Help
MapInfo Places	:				Projection
9 Standard Place	S				

OS Open Greenspace V1.0 Feb 2017 Ordnance Survey © 2017 Page 48 of 55 We are going to call this TF_Playing_Fields.

Click 'Save' and then close the query browser window. The user may need to close the query and any other playing field table open firstly by clicking 'File – Close' and selecting the open query table. Then, click on 'File -Open' and select the new TF_Playing_Fields .TAB file just created. The user can open the table in a new mapper or add it to the one that is already open. For this example, it will be added to the one already open in MapInfo.

Open					×
Look in:	MapInfo_TAE	•	G 🦻	•10 🥙	1
Tables Directory Remote Tables Directory Import Files Directory	 TF_AccessPo TF_Greenspa TF_Playing_F TG_AccessPc TG_Greenspa 	int.tab ceSite.tab ields.TAB int.tab iceSite.tab			
Directory	File name:	TF_Playing_Fields.TAB		•	Open
	Files of type:	MapInfo (*.tab)		•	Cancel
	Preferred View:	Current Mapper		•	Help
MapInfo Place Standard Place	s es	Create copy in MapInfo format fo	or read/write		h.

The data will now be loaded. To check to see if the table has been loaded, click on the layers button in MapInfo to display the loaded layers.

4	TG_AccessP	oint,,TF_GreenspaceSite Map			
	1	Cosmetic Layer	1	谨	
	▼ ★	TG_AccessPoint	1	¥	Ì
	▼ ★	TF_AccessPoint	1	¥	٢
		TF_Playing_Fields	1	¥	Ø
	V	TG_GreenspaceSite	K	¥	Ø
	V	TF_GreenspaceSite	K	¥	Ø

The new table has been loaded. It will now be possible to add a style override to the playing fields table by clicking on the style override button and bringing up the following window:

Region Style		×
Fill		
Pattern:		
Foreground:	<u>±</u>	
Background:	±	Пер
Border		
Style:	None 🛨	
Color:	±	
Width		
Pixels	<u>+</u>	
O Points	0.2 👻	
Sample		
		Preview

Several style options can now be applied to the playing fields. Click 'OK' when finished. The style will now be applied to the data.



In this screenshot, the playing fields in grid square TF are now coloured with a green fill. As stated previously, this method is quite laborious, and is not recommended for anything other than styling small areas of data. The best alternative would be to use a specialised software package to translate the data and style it during translation.

MERGING MULTIPLE . TAB FILES IN MAPINFO PROFESSIONAL

In MapInfo, it is possible to merge the elements of two .TAB files together into one new table using the 'append' function. This only works for data tables of the same type and will only work for two .TAB files at a time. Please note that the file into which the new data is appended will need to be saved as a new table at the end of the process. This append process should be repeated if more than two .TAB files need to be merged. This will be the case with the OS Open Greenspace product as there are two tables for each 100 x 100km grid square.

It is HIGHLY RECOMMENDED to back up the original OS Open Greenspace data tables before performing any append function, as the options for carrying out this procedure in MapInfo are limited. If multiple areas are required, it would be better to merge the original shapefiles together before translating the data into .TAB format for use in MapInfo Professional. A free open-source package called 'GeoMerge' can be used to merge shapefiles. This application is available from:

http://www.vdstech.com/geomerge.aspx

To carry out the append function, select 'Table - Append Rows to table' from the main menu.

Append Rows to Table	x
Append Table: TF_GreenspaceSite	•
to Table: TG_GreenspaceSite	•
OK Cancel Help	

Select the two tables to append together. Click 'OK'. The data from TF Greenspace Site will now be inserted into the table TG Greenspace Site. The user will need to save the table at the end if the appended data is to be retained. Click 'File – Save table' once the append process has completed. Once the table is saved, TG_GreenspaceSite will now contain the data for the whole area. This is verified if the new table is opened in MapInfo.



