

# Using the JSON Parser

Increasingly, data can be downloaded from online sources as **JSON** files. The file format is very versatile and efficient allowing rapid data transfer.

However, the data then needs to be processed (parsed) before it can be used in **Access**. Unfortunately, **Access** does not provide any easy method of importing **JSON** files.

By contrast, JSON data can be imported and parsed using **Excel Power Query** add-in (**2010/2013**) or the built-in **Get & Transform** feature in **Excel 2016**

The Access **JSON Parser** has been created to simplify the reading and parsing of **JSON** files into **Access** so the data can then be imported into normalised **Access** tables.

## 1. Start form

This is shown when the program first loads.



Please note the copyright information on this form.

The program makes use of JSON parser code available from <https://github.com/VBA-tools/VBA-JSON>. Alternative JSON parsers are available from other sources.

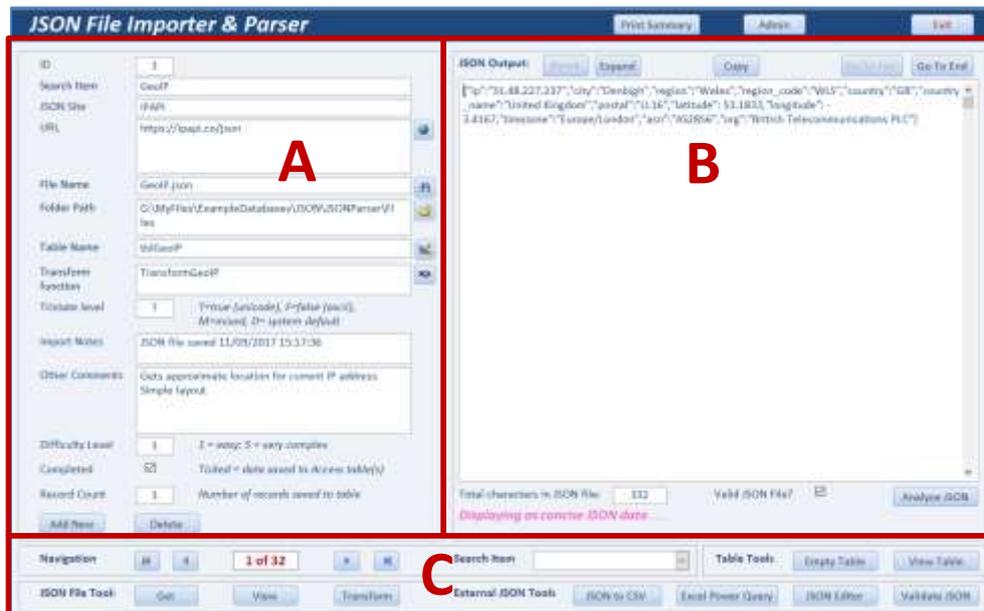
If preferred, you can bypass the **startup form** and load the program at the **main form** instead.

NOTE: When the program loads it checks its path and updates other folder paths accordingly. For example, the folders used for **backups** and **default JSON files** etc.



## 2. Main form

This is used for almost all features of the **JSON parser program**



The form controls are located in 3 main sections:

- A) Details of JSON file – data source / destination table / transform function
- B) JSON file viewer (shrink / expand) plus tools to analyse / fix JSON files
- C) Navigation and processing tools

A total of 32 JSON files have been supplied from the very simple to highly complex.

As a guide, files have been assigned a difficulty level on a 1-5 scale: 1 (easy) to 5 (very complex)

- i) Processing has been done for the first 22 files as examples
- ii) Processing of files 23-32 have been left as practice files for end users

Although part of the parsing process is common to all JSON files, other sections are individualised to match the structure of the source file and the destination table

You can also import your own JSON files into the program. However, it is **STRONGLY** recommended that you work through the supplied examples before doing so

### a) **Parse & import an existing file using the transform function**

Select a file using the navigation buttons or the search combo box  
The **JSON** file will be 'read' into the window on the right of the form

Click the **Transform** button. The data is parsed and imported into one or more normalised tables.  
The process is extremely fast – usually less than a second even for files of several hundred records

When completed you will see a message similar to this:

