Introducing JSON

العربية Български 中文 Český Dansk Nederlands English Esperanto Français Deutsch Ελληνικά עברית Magyar Indonesia
Italiano 日本 한국어 فارسی Polski Português Română Русский Српско-хрватски Slovenščina Español Svenska Türkçe Tiếng Việt

ECMA-404 The JSON Data Interchange Standard.

JSON (JavaScript Object Notation) is a lightweight data-interchange format. It is easy for humans to read and write. It is easy for machines to parse and generate. It is based on a subset of the JavaScript Programming Language, Standard ECMA-262 3rd Edition - December 1999. JSON is a text format that is completely language independent but uses conventions that are familiar to programmers of the C-family of languages, including C, C++, C#, Java, JavaScript, Perl, Python, and many others. These properties make JSON an ideal data-interchange language.

JSON is built on two structures:

- A collection of name/value pairs. In various languages, this is realized as an *object*, record, struct, dictionary, hash table, keyed list, or associative array.
- An ordered list of values. In most languages, this is realized as an *array*, vector, list, or sequence.

These are universal data structures. Virtually all modern programming languages support them in one form or another. It makes sense that a data format that is interchangeable with programming languages also be based on these structures.

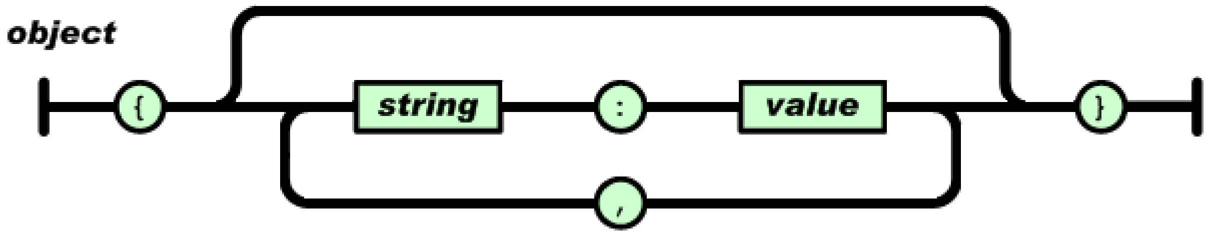
In JSON, they take on these forms:

An *object* is an unordered set of name/value pairs. An object begins with `{` (left brace) and ends with `}` (right brace). Each name is followed by `:` (colon) and the name/value pairs are separated by `,` (comma).

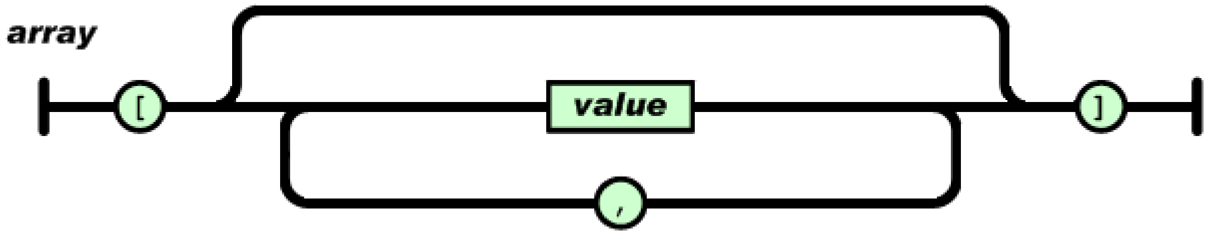
```
object
    {}
    { members }
members
    pair
    pair , members
pair
    string : value
array
    []
    [ elements ]
elements
    value
    value , elements
value
    string
    number
    object
    array
    true
    false
    null


string
    ""
    " chars "
chars
    char
    char chars
char
    any-Unicode-character-
      except-"-or-\-or-
      control-character
    \"
    \\
    \/
```

