# Introducing JSON

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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

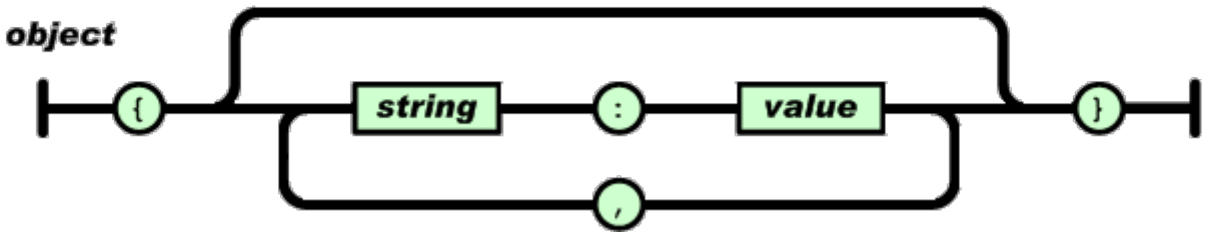
```
object
    {}
    { members }
members
    pair
    pair , members
pair
    string : value
array
    []
    [ elements ]
elements
    value
    value , elements
value
    string
    number
    object
    array
    true
    false
    null

string
    ""
    " chars "
chars
    char
    char chars
```

another. It makes sense that a data format that is interchangeable with programming languages also be based on these structures.

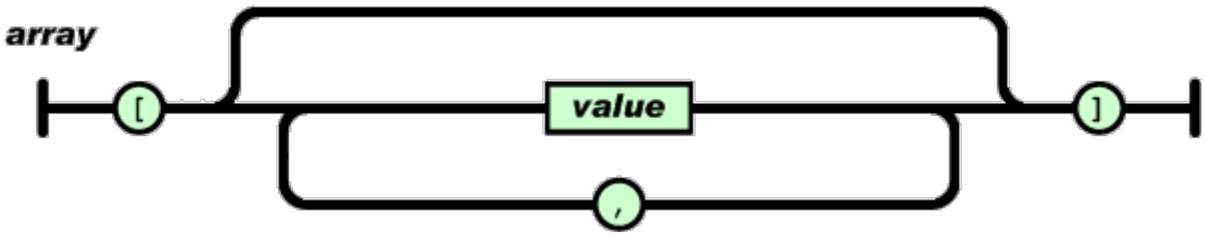
In JSON, they take on these forms:

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).

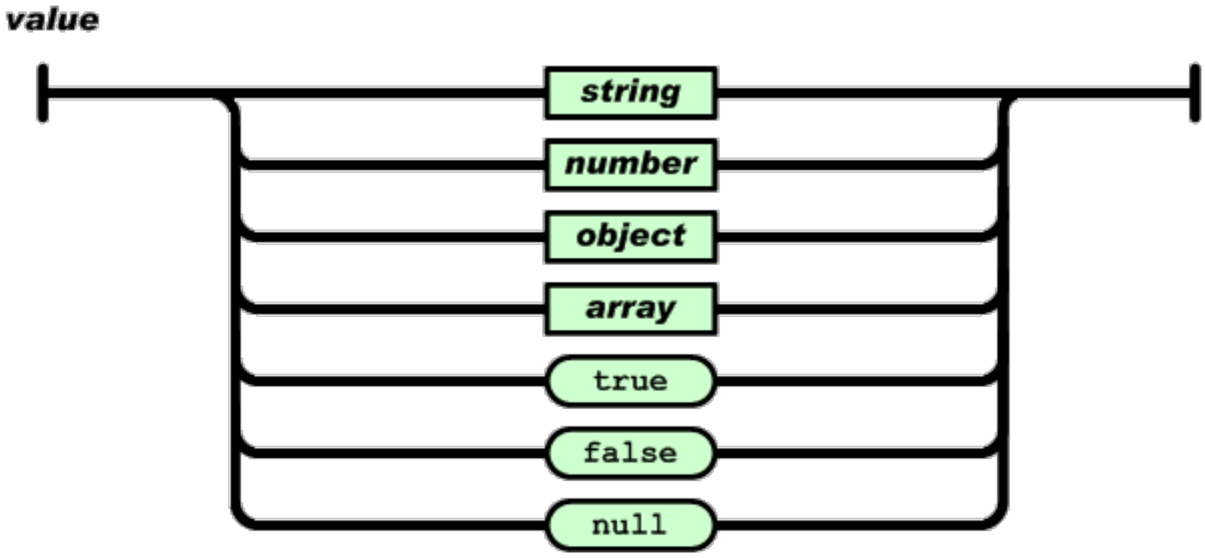
*char*
    *any-Unicode-character-except-"-or-\-or-control-character*
    **\"**
    **\**
    **\/**
    **\b**
    **\f**
    **\n**
    **\r**
    **\t**
    **\u** *four-hex-digits*
*number*
    *int*
    *int frac*
    *int exp*
    *int frac exp*
*int*
    *digit*
    *digit1-9 digits*
    **-** *digit*
    **-** *digit1-9 digits*
*frac*
    **.** *digits*
*exp*
    *e digits*
*digits*
    *digit*
    *digit digits*
*e*
    **e**
    **e+**
    **e-**
    **E**
    **E+**
    **E-**



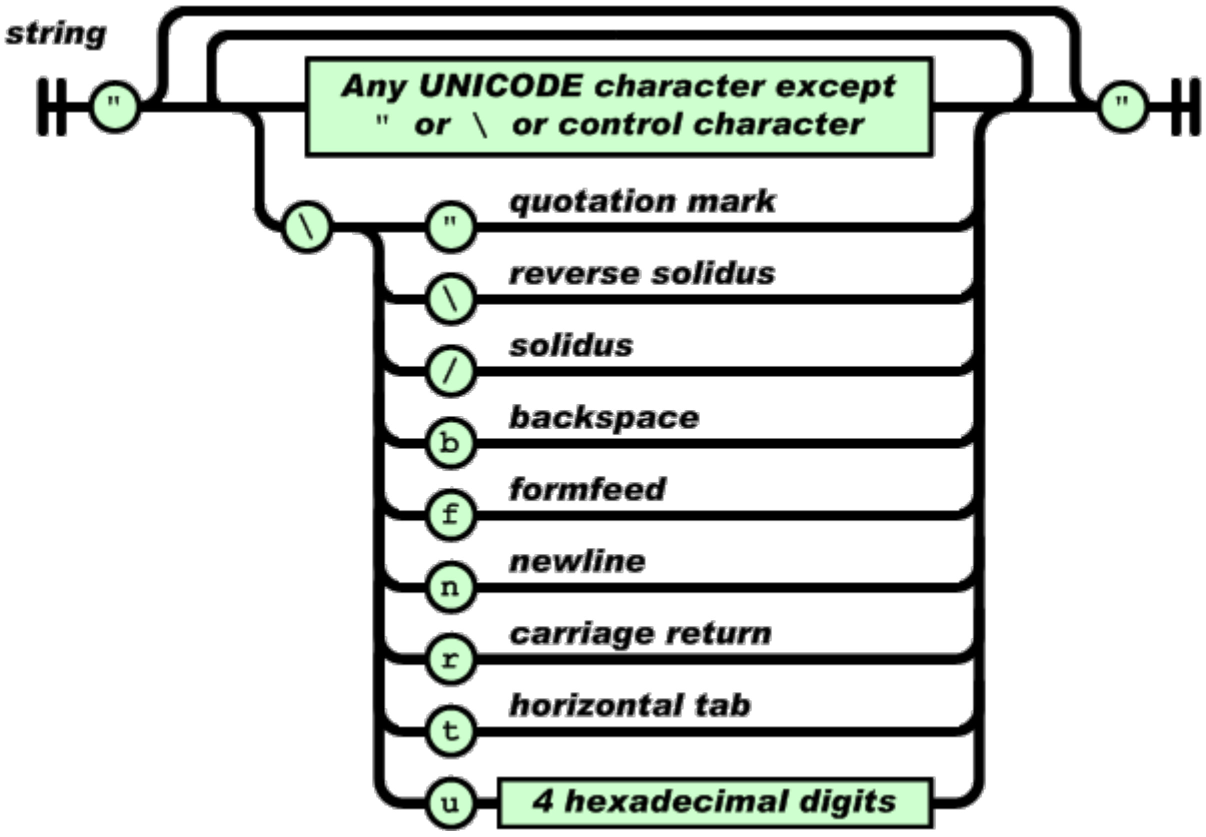
An *array* is an ordered collection of values. An array begins with **[** (left bracket) and ends with **]** (right bracket). Values are separated by **,** (comma).



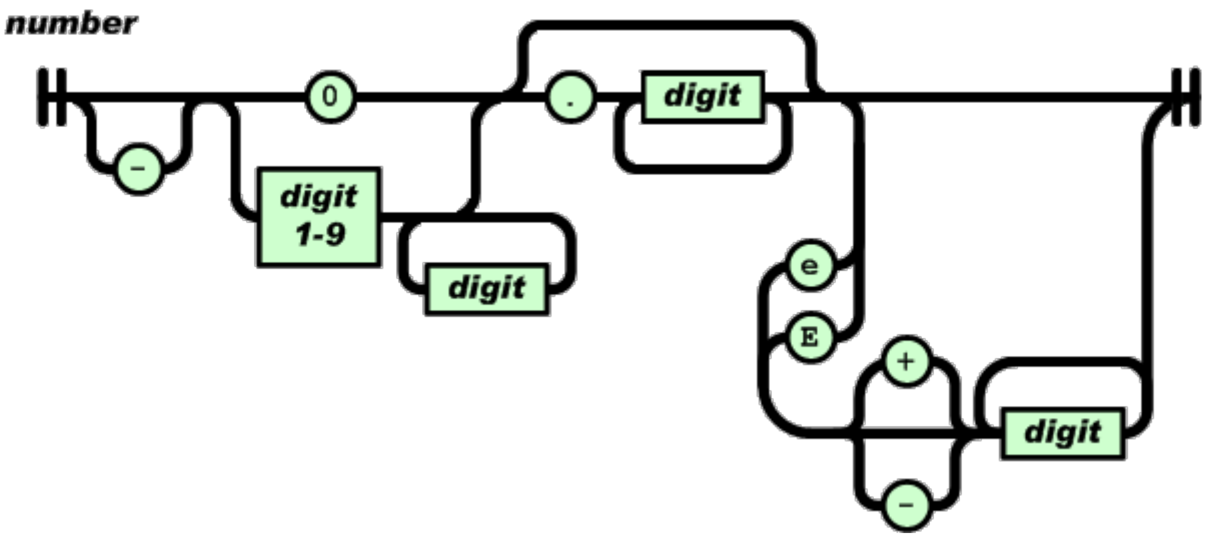
A *value* can be a *string* in double quotes, or a *number*, or `true` or `false` or `null`, or an *object* or an *array*. These structures can be nested.



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.