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 Українська 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:

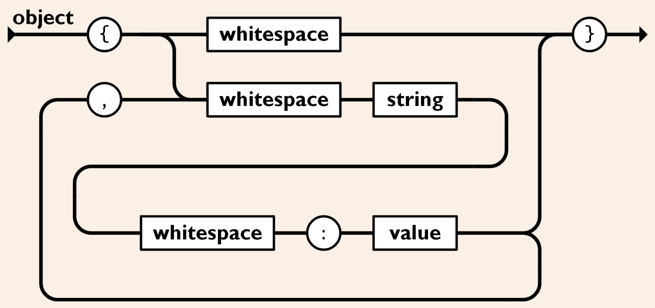
A collection of name/value pairs. In various languages, this is realized as an *object*, record, struct, dictionary, hash table, keyed list, or associative array.
An ordered list of values. In most languages, this is realized as an *array*, vector, list, or sequence.

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.

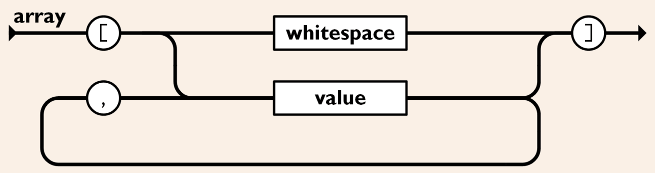
In JSON, they take on these forms:

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*.

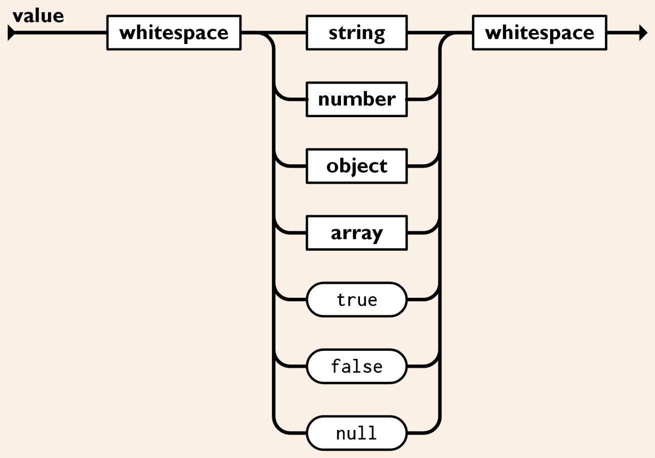
```
json
    element

value
    object
    array
    string
    number
    "true"
    "false"
    "null"

object
    '{' ws '}'
    '{' members '}'

members
    member
    member ',' members

member
    ws string ws ':' element

array
    '[' ws ']'
    '[' elements ']'

elements
    element
    element ',' elements
```



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

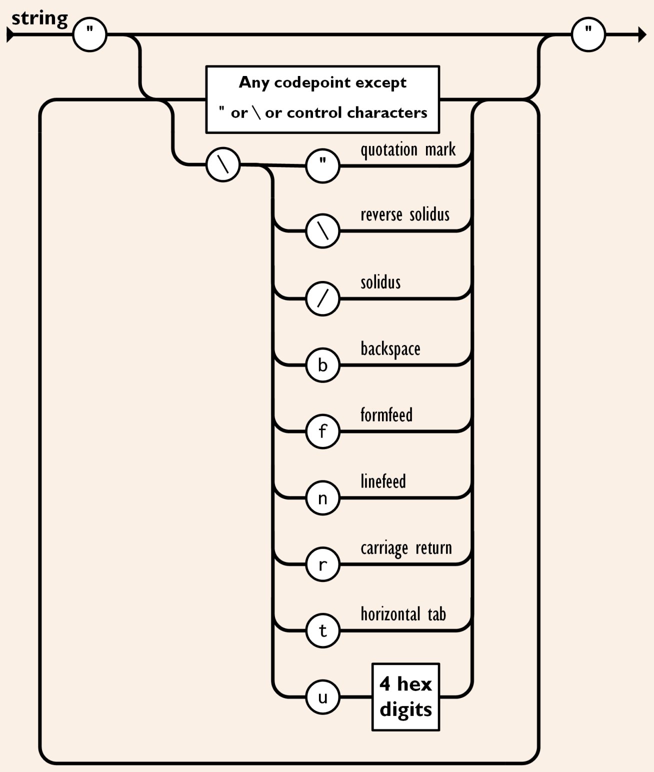


A *value* can be a *string* in double quotes, or a *number*, or `true` or `false` or `null`, or an *object* or an *array*. These structures can be nested.