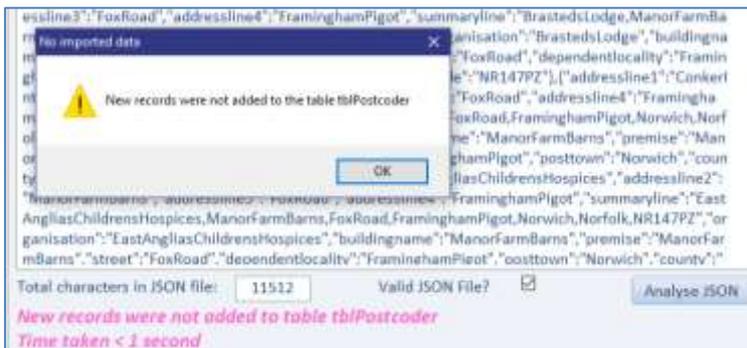


Click **Yes** to view the table of imported data:

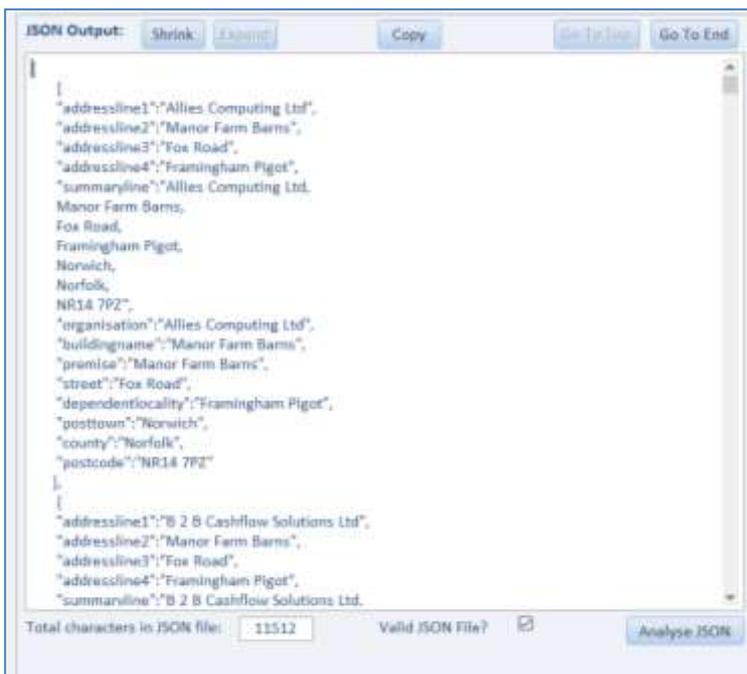
ID	Title	Genre	Director	Year	Website
287	Big Fish	Comedy (Drama)	Ficht	2003	http://www.bigfish.com/
288	Ashe	Drama	Baraka	1996	http://www.ashe.com/
289	The Captains	Documentary (Sci-Fi)		1971	2003
290	Life After Death: A Journey to the Afterlife	Comedy	Boone	1993	http://www.lifeafterdeath.com/
291	Northanger	Drama	Labovitz	82	2001
292	Associate, The	Comedy	Swartz	1982	http://www.associate.com/
293	S&W: Jean	Drama	Polysky	1977	http://www.sandw.com/
294	Under the Bombs	Drama (War)	Parsons	2005	http://www.underthebombs.com/
295	DOT Alice	Drama	Chapellin	195	2002
296	Brasted Lodge (L'heure de la nuit)	Drama (Drama)	Bellocq	94	1992
297	Cooking Again	Drama	Carlson	198	1982
298	Boys	Drama	Kempson	90	2000
299	Flight of the Living Dead	Action (Horror/Sci-Fi)	Jorgensen	198	2007
300	Wald: The Life & Times of John C. Wald	Documentary	Howe	130	1993
301	Outright	Drama (Thriller)	Lyndon	77	1992
302	Secret of Green, The (The Secret of the Green)	Action (Drama)	Thurston	198	1997
303	Three on a Horse	Crime (Mystery/Thriller)	Cowan	87	1991
304	One Hundred Tom Mays	Comedy (Romance)	Merriby	130	2009
305	Don't Give Up the Ship	Comedy	Reacock	167	1982
306	Chances	Drama (Western)	Moore	195	1981
307	Howe the 13th Part of John How	Drama	Howe	52	1957
308	Short Stories (Nights, when the stars are bright)	Horror (Mystery)		53	2004
309	King Cam	Documentary	Harris	155	1990
310	Expressed in words (L'été) 134	Drama	Duffy	175	2004
311	Evilness (D'Evil)	Drama	Laving	129	2012
312	Roobik's Vampire	Comedy (Horror)	Dahl	88	1989
313	Back to the Future Part II	Adventure (Comedy/Sci-Fi)	Quill	199	1994