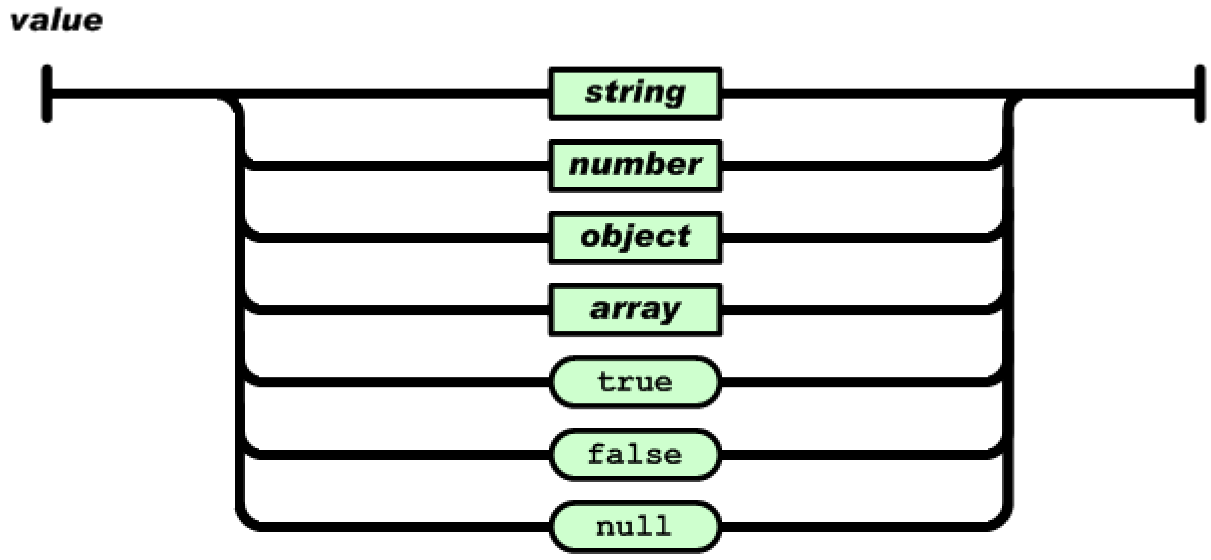
```
        \b
        \f
        \n
        \r
        \t
        \u four-hex-digits
number
        int
        int frac
        int exp
        int frac exp
int
        digit
        digit1-9 digits
        - digit
        - digit1-9 digits
frac
        . digits
exp
        e digits
digits
        digit
        digit digits
e
        e
        e+
        e-
        E
        E+
        E-
```



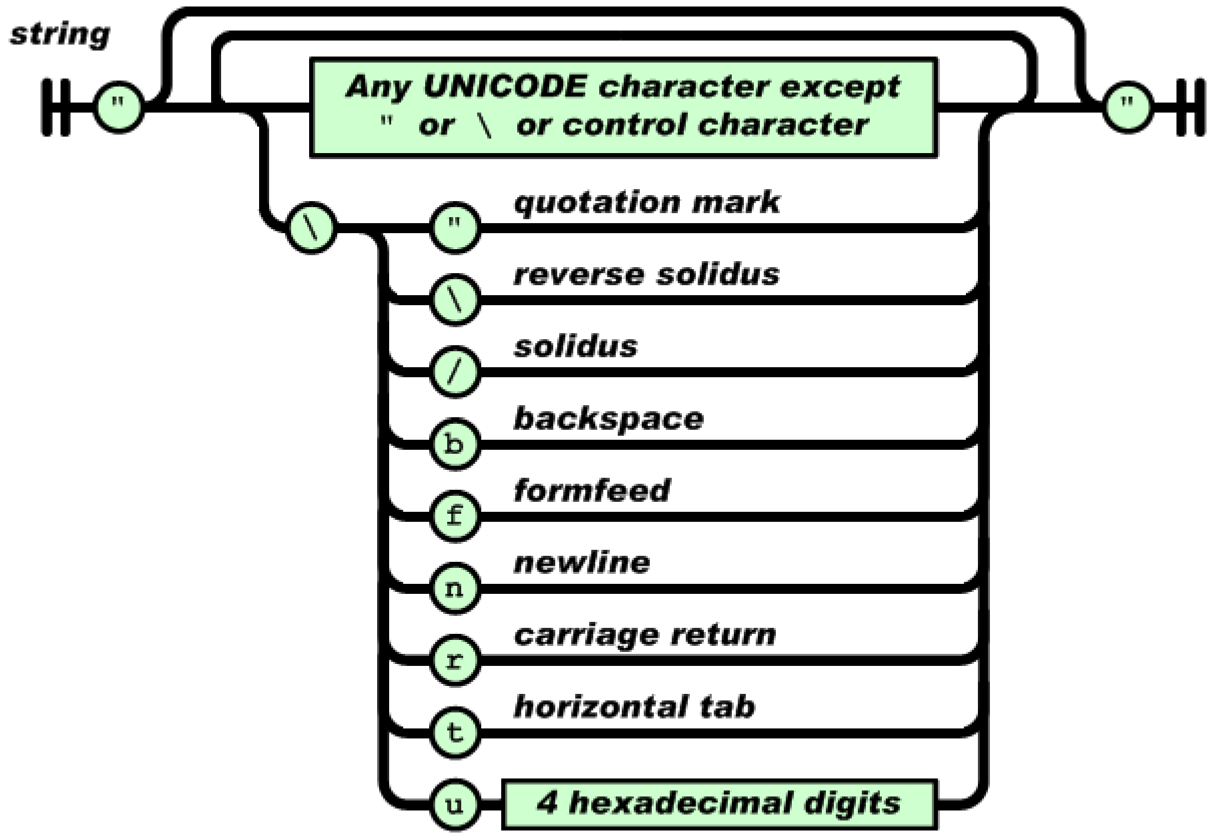
An *array* is an ordered collection of values. An array begins with **[** (left bracket) and ends with **]** (right bracket). Values are separated by **,** (comma).



