The JSON Message Binding Specification for TAXII 1.1

Version 1.10

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Comments, questions, suggestions, and concerns are all appreciated.

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1. Introduction

This document describes how to express TAXII Messages using JSON syntax. The use of these messages to support TAXII Services is described separately in the TAXII Services Specification [1]. It is recommended that the reader familiarize themselves with the TAXII Services Specification prior to reading this document.

1.1. The JSON Message Binding Specification for TAXII 1.1

This specification provides normative text on the expression of TAXII Messages using JSON syntax. It does not provide details about how TAXII Messages are transported, leaving that to a Protocol Binding Specification. The TAXII Services and TAXII Message Exchanges that these Messages support, as well as a detailed discussion of the meaning of message fields, are discussed in detail in the TAXII Services specification.

1.1.1. TAXII Message Binding Version ID for JSON

The TAXII Message Binding Version ID for the version of the JSON Binding described in this specification is:

```
urn:taxii.mitre.org:message:json:1.1
```

1.1.2. The TAXII JSON Schema

This document is accompanied by a JSON schema [2][3] as a means to clarify the requirements surrounding TAXII Message structures in JSON format. The schema is provided as an aid to developers and implementers but is not normative. If there is ever disagreement between the specification and the schema the specification is considered correct. In particular, due to the limitations of JSON schemas, the schema may permit some structures that may be prohibited by the specification.

1.2. Document Conventions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this specification are to be interpreted as described in IETF RFC 2119. [4]

When making references to JSON elements as well as other JSON literals (such as enumerated values), this document uses `Courier New Font`. JSON element names are denoted by non-namespaced text (e.g., `discovery_request`).

1.3. Terms and Definitions

This document uses the Terms and Definitions defined in the TAXII Services Specification and TAXII Overview [5]. The JSON structures defined in this specification correspond to a JSON name/value pair [6]. For example, all messages have a "`id`" JSON Field that contains a value identifying the message using the JSON string type.

1.3.1.   JSON Binding Terms

The TAXII Services Specification identifies a number of fields for each TAXII Message Type. This specification specifies those fields as JSON structures. The Services Specification discusses fields in terms of general concepts they are meant to convey, while this specification represents fields as precise character patterns to represent that information.

2.   JSON Message Binding for TAXII 1.1 Overview

This section considers some of the underlying concepts behind the JSON Message Binding and considers the overall structure of a TAXII Message in this binding.

2.1. JSON Message Binding Structure

The JSON Message Binding for TAXII 1.1 defines requirements regarding the overall structuring of TAXII Messages using JSON. These requirements are described in the following subsections.

2.1.1.   Messages are Root Elements

A separate JSON structure is defined to represent each type of TAXII Message. Each structure that represents a TAXII Message can appear as a root element in a JSON document. This specification does not define any structures that contain other TAXII Message structures. As such, within this TAXII Message Binding, TAXII Message structures do not appear as descendants of other structures.

One side effect of this is that this specification does not define any way to include multiple TAXII Messages within a single JSON document. This reflects that, in TAXII Message Exchanges, there is no situation where multiple TAXII Messages can be sent in a single transmission.

2.1.2.   No Header and Body Field Distinction

All TAXII Messages consist of a header and a body. TAXII Header fields represent information that is applicable to all TAXII Message Body Types, while TAXII Body fields contain information that is specific to a particular TAXII Message Body Type. This specification does not distinguish

between TAXII Header fields and TAXII Body fields. In other words, there is not a dedicated region containing all TAXII Header content with a separate region containing all TAXII body content. Instead, both types of fields exist as peers in the JSON structure of a TAXII Message. This document does not treat the header and body fields separately or otherwise differentiate between them.

2.1.3.   Message Schema Validation

Neither senders nor recipients are required to perform schema validations on messages that they send or receive, respectively. Senders of messages that use this message binding are required to conform to the requirements of this specification regardless of the use of schema validation. If a message recipient detects an incorrectly formatted message, either through schema validation or other means, the recipient SHOULD respond with a Status Message with a Status Type of "Bad Message".

2.1.4.   Version and Format IDs

Note that, in terms of processing, the JSON Message Binding Specification does not distinguish between Version IDs and Query Format IDs that are defined by TAXII specifications and those defined by third parties. Use of the terms TAXII Protocol Version ID, TAXII Message Version ID, and Query Format ID, are used throughout this document without regard to the source of that ID.