NOTE: before importing new data, existing data is deleted to prevent duplicate records

If the file cannot be processed, a message like this will be shown instead

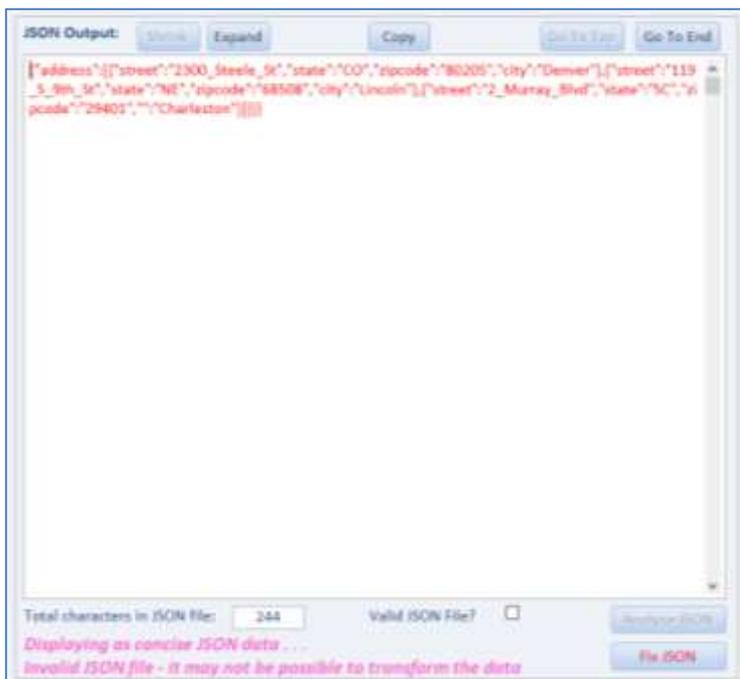


Click the **Expand** button to display the data in a format that is easier to understand



Click the **Shrink** button to return to the default concise format

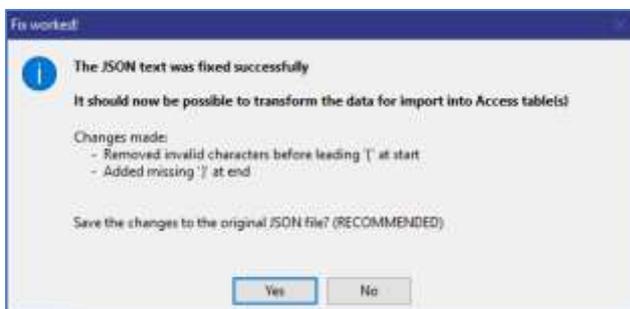
Occasionally downloaded JSON files may be supplied in an invalid format.  
Two examples have been supplied (ID=7 & 31)  
Files which fail a validation check are shown in **RED** and the **Transform** button is **disabled**



You can correct many **JSON** errors by clicking the **Fix JSON** button



Click **Yes** to attempt to fix the errors.  
If successful, a message like this will be shown and the file text will revert to BLUE



If unsuccessful, the text will remain RED as you will not be able to transform (process) the data. The example Google maps location file (ID 31) cannot be fixed using this method.

**b) External JSON conversion tools**

Four other JSON conversion tools are supplied for such cases

**i) Online JSON to CSV converter**

Click the button – the JSON text is copied to the clipboard  
Paste the text into the window that appears



The converted data appears in a new window and can be saved to your computer as a CSV file