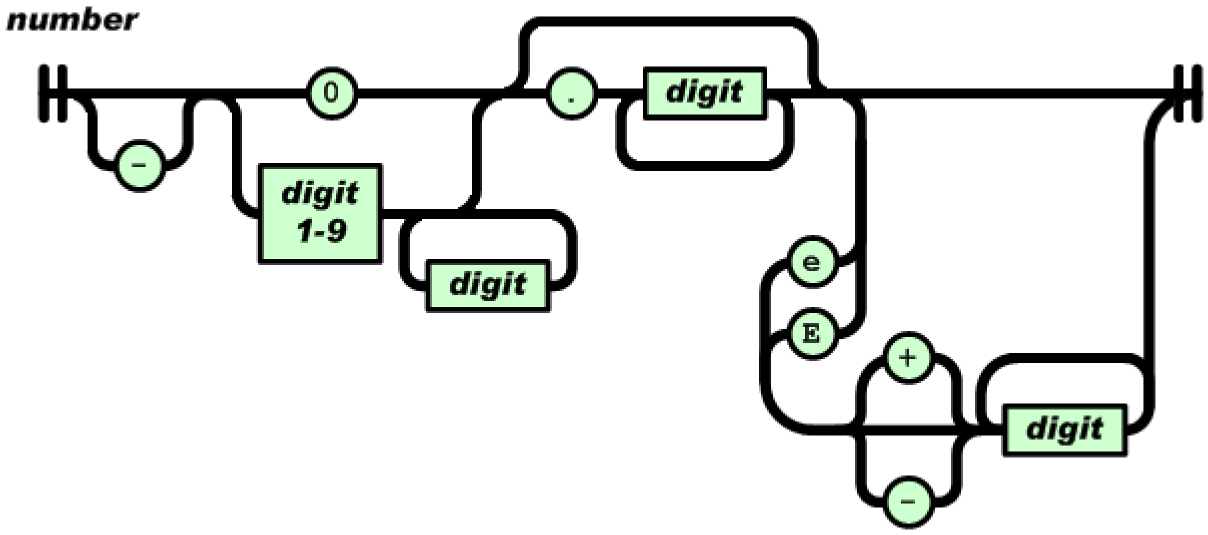
A *value* can be a *string* in double quotes, or a *number*, or **true** or **false** or **null**, or an *object* or an *array*. These structures can be nested.



A *string* is a sequence of zero or more Unicode characters, wrapped in double quotes, using backslash escapes. A character is represented as a single character string. A string is very much like a C or Java string.



A *number* is very much like a C or Java number, except that the octal and hexadecimal formats are not used.



Whitespace can be inserted between any pair of tokens. Excepting a few encoding details, that completely describes the language.