DELETING DUPLICATE ENTRIES FROM THE MERGED TABLE

There are several ways of doing this in MapInfo Professional. One of the ways using SQL queries is described in the MapInfo knowledge base article which can be found here:

http://testdrive.mapinfo.com/techsupp/miprod.nsf/kbase_by_product/0E37D7B26ED824168525629900805 DD2

LOADING GML DATA INTO MAPINFO PROFESSIONAL

MapInfo Professional will convert OS Open Greenspace data .GML supply into un-styled MapInfo .TAB format, using the Universal Translator tool built into MapInfo Professional version 12.5 onwards. As previously described, select 'Tools – Universal Translator' from the main menu.

Тоо	ols Objects Query Table Option	ns Window Help
	Crystal Reports	-< D D > = m = 🖬 🖬
2	Run MapBasic Program Ctrl+U	
	Get MapBasic Utilities	
	Tool Manager	
	Layout Templates	
	Mapping Wizard Tool	
	Seamless Manager	
	Search And Replace	
	Universal Translator	Universal Translator

In the next window, click on the 'translate data' button.



In the next window, select 'Geography Mark-up Language' from the list of options. Then, select the tiles which need to be translated and a destination folder for the data to be stored. Click 'OK' and the translation will begin. A message will appear at the end stating that the translation was successful if all the input parameters have been set correctly.

Set Transl	ation Parameters	×		
Reader				
Format:	Format: GML (Geography Markup Language) 🔹			
Dataset: ace (GML) TF\data\OSOpenGreenspace_TF.gml				
Paramete	s Coord. System: Read from	n source		
Separa Writer	e destination for each source datas	et		
Format:	MapInfo TAB (MAPINFO)	▼		
Dataset: vace_Data\OS_Open_Greenspace\MapInfo_Tab_GML				
Paramete	S			
Help		K Cancel		

Once the translation has completed, the user should see something like the following:

TME Quick Translator	• ×	
File Log Help		
🕐 🗩 🕞 🗛 🎢 💖		
=	 5820 2 4473	*
Total Transformed Features Output	10295	
Features Written Summary		
======================================		
Total Features Written 102		
Translation was SUCCESSFUL with 0 warning(s) (10295 feature(s) output) FME Session Duration: 7.9 seconds. (CPU: 6.5s user, 0.8s system) END - ProcessID: 3392, peak process memory usage: 123632 kB, current process me Translation was SUCCESSFUL		
Translation finished		-
	÷.	

The data can now be loaded into MapInfo Professional as .TAB format in the normal way. A point to note is that the translation from .GML to .TAB can produce a single set of OS Open Greenspace tables covering the whole area, avoiding the need for appending files.



The data is loaded un-styled. Styling would have to be applied manually as previously described, or another specialist translation application used to apply the styling during translation of the data.

CADCORP MAP MODELLER

CadCorp Map Modeller is a commercial GI application which can load a wide variety of data formats. It also comes with a free software viewer application called CadCorp Map Express.

LOADING ESRI SHAPEFILE SUPPLY

To load the ESRI shapefile data, open a file explorer window in Windows and simply drag and drop the .shp files into the Map Modeller window.



CadCorp applies a random style to the data as it is loaded. The styles are applied to the borders and fills of the points and polygons within OS Open Greenspace data. Currently, there are no named object library (.NOL) files for OS Open Greenspace to style the data in CadCorp Map modeller appropriately. However, once the SLD files become available from Ordnance Survey on Github, CadCorp will be able to produce these which will allow the data to be dragged and dropped into Map Modeller and styled immediately.

LOADING GML SUPPLY

Although CadCorp Map Modeller will load GML files natively without translation, currently, Map Modeller does not contain the GML schema file within it to be able to interpret the OS Open Greenspace data correctly. It is, however, anticipated that this support will follow from CadCorp soon after the OS Open Greenspace data is released.

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