address1	address2	address3	address4	suburb/town	name	telephone	buildingname
Allen Computing Ltd	Manor Farm Barns	Fox Road	Warrington Pigt	Allen Computing Ltd Manor Farm Barns Fox Road P...			Manor Farm Barns
8 2 B Carfax	Manor Farm Barns	Fox Road	Warrington Pigt	8 2 B Carfax Sandbach Lymm Manor Farm Barns Fox R...			Manor Farm Barns
Stables Lodge	Manor Farm Barns	Fox Road	Warrington Pigt	Stables Lodge Manor Farm Barns Fox Road Warrington...			Manor Farm Barns
Conner Interiors Ltd	Manor Farm Barns	Fox Road	Warrington Pigt	Conner Interiors Ltd Manor Farm Barns Fox Road Warr...			Manor Farm Barns
East Anglian Childrens Hospices	Manor Farm Barns	Fox Road	Warrington Pigt	East Anglian Childrens Hospices Manor Farm Barns F...			Manor Farm Barns
Equal Labs	Manor Farm Barns	Fox Road	Warrington Pigt	Equal Labs Manor Farm Barns Fox Road Warrington E...			Manor Farm Barns
Estate Office	Manor Farm Barns	Fox Road	Warrington Pigt	Estate Office Manor Farm Barns Fox Road Warrington...			Manor Farm Barns
Duningham Pigot Parish Meeting	Manor Farm Barns	Fox Road	Warrington Pigt	Duningham Pigot Parish Meeting Manor Farm Barns F...			Manor Farm Barns
Genetic LTD	Manor Farm Barns	Fox Road	Warrington Pigt	Genetic LTD Manor Farm Barns Fox Road Warrington...			Manor Farm Barns
Microsoft International	Manor Farm Barns	Fox Road	Warrington Pigt	Microsoft International Manor Farm Barns Fox Road W...			Manor Farm Barns
Paradoc	Manor Farm Barns	Fox Road	Warrington Pigt	Paradoc Manor Farm Barns Fox Road Warrington Pigt...			Manor Farm Barns
Securidy Training Ltd	Manor Farm Barns	Fox Road	Warrington Pigt	Securidy Training Ltd Manor Farm Barns Fox Road W...			Manor Farm Barns
var2000 Ltd	Manor Farm Barns	Fox Road	Warrington Pigt	var2000 Ltd Manor Farm Barns Fox Road Warrington...			Manor Farm Barns
Webnet	Fox Road	Warrington Pigt	Warrington Pigt	Webnet Fox Road Warrington Pigt Warrington Pigt...			Warrington Pigt
Beck Cottage	Fox Road	Warrington Pigt	Warrington Pigt	Beck Cottage Fox Road Warrington Pigt Warrington Pigt...			Warrington Pigt
Burnside	Fox Road	Warrington Pigt	Warrington Pigt	Burnside Fox Road Warrington Pigt Warrington Pigt...			Warrington Pigt
Charles Cottage	Fox Road	Warrington Pigt	Warrington Pigt	Charles Cottage Fox Road Warrington Pigt Warrington...			Warrington Pigt
Cottage On The Bank	Fox Road	Warrington Pigt	Warrington Pigt	Cottage On The Bank Fox Road Warrington Pigt Warr...			Warrington Pigt
Fives Cottage	Fox Road	Warrington Pigt	Warrington Pigt	Fives Cottage Fox Road Warrington Pigt Warrington P...			Warrington Pigt
Hornsham Cottage	Fox Road	Warrington Pigt	Warrington Pigt	Hornsham Cottage Fox Road Warrington Pigt Warrington...			Warrington Pigt

**ii) Excel Power Query**

This message appears – click **OK** to open **Excel** and run **Power Query**



Or click **Help** to view a short video demonstrating how this tool is used

Two further online tools are provided

**iii) JSON Editor** – assists with editing JSON files into a valid format

**iv) Validate JSON** - check for errors

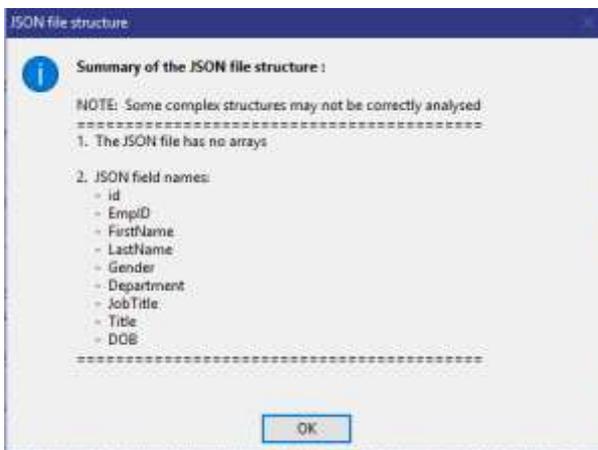
**c) Transform other supplied files**

Once you have tested several of the prepared **JSON** files and read the code used to process them, you can try to create your own transform functions on some of the other supplied files.