- ABAP:
  - EPO Connector.
- ActionScript:
  - ActionScript3.
- Ada:
  - GNATCOLL.JSON.
- AdvPL:
  - JSON-ADVPL.
- ASP:
  - JSON for ASP.
  - JSON ASP utility class.
- AWK:
  - JSON.awk.
  - rhawk.
- Bash:
  - Jshon.
  - JSON.sh.
- BlitzMax:
  - bmx-rjson.
- C:
  - JSON_checker.
  - YAJL.
  - LibU.
  - json-c.
  - json-parser.
  - jsonsl.
  - WJElement.
  - M's JSON parser.
  - cJSON.
  - Jansson.
  - jsmn.
  - parson.
  - ujson4c.
  - nxjson.
- ColdFusion:
  - SerializeJSON.
  - toJSON.
- D:
  - Libdjson.
- Dart:
  - json library.
- Delphi:
  - Delphi Web Utils.
  - JSON Delphi Library.
- E:
  - JSON in TermL.
- Fantom:
  - Json.
- FileMaker:
  - JSON.
- Fortran:
  - json-fortran.
  - YAJL-Fort.
- Go:
  - package json.
- Groovy:
  - groovy-io.
- Haskell:
  - RJson package.
  - json package.
- Java:
  - JSON-java.
  - JSONUtil.
  - jsonp.
  - Json-lib.
  - Stringtree.
  - SOJO.
  - json-taglib.

  - frozen.
  - microjson.
- C++:
  - JSONKit.
  - jsonme--.
  - ThorsSerializer.
  - JsonBox.
  - jvar.
  - rapidjson.
  - JSON for Modern C++.
  - qmjson.
  - minijson.
  - jsoncons.
  - JSON Support in Qt.
  - QJson.
  - jsoncpp.
  - JOST.
  - CAJUN.
  - libjson.
  - nosjob.
  - JSON++.
  - JSON library for IoT.
- C#:
  - fastJSON.
  - JSON_checker.
  - Jayrock.
  - Json.NET - LINQ to JSON.
  - LitJSON.
  - JSON for .NET.
  - JSON@CodeTitans.
  - JSONSharp.
  - fluent-json.
  - Manatee Json.
  - FastJsonParser.
- Ciao:
  - Ciao JSON encoder and decoder.
- Clojure:
  - data.json.
- Cobol:
  - XML Thunder.
  - Redvers COBOL JSON Interface.

  - Flexjson.
  - JON tools.
  - Argo.
  - jsonij.
  - fastjson.
  - mjson.
  - jjson.
  - json-simple.
  - json-io.
  - JsonMarshaller.
  - google-gson.
  - Json-smart.
  - FOSS Nova JSON.
  - Corn CONVERTER.
  - Apache johnzon.
  - Genson.
  - JSONUtil.
  - cookjson.
- JavaScript:
  - JSON.
  - json2.js.
  - clarinet.
  - Oboe.js.
- LabVIEW:
  - flatten.
- Lisp:
  - Common Lisp JSON.
  - Emacs Lisp.
- LiveCode:
  - mergJSON.
- LotusScript:
  - JSON LS.
- LPC:
  - Grimoire: LPC JSON.
- Lua:
  - JSON Modules.
- M:
  - DataBallet.
- Matlab:
  - JSONlab.
  - 20565.
  - 23393.

- Net.Data:
  - netdata-json.
- Objective C:
  - NSJSONSerialization.
  - json-framework.
  - JSONKit.
  - yajl-objc.
  - TouchJSON.
- OCaml:
  - Yojson.

    - jsonm.
- PascalScript:
    - JsonParser.
- Perl:
    - CPAN.
    - perl-JSON-SL.
- Photoshop:
    - JSON Photoshop Scripting.
- PHP:
    - PHP 5.2.
- PicoLisp:
    - picolisp-json.
- Pike:
    - Public.Parser.JSON.
    - Public.Parser.JSON2.
- PL/SQL:
    - pljson:
    - PowerShell:
        - PowerShell.
    - Puredata:
        - PuRestJson.
    - Python:
        - The Python Standard Library.
        - simplejson.
        - pyson.
        - Yajl-Py.
        - ultrajson.
        - metamagic.json.
    - R:
        - rjson.
        - jsonlite.
    - Racket:
        - json-parsing.
    - Rebol:
        - json.r.
    - RPG:
        - JSON Utilities.
    - Rust:
        - Serde JSON.
        - json-rust.
    - Ruby:
        - json.
        - yajl-ruby.
        - json-stream.
        - yajl-ffi.
    - Scheme:
        - MZScheme.
        - PLT Scheme.
    - Squeak:
        - Squeak.
    - Symbian:
        - s60-json-library.
    - Tcl:
        - JSON.

- Visual Basic:
  - VB-JSON.
  - PW.JSON.
  - .NET-JSON-Transformer.
- Visual FoxPro:
  - fwJSON.
  - JSON.
  - vfpjson.