

What is JSON?



JSON (JavaScript Object Notation) is a lightweight data-interchange format.

- * human-readable text
- * supported by many programming environments
- * derived from JavaScript
- * often used in web APIs to share information

JSON objects are made up of "key": value pairs. Values can be any data type listed (right), including nested objects and arrays. Arrays can also contain any data type listed.

JSON paths use dot syntax. Root object is represented by a \$ (not used in FileMaker functions.) Arrays are 0-based.

Data Types

string
number
object {}
array []
boolean
null

Sample JSON (taken from FileMaker - Mailchimp integration; pretty-printed & truncated for readability)

```
{
  "id": "7654321",
  "web_id": 123456,
  "name": "NYFMP Email List",
  "contact": {
    "company": "NYFMP.org C/O Tony White Designs, Inc.",
    "city": "Brooklyn"
  },
  "permission_reminder": "You are subscribed to the NYFMP email list.",
  "use_archive_bar": true,
  "campaign_defaults": {
    "from_name": "Tony White",
    "from_email": "tony_white@twdesigns.com"
  },
  "notify_on_subscribe": null,
  "_links": [
    {
      "rel": "activity",
      "href": "https://us11.api.mailchimp.com/3.0/lists/7654321/activity",
      "method": "GET"
    },
    {
      "rel": "members",
      "href": "https://us11.api.mailchimp.com/3.0/lists/7654321/members",
      "method": "GET"
    }
  ]
}
```

Get a value
JSONGetElement (\$json ; "name")
BE_JSONPath (\$json ; "\$.name")
NYFMP Email List

Get value in sub-object
JSONGetElement (\$json ; "contact.city")
BE_JSONPath (\$json ; "\$.contact.city")
Brooklyn

Get entire sub-object
JSONGetElement (\$json ; "campaign_defaults")
BE_JSONPath (\$json ; "\$.campaign_defaults")
{"from_email": "tony_white@twdesigns.com", "from_name": "Tony White"}

Get entire array
JSONGetElement (\$json ; "_links")
BE_JSONPath (\$json ; "\$._links")
[{"method": "GET", "href": "https://us11.api.mailchimp.com/3.0/lists/7654321/activity", "rel": "activity"}, {"method": "GET", "href": "https://us11.api.mailchimp.com/3.0/lists/7654321/members", "rel": "members"}]

Get value from object inside an array
JSONGetElement (\$json ; "_links[1].rel")
BE_JSONPath (\$json ; "\$._links[1].rel")
members

fx FileMaker JSON functions

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JSONGetElement (json ; keyOrIndexOrPath)

Queries JSON data for an element specified by an object name, an array index, or a path.

JSONSetElement (json ; keyOrIndexOrPath ; value ; type)

Adds or modifies an element in JSON data specified by an object name, an array index, or a path.

JSONDeleteElement (json ; keyOrIndexOrPath)

Deletes a JSON data element specified by an object name, an array index, or a path.

JSONFormatElements (json)

Formats elements in JSON data to make them easier to read.

```
Set Variable [$myJS ; "JSON.stringify ( " & $json & " , undefined , 2 )"]
Set Variable [$json_pretty ; BE_EvaluateJavaScript ( $myJS )]
```

Produces the pretty-printed sample above

JSONListKeys (json ; keyOrIndexOrPath)

Lists the object names (keys) or array indexes in JSON data for an element specified by an object name, an array index, or a path.

```
JSONListKeys ( $json ; "" )      JSONListKeys ( $json ; "campaign_defaults" )
└─ _links                        └─ from_email
  ...                             from_name
  web_id
```

JSONListValues (json ; keyOrIndexOrPath)

Lists the values in JSON data for an element specified by an object name, an array index, or a path.

```
JSONListValues ( $json ; "campaign_defaults" )
└─ tony_white@twdesigns.com
  Tony White
```



Tip

JSON that successfully formats/pretty-prints is valid JSON. ✓



Tip

Special chars that need escaping:

Backspace	-> \b
Form feed	-> \f
Newline	-> \n
Return	-> \r
Tab	-> \t
Double quote	-> \"
Backslash	-> \\
Forwardslash	-> \/

For Unicode code points, use 4-digit hex values. (Surrogate pairs for higher.)

\uFFFF



Tip

Wrap BaseElements functions in a Custom Function to make it easier to migrate to FileMaker 16+

Useful resources

<https://www.json.org/>
<https://www.filemaker.com/>
<http://www.goya.com.au/>
<http://nyfmp.org/>