2.2.   Special Field Values

Several TAXII Message fields appear in multiple TAXII Messages and have a specialized structure and/or important meaning. This section looks at these fields, identifies the requirements that govern their values, and explains how they are represented in JSON.

2.2.1.   Timestamp Labels

In TAXII, each piece of content within a TAXII Data Feed is assigned a unique Timestamp Label value. (Timestamp Labels are not applicable to content within a TAXII Data Set.) Timestamp Labels are used to allow Consumers to indicate which parts of a TAXII Data Feed they are requesting in a Poll Request Message. While a Timestamp Label is in the form of a timestamp, it is important to note that Timestamp Labels do not necessarily correspond to any chronological event nor do they necessarily align with timestamps that appear within the content of a TAXII Data Feed. The Timestamp Label is just a label, rather than a reference to some meaningful chronological time.

The JSON Message Binding requires JSON elements that contain Timestamp Labels to be JSON string values. In addition, these values MUST conform to the following rules:

- They MUST follow the ISO 8601 format of **YYYY-MM-DDThh:mm:ss+-hh:mm**. Note that 'T' is the delimiter between the date and time portions, and the time zone offset is delimited by *either* a '+' or a '-' to indicate the relative offset from UTC.
  - For UTC time, either "Z" or a numerical offset may be used in accordance with the date-time production in RFC 3339 [7].
- They MUST NOT contain fractional seconds with more than six decimal places of precision.

See section 4.1.4 in the TAXII Services Specification for details about how Timestamp Labels are to be assigned to Data Feed content and their use within a TAXII Architecture.

2.2.2.   Extended Headers and Status Details

TAXII allows the specification of Extended Headers in all TAXII Messages. All Extended Headers are defined by third parties outside the TAXII specifications. Extended Headers in TAXII are represented as name-value pairs.

Similarly, Status Messages may include a Status Detail field to contain machine-processable information about a Status Message (usually representing some kind of error). The content of a Status Detail field consists of name-value pairs.

In the JSON Message Binding, each Extended Header or Status Detail field is expressed as a JSON object. In this binding, the value undergoes lax processing - if the provider of the third party value includes JSON elements that conform to some other JSON schema then JSON validation can check for schema conformance but lack of a schema does not cause validation to fail.

2.2.3.   Query Fields

In the schema definitions in section 3, the query option is defined as having a *key* and a *value*. However, this does not mean that the words "*key*" or "*value*" are literal value. These have been right justified and italicized in standard font to distinguish them from the JSON elements. An example query would be:

```
query:{
      'someformatid': 'somevalue'
}
```

2.2.4.   Names and Identifiers

TAXII utilizes several classes of identifiers that are intended to be globally unique. These include:

- Extended Header names
- Status Detail subfield names
- Query Format IDs
- Protocol Binding Version IDs
- Message Binding Version IDs
- TAXII Services Version IDs

All of these names and identifiers MUST conform to URI formatting rules. In the JSON Message Binding, all of these fields have a JSON type of string.

Of these identifiers, all but the TAXII Services Version IDs may be used by third parties to identify custom extensions to TAXII. When a third party creates an identifier, the corresponding URI MUST include an authority component (usually in the form of a domain name) to indicate the entity responsible for this name or identifier. This is done in order to avoid accidental collisions between identifiers created by different parties. For more about these identifiers and their use, see Sections 4.1.5, 4.1.6, and 4.1.7 of the TAXII Services Specification.

Names and identifiers that do not need to be globally unique (i.e., TAXII Data Collection names, Subscription IDs, Result IDs, and Message IDs) also MUST conform to URI formatting requirements and thus fields that contain these values have a JSON type of string. However, there is no corresponding requirement to include an authority component in these URI values. Instead, the entity assigning these identifiers is responsible for avoiding collisions only within the values it is responsible for creating. For more on avoiding collisions using Message IDs, Data Collection Names, and Subscription and Result IDs, see Sections 4.1.1, 4.1.2, and 4.1.3, respectively, of the TAXII Services Specification.

3. TAXII JSON Messages

This section defines the JSON structures used to express all TAXII Messages as defined in Section 4 of the TAXII Services Specification. Each TAXII Message type is described below using tables that contain the available fields and their corresponding JSON structures. Parent-child relationships are reflected in the tables below by indenting the child elements relative to their parent.

For each table, the following information is provided:

- JSON Name - The field name of a JSON structure.
- Type - The JSON structure type;
- Req - This field indicates if the JSON structure is required. Possible values are Yes, No, and Dep (Depends on some other value).
- Notes - This field gives gives details about the JSON structure and identifies any specific requirements or criteria that needs to be met.

