

XYO Network Encoding Scheme

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1 Overview

Everything that is encoded is a superset of an *Object*. An object is defined by having an object header. There are two types of objects, base objects and array objects.

1.1 Base Objects

Everything is a base object. A base object is defined by having an object header (see section 2).

1.2 Array Objects

An array object is a superset of a base object, but can have child objects.

2 Object Header

A header to be placed before every object.

2.1 Size Identifier Size (2 bits)

2 bits placed at the beginning of the header to indicate how to read the size of the payload.

2.1.1 00b and 01b

This indicates to read the major (the next 6 bits) to use as the size of entire payload.

2.1.2 10b

This indicates to read 2 bytes after the minor to obtain the size.

2.1.3 11b

This indicates to read 4 bytes after the minor to obtain the size.

2.2 Major (6 bits)

Used as an ID for the value/payload. If the Size Identifier Size is 00b or 01b then the major must be the size of the value/payload.

2.3 Minor (1 byte)

Used as a secondary ID for the value/payload.

2.4 Size (2 or 4 bytes)

Used to indicate the size (in bytes) of the value/payload. This is only included in the header if the Size Identifier Size is 10b or 11b. The size is always unsigned and includes itself.

Size Identifier Size	Value
00b	None
01b	None
10b	2 Bytes (Short)
11b	4 Bytes (Int)

2.5 Examples

Name	Value	Description
Size identifier size	00b	A 2 bit description of the size.
Major	000001b	The major of the item.
Minor	0x1a	The minor of the item.
Value	0x33	The value is 1 byte because of the major.

Name	Value	Description
Size identifier size	01b	A 2 bit description of the size.
Major	000001b	The major of the item.
Minor	0x2a	The minor of the item.
Value	0x23	The value is 1 byte because of the major.

Name	Value	Description
Size identifier size	10b	A 2 bit description of the size.
Major	000011b	The major of the item.
Minor	0x2b	The minor of the item.
Size	0x00,0x05	The minor of the item.
Value	0x01,0x02,0x03	The value is 1 byte because of the major.

Name	Value	Description
Size identifier size	11b	A 2 bit description of the size.
Major	000011b	The major of the item.
Minor	0x2b	The minor of the item.
Size	0x00,0x00,0x00,0x04	The minor of the item.
Value	0x13,0x37	The value is 1 byte because of the major.