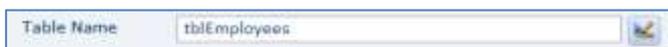
For example, try the **Employees** file (ID = 24)



Your first task is to create the fields for the destination table – **tblEmployees**  
Click the **Analyze** button to view the fields required:



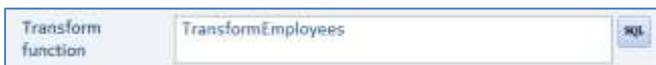
Next click the small **Design** button to the right of the table name



A table is created with some dummy fields and opens in design view.  
Edit the fields as required:

Field Name	Data Type
TextField1	AutoNumber
TextField2	Text
NumberField1	Text
	Number

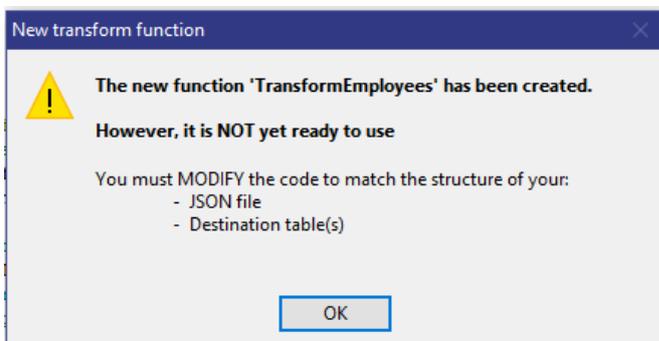
Next click the small **SQL** button to the right of the transform function name



A draft **transform function** is created based on a template file.

The new function opens automatically.

A message like this is shown indicating that further work is required



```
Public Function TransformEmployees()  
|  
|-----|  
'Colin Rickington - Mading Data Systems - 11/09/2017  
  
'TEMPLATE CODE for Transform JSON procedure  
'MODIFY the code to match the structure of your JSON file  
  
'When done, add explanatory comments here  
|-----|  
  
On Error GoTo Err_Handler  
  
'get start time  
Start = Timer  
  
ReadJSON:  
'Read .json file  
'The next line works if Tristate = true (T). If it is false, replace -1 with 0  
Set JsonTS = fso.OpenTextFile(strFilePath, ForReading, False, -1)  
strJSON = JsonTS.ReadAll  
  
'Remove unwanted characters - tab & line feeds  
strJSON = Replace(Replace(Replace(strJSON, vbTab, ""), vbLf, ""), vbCr, "")  
'Next line - removing space - should usually be omitted  
strJSON = Replace(strJSON, " ", "")  
  
JsonTS.Close  
  
' Debug.Print strJSON  
  
ModifyJSON:  
'add this section to enclose the whole JSON string if an overall group is supplied  
'in this example, overall group = "result"  
If Instr(strJSON, "{") = 1 Then  
'add dummy text to make parsing easier  
strJSON = "{""result"": " & strJSON & ""}"  
! Debug.Print strJSON  
End If
```

You will need to modify the recordset section used to import the parsed data

```
"Write to table  
Set db = CurrentDb  
Set rst = db.OpenRecordset("tblEmployees", dbOpenDynaset, dbSeeChanges)  
  
'Set JSON = JsonConverter.ParseJson(http.responseText)  
Set JSON = modJsonConverter.ParseJson(strJSON)  
  
'Build recordset code  
With rst  
For Each result In JSON("result")  
! AdBef  
!-----!  
'MODIFY THE SECTION BELOW AS NEEDED  
'match json fields to destination table fields  
'IMPORTANT - the fields are case sensitive - JSON fields are usually lower case  
'!ID = result("id") 'autoincrement PK field  
'!CustomerName = result("customername")  
'!ContactName = result("contactname")  
'!Address = result("address")  
'!PostalCode = result("postalcode")  
'!Country = result("country")  
!-----!  
'! Update  
  
Next  
! Close  
End With  
  
Set rst = Nothing
```

**IMPORTANT : JSON field names are case sensitive and often are lower case**  
When you are satisfied, return to the main form and click the **Transform** button  
Continue to edit the **Transform** function as necessary until you get this working

**d) Add new JSON files**

Click the **Add New** button and enter a description in the **Search Item** control  
Default values for the file name & folder, table name and transform function are added automatically. You can alter these if necessary.

Enter the name of the **JSON** website and the **URL** if applicable. Click the **Save** button



If using an online JSON source, click the **Get** button to save the data to the specified **.json** file  
Otherwise, import the data to the file manually and click the **View** button



The **JSON** data will be read and displayed on the form. This will be very fast (< 1 second).

**Analyse** the data to get a list of fields then create the **destination table fields** and the **transform function** as previously described.

### 3. Admin form

This is used to **backup the database** and other admin tasks



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I hope you find this **JSON parser** program useful

Please contact me if you have any questions or to report any bugs you find with the program.

Suggestions for improvements or additional features will also be considered for a future version

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