3.1. TAXII Status Message

Table 3.1-1 - TAXII Status Fields

Field Name	Type	Req	Notes
status_message	object		
id	string	Yes	
in_response_to	string	Yes	A string equal to the value of the `id` field to which this message is a response
type	string	Yes	A string from Table 3.1-2 or third party definition
details	object	Dep	For some `type` values the `detail` field MUST be present. These cases are noted in Table 3.1-2.
message	string	No	
extended_headers	object	No	Extend TAXII for third party needs

The list of standard `type` values defined in this message binding appears in Table 3.1-2. In addition, Some `type` values have defined `details` name-value pairs. Table 3.1-2 indicates the names of any such `details` name-value pairs and whether the given name-value pair is required for the given `type`. If a particular name-value pair is required, the `details` field is

also required for that `type` value. Name-value pairs that are not required for particular `type` values are still recommended and SHOULD be present if possible.

Table 3.1-2 - Defined Status Types

type	details	Req
ASYNCHRONOUS_POLL_ERROR		
BAD_MESSAGE		
DENIED		
DESTINATION_COLLECTION_ERROR	ACCEPTABLE_DESTINATIONS	No
FAILURE		
INVALID_RESPONSE_PART	MAX_PART_NUMBER	Yes
NETWORK_ERROR		
NOT_FOUND	ITEM	No
PENDING	ESTIMATED_WAIT RESULT_ID WILL_PUSH	Yes Yes Yes
POLLING_UNSUPPORTED		
RETRY	ESTIMATED_WAIT	No
SUCCESS		
UNAUTHORIZED		
UNSUPPORTED_MESSAGE	SUPPORTED_ENCODINGS	No
UNSUPPORTED_CONTENT	SUPPORTED_CONTENTS	No
UNSUPPORTED_PROTOCOL	SUPPORTED_PROTOCOLS	No
UNSUPPORTED_QUERY	SUPPORTED_QUERIES	No

Table 3.1-3 describes the value of the `value` field for the indicated `details` named subfield.

Table 3.1-3 - Defined details / name-value pairs

details	Type	Notes
ACCEPTABLE_DESTINATIONS	array	An array of permitted Collection Names.
MAX_PART_NUMBER	number	A number
ITEM	string	Indicating the target that could not be located.
ESTIMATED_WAIT	number	Number of seconds until retry or result set SHOULD be available.
RESULT_ID	string	
WILL_PUSH	boolean	Indicates whether the results will be pushed
SUPPORTED_ENCODINGS	array	An array of strings indicating supported Message Encodings.
SUPPORTED_CONTENT	array	An array of strings indicating supported Content Encodings.
SUPPORTED_PROTOCOLS	array	An array of strings indicating supported Protocol Binding.
SUPPORTED_QUERIES	array	An array of strings indicating supported Query Format.

3.2.   TAXII Discovery Request

Table 3.2-1 TAXII Discovery Request Fields

Field Name	Type	Req	Notes
discovery_request	object		
id	string	Yes	
extended_headers	object	No	Extend TAXII for third party needs

3.3.   TAXII Discovery Response

Table 3.3-1 TAXII Discovery Response Fields

Field Name	Type	Req	Notes
discovery_response	object		
id	string	Yes	
in_response_to	string	Yes	A string equal to the value of the id field to which this message is a response
services	array of objects	No	Each array element corresponds to a single reported TAXII Service instance.
type	string	Yes	A value from Table 3.3-2.
available	boolean	No	A boolean. If true the requester is allowed access to this service. If false, the requester is not allowed access to this service. If absent, treat as unknown
version	string	Yes	A TAXII Services Version ID
address	string	Yes	A network address
protocol	string	Yes	A TAXII Protocol Binding Version ID
encodings	array	Yes	TAXII Message Binding Version IDs
content_encodings	array	Yes	STIX Content Binding Version IDs
supported_queries	object	No	
key	string	Yes	The key field is the format_id
value	array	Yes	The value field is an array of query_format values. The value MUST adhere to the Supported Query subfields defined in the Query Format Specification identified by the format_id field.
message	string	No	
extended_headers	object	No	Extend TAXII for third party needs

The type field identifies the type of service reported in the given services. Its value MUST be one of the values provided in Table 3.3-2.