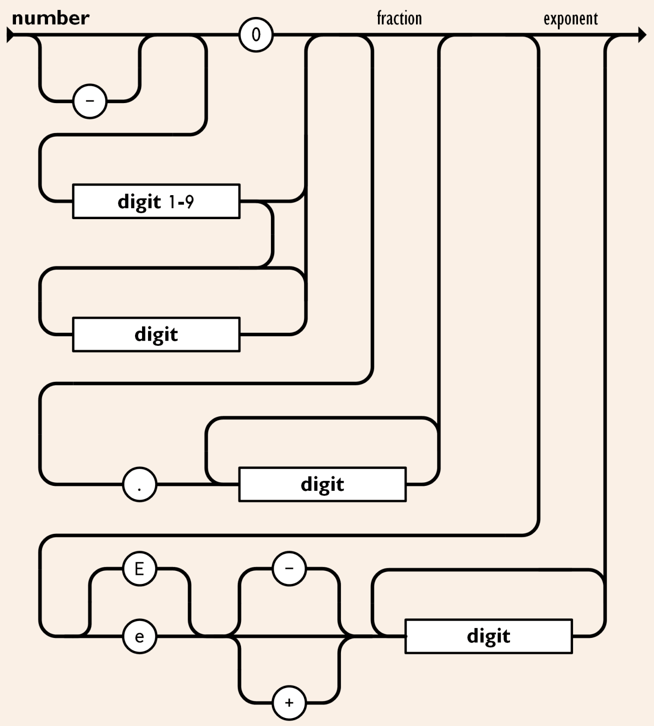


A *string* is a sequence of zero or more Unicode characters, wrapped in double quotes, using backslash escapes. A character is represented as a single character string. A string is very much like a C or Java string.

```
element
    ws value ws

string
    '"' characters '"'

characters
    ""
    character characters

character
    '0020' . '10FFFF' - '"' - '\'
    '\' escape

escape
    '"'
    '\'
    '/'
    'b'
    'f'
    'n'
    'r'
    't'
    'u' hex hex hex hex

hex
    digit
    'A' . 'F'
    'a' . 'f'

number
    integer fraction exponent

integer
    digit
    onenine digits
    '-' digit
    '-' onenine digits

digits
    digit
    digit digits

digit
    '0'
    onenine
```

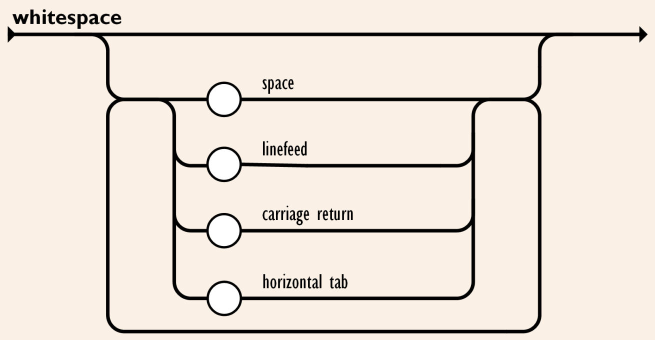


A *number* is very much like a C or Java number, except that the octal and hexadecimal formats are not used.



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

```
onenine
    '1' . '9'

fraction
    ""
    '.' digits

exponent
    ""
    'E' sign digits
    'e' sign digits

sign
    ""
    '+'
    '-'

ws
    ""
    '0020' ws
    '000A' ws
    '000D' ws
    '0009' ws
```



8th
- json

ActionScript
- ActionScript3

Ada
- GNATCOLL.JSON

AdvPL
- JSON-ADVPL

APL
- ⎕JSON

ASP
- JSON for ASP
- JSON ASP utility class

AWK
- JSON.awk
- rhawk

BlitzMax
- bmx-rjson

C
- JSON_checker
- YAJL
- LibU
- json-c
- json-parser
- jsonsl
- WJElement
- M's JSON parser
- cJSON
- Jansson
- jsmn
- parson
- ujson4c
- frozen
- microjson
- mjson
- progbase
- lwjson
- cisson

C++
- JSONKit
- jsonme--
- ThorsSerializer

ColdFusion
- SerializeJSON

D
- std.json
- asdf
- vibe.data.json

Dart
- json library

Delphi
- Delphi Web Utils
- JSON Delphi Library

E
- JSON in TermL

Erlang
- erl-json

Fantom
- Json

FileMaker
- JSON

Fortran
- json-fortran
- YAJL-Fort
- jsonff

Go
- package json

Groovy
- groovy-io

Haskell
- RJson package
- json package

Java
- JSON-java
- JSONUtil
- jsonp
- Json-lib
- Stringtree
- SOJO
- json-taglib
- Flexjson
- Argo
- jsonij
- fastjson
- mjson

- JsonBox
- jvar
- rapidjson
- JSON for Modern C++
- minijson
- jsoncons
- jsoncpp
- univalue
- ArduinoJson
- QJson
- CAJUN
- libjson
- nosjob
- JSON library for IoT
- qmjson
- JSON Support in Qt
- JsonWax for Qt
- progbase
- Qentem-Engine

C#

- fastJSON
- JSON_checker
- Json.NET
- JSON for .NET
- Manatee Json
- FastJsonParser
- LightJson
- Liersch.Json
- Liersch.JsonSerialization
- progbase
- JSON Essentials

Clojure

- data.json

Cobol

- Redvers COBOL JSON Interface

- jjson
- json-simple
- json-io
- google-gson
- FOSS Nova JSON
- Corn CONVERTER
- Apache johnzon
- Genson
- cookjson
- progbase
- jackson
- MOXy

JavaScript

- JSON
- json2.js
- clarinet
- Oboe.js
- progbase

LabVIEW

- flatten

Lisp

- Common Lisp JSON

LiveCode

- mergJSON

LotusScript

- JSON LS

Lua

- JSON Modules

M

- DataBallet

Matlab

- JSONlab
- 20565
- 23393

Net.Data

- netdata-json

Nim

- Module json

Objective C

- NSJSONSerialization
- json-framework
- JSONKit
- yajl-objc
- TouchJSON

OCaml

- jsonm

PascalScript

- JsonParser

Perl

- CPAN

Photoshop

- JSON Photoshop Scripting

PHP
- PHP 5.2

PicoLisp
- picolisp-json

Pike
- Public.Parser.JSON
- Public.Parser.JSON2

PL/SQL
- pljson

PureBasic
- JSON

Puredata
- PuRestJson

Python
- The Python Standard Library
- simplejson
- pyson
- Yajl-Py
- ultrajson
- metamagic.json
- progbase

R
- rjson
- jsonlite

Racket
- json-parsing

Rebol
- json.r

RPG
- JSON Utilities

Rust
- Serde JSON
- json-rust

Ruby
- yajl-ruby
- json-stream
- progbase

Scala
- circe

Scheme
- MZScheme
- JSON-struct

Shell
- Jshon
- JSON.sh
- jwalk

Squeak
- Squeak

Tcl
- JSON

Visual Basic
- VB-JSON
- PW.JSON
- .NET-JSON-Transformer

progbase

Visual FoxPro

fwJSON

JSON

vfpjson

- Videos about JSON
- Videos about the JSON Logo
- Heresy & Heretical Open Source: A Heretic's Perspective
- *How JavaScript Works* by Douglas Crockford