

Binary JSON (BSON)



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BSON { 01010100 11101011 10101110 01010101 }

BSON [*bee · sahn*], short for Binary [JSON](#), is a binary-encoded serialization of JSON-like documents. Like JSON, BSON supports the embedding of documents and arrays within other documents and arrays. BSON also contains extensions that allow representation of data types that are not part of the JSON spec. For example, BSON has a Date type and a BinData type.

BSON can be compared to binary interchange formats, like [Protocol Buffers](#). BSON is more "schema-less" than Protocol Buffers, which can give it an advantage in flexibility but also a slight disadvantage in space efficiency (BSON has overhead for field names within the serialized data).

BSON was designed to have the following three characteristics:

1. **Lightweight**

Keeping spatial overhead to a minimum is important for any data representation format, especially when used over the network.

2. **Traversable**

BSON is designed to be traversed easily. This is a vital property in its role as the primary data representation for [MongoDB](#).

3. **Efficient**

Encoding data to BSON and decoding from BSON can be performed very quickly in most languages due to the use of C data types.

[specification](#)[implementations](#)[FAQ](#)[discussion](#)

“BSON is a binary format in which zero or more key/value pairs are stored as a single entity. We call this entity *a document*.”

BSON Specification: <http://bsonspec.org/>

Binary JSON (BSON)

Binary-Encoded
Serialization

Embedding
Documents &
Arrays

Additional
Extensions
(Date/Bin)

Lightweight

Traversable

Efficient

`{"hello": "world"}`

<code>\x16\x00\x00\x00</code>	<i>// total document size</i>
<code>\x02</code>	<i>// 0x02 = type String</i>
<code>hello\x00</code>	<i>// field name</i>
<code>\x06\x00\x00\x00world\x00</code>	<i>// field value</i>
<code>\x00</code>	<i>// 0x00 = type EOO ('end of object')</i>

BSON & MongoDB

- Document oriented database
- Cross platform
- NoSQL
- Free and open source
- Craigslist, eBay, Foursquare, ... (Popular!)
- JSON-like documents
- Dynamic schemas
- Stores internally as BSON



MongoDB ✓

@MongoDB

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Json.NET Supports BSON



The diagram consists of two side-by-side colored squares. The left square is orange and contains the text 'BsonReader'. The right square is green and contains the text 'BsonWriter'. Below these two squares is the text 'Newtonsoft.JSON.Bson'.

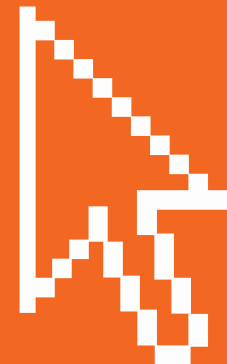
BsonReader

BsonWriter

Newtonsoft.JSON.Bson

Demo 26: BSON

Binary JSON



Takeaway

Binary JSON
Additional Types

Efficiency &
Traversability

MongoDB

Json.NET
Supported