Table 3.3-2 - Service Types

Service	type Value
Discovery Service	DISCOVERY
Collection Management Service	COLLECTION_MANAGEMENT
Inbox Service	INBOX
Poll Service	POLL

3.4. TAXII Collection Information Request

Table 3.4-1 TAXII Collection Information Request Fields

Field Name	Type	Req	Notes
collection_information_request	object		
id	string	Yes	
extended_headers	object	No	Extend TAXII for third party needs

3.5. TAXII Collection Information Response

Table 3.5-1 TAXII Collection Information Response Fields

Field Name	Type	Req	Notes
collection_information_response	object		
id	string	Yes	
in_response_to	string	Yes	A string equal to the value of the id field to which this message is a response
collections	array of objects	No	The value for collection is an array of objects, and each object has only the fields defined in this document
name	string	Yes	A Collection Name
type	string	No	This field has a value of either "DATA_FEED" or "DATA_SET". Absence of this field indicates "DATA_FEED".
available	boolean	No	If true the requester is allowed access to this Data Collection. If false, the requester is not allowed access to this Data Collection. If absent, treat access as unknown.

Field Name	Type	Req	Notes
description	string	Yes	
volume	number	No	A non-negative integer
content_encodings	array	Yes	STIX Content Binding Version IDs
delivery_parameters	array of objects	No	Each instance of this field indicates one set of bindings that can be used to push content from the TAXII server that generated this response to a Consumer's Inbox Service.
protocol	string	Yes	A TAXII Protocol Binding Version ID
encodings	array	Yes	TAXII Message Binding Version IDs
poll_services	array of objects	No	Each instance of this field indicates one Poll Service instance that can be used to poll for content from this Data Collection.
address	string	Yes	A network address
protocol	string	Yes	A TAXII Protocol Binding Version ID
encodings	array	Yes	TAXII Message Binding Version IDs
subscription_services	array of objects	No	Each instance of this field indicates one Collection Management Service that can be used to establish a subscription to this Data Collection. If no instances of this field are present, subscriptions cannot be established using TAXII messages.
address	string	Yes	A network address
protocol	string	Yes	A TAXII Protocol Binding Version ID
encodings	array	Yes	TAXII Message Binding Version IDs
inbox_services	array of objects	No	Each instance of this field indicates an Inbox Service by which records can be pushed to this Data Collection.
address	string	Yes	A network address
protocol	string	Yes	A TAXII Protocol Binding Version ID
encodings	array	Yes	TAXII Message Binding Version IDs
content_encodings	array	Yes	STIX Content Binding Version IDs
extended_headers	object	No	Extend TAXII for third party needs

3.6. TAXII Managed Collection Subscription Request

Table 3.6-1 TAXII Managed Collection Subscription Request Fields

Field Name	Type	Req	Notes
subscription_management_request	object		
id	string	Yes	
action	string	Yes	A value from table 3.6-2
collection_name	string	Yes	A Collection Name for the TAXII Data Collection
subscription_id	string	No	A Subscription ID value. This field MUST be present if action="UNSUBSCRIBE", action="PAUSE", or action="RESUME". This field SHOULD NOT be present if action="SUBSCRIBE" and MUST be ignored by the recipient in this case. This field MAY be present if action="STATUS".
subscription_parameters	object	Dep	This field is present if and only if action="SUBSCRIBE"
response_type	string	Yes	This field has a value of either "FULL" or "COUNT_ONLY". Absence of field indicates "FULL"
content_encodings	array	Yes	STIX Content Binding Version IDs
query	object	No	
key	string	Yes	The key field is the format_id
value	string	Yes	The value MUST adhere to the Supported Query subfields defined in the Query Format Specification identified by the format_id field.
delivery_parameters	array of objects	No	Only a single instance is supported. For values of action other than SUBSCRIBE senders SHOULD NOT include this field and recipients MUST ignore this field. If action="SUBSCRIBE" and this field is absent then the sender is indicating that it does not want content pushed to an Inbox service. (i.e., the sender will poll for content.)
address	string	Yes	A network address
protocol	string	Yes	A TAXII Protocol Binding Version ID
encodings	array	Yes	Only a single instance is supported. A TAXII Message Binding Version ID
extened_headers	object	No	Extend TAXII for third party needs

The action field contains a value indicating what subscription management action is to be taken. Possible values for this field appear in Table 10.

Table 3.6-2 - Collection Management Actions

`action` Value	Management Action
SUBSCRIBE	SUBSCRIBE - Request a subscription to the named TAXII Data Collection.
UNSUBSCRIBE	UNSUBSCRIBE - Request cancellation of an existing subscription to the named TAXII Data Collection.
PAUSE	PAUSE - Suspend delivery of content for the identified subscription.
RESUME	RESUME - Resume delivery of content for the identified subscription.
STATUS	STATUS - Request information on all subscriptions the requester has established for the named TAXII Data Collection.

3.7.   TAXII Managed Collection Subscription Response

Table 3.7-1 TAXII Managed Collection Subscription Response Fields

Field Name	Type	Req	Notes
subscription_management_response	object		
id	string	Yes	
in_response_to	string	Yes	A string equal to the value of the `id` field to which this message is a response
collection_name	string	Yes	A Collection Name for the TAXII Data Collection
message	string	No	
subscriptions	array of objects	No	Each instance reports a different subscription to the named Data Collection. This field MUST appear exactly once for `action` values other than `STATUS`. This field may appear any number of times when `action="STATUS"`
status	string	No	One of "`ACTIVE`", "`PAUSED`", or "`UNSUBSCRIBED`". Absence of this field indicates "`ACTIVE`".
subscription_id	string	Yes	A Subscription ID value.
subscription_parameters	object	No	This field and its sub fields duplicate the `subscription_parameters` structure in the Manage Collection Service Request message that established the identified subscription.
response_type	string	No	This field has a value of either "`FULL`" or "`COUNT_ONLY`". Absence of this field indicates "`FULL`"

Field Name			Type	Req	Notes
	content_encodings		array	Yes	STIX Content Binding Version IDs
	query		object	No	
		key	string	Yes	The key field is the format_id
		value	string	Yes	The value MUST adhere to the Supported Query subfields defined in the Query Format Specification identified by the format_id field.
	inbox_services		array of objects	No	Only a single instance is supported. For values of action other than SUBSCRIBE senders SHOULD NOT include this field and recipients MUST ignore this field. If action="SUBSCRIBE" and this field is absent then the sender is indicating that it does not want content pushed to an Inbox service (i.e., the sender will poll for content.)
		address	string	Yes	A network address
		protocol	string	Yes	A TAXII Protocol Binding Version ID
		encodings	array	Yes	Only a single instance is supported. A TAXII Message Binding Version ID
	poll_services		array of objects	No	Each instance identifies a Poll Service that can be used to poll for subscription content. If this field is absent, polling for subscription content is not supported.
		address	string	Yes	A network address
		protocol	string	Yes	A TAXII Protocol Binding Version ID
		encodings	array	Yes	TAXII Message Binding Version IDs
	extended_headers		object	No	Extend TAXII for third party needs

3.8.   TAXII Poll Request

Table 3.8-1 TAXII Poll Request

Field Name		Type	Req	Notes
poll_request		object		
	id	string	Yes	
	collection_name	string	Yes	A Collection Name for the TAXII Data Collection
	exclusive_begin_timestamp	string	No	The absence of this field indicates either that there is no lower bound or that the Poll Request is directed at a Data Set

Field Name		Type	Req	Notes
inclusive_end_timestamp		string	No	The absence of this field indicates either that there is no upper bound or that the Poll Request is directed at a Data Set
subscription_id		string	Dep	A Subscription ID value. This field is present if and only if there is no poll_parameters field present
poll_parameters		object	Dep	This field is present if and only if there is no subscription_id field present.
	allow_async	boolean	No	If true, the polling party supports Asynchronous Polling. If false, Asynchronous Polling is not supported. Absence of this field indicates false.
	response_type	string	No	This field has a value of either "FULL" or "COUNT_ONLY". Absence of this field indicates "FULL"
	content_encodings	array	Yes	STIX Content Binding Version IDs
	query	object	No	
	key	string	Yes	The key field is the format_id
	value	string	Yes	The value MUST adhere to the Supported Query subfields defined in the Query Format Specification identified by the format_id field.
	delivery_parameters	array of objects	No	Only a single instance is supported. If this field is present, it identifies an Inbox Service to which Asynchronous Poll results may be pushed.
	address	string	Yes	A network address
	protocol	string	Yes	A TAXII Protocol Binding Version ID
	encodings	array	Yes	Only a single instance is supported. A TAXII Message Binding Version ID
extended_headers		object	No	Extend TAXII for third party needs

Note that if both exclusive_begin_timestamp and inclusive_end_timestamp are present in this message, the value in inclusive_end_timestamp MUST be greater than the value in exclusive_begin_timestamp.

3.9.　TAXII Poll Response

Table 3.9-1 TAXII Poll Response Fