JavaScript JSON

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JSON is a format for storing and transporting data.

JSON is often used when data is sent from a server to a web page.

What is JSON?

- JSON stands for **J**ava**S**cript **O**bject **N**otation
- JSON is lightweight data interchange format
- JSON is language independent *
- JSON is "self-describing" and easy to understand

* JSON uses JavaScript syntax, but the JSON format is text only.
Text can be read and used as a data format by any programming language.

JSON Example

This JSON syntax defines an employees object: an array of 3 employee records (objects):

JSON Example

```
{"employees":[
    {"firstName":"John", "lastName":"Doe"},
    {"firstName":"Anna", "lastName":"Smith"},
    {"firstName":"Peter", "lastName":"Jones"}
]}
```

The JSON Format Evaluates to JavaScript Objects

The JSON format is syntactically identical to the code for creating JavaScript objects.

Because of this similarity, a JavaScript program can easily convert JSON data into native JavaScript objects.

JSON Syntax Rules

- Data is in name/value pairs
- Data is separated by commas
- Curly braces hold objects
- Square brackets hold arrays

JSON Data - A Name and a Value

JSON data is written as name/value pairs, Just like JavaScript object properties.

A name/value pair consists of a field name (in double quotes), followed by a colon, followed by a value:

```
"firstName":"John"
```

JSON Objects

JSON objects are written inside curly braces.

Just like in JavaScript, objects can contain multiple name/values pairs:

```
{"firstName":"John", "lastName":"Doe"}
```

JSON Arrays

JSON arrays are written inside square brackets.

Just like in JavaScript, an array can contain objects:

```
"employees":[
    {"firstName":"John", "lastName":"Doe"},
    {"firstName":"Anna", "lastName":"Smith"},
    {"firstName":"Peter", "lastName":"Jones"}
]
```

In the example above, the object "employees" is an array. It contains three objects.

Each object is a record of a person (with a first name and a last name).

Converting a JSON Text to a JavaScript Object

A common use of JSON is to read data from a web server, and display the data in a web page.

For simplicity, this can be demonstrated using a string as input (or read more in our JSON tutorial (/json/default.asp)):

First, create a JavaScript string containing JSON syntax:

```
var text = '{ "employees" : [' +
'{ "firstName":"John" , "lastName":"Doe" },' +
'{ "firstName":"Anna" , "lastName":"Smith" },' +
'{ "firstName":"Peter" , "lastName":"Jones" } ]}';
```

Then, use the JavaScript built-in function JSON.parse() to convert the string into a JavaScript object:

```
var obj = JSON.parse(text);
```

Finally, use the new JavaScript object in your page:

Example

```
<p id="demo"></p>

<script>
document.getElementById("demo").innerHTML =
obj.employees[1].firstName + " " + obj.employees[1].lastName;
</script>
```

Try it yourself » (tryit.asp?filename=tryjs_json_parse)

You can read more about JSON in our JSON tutorial (/json/default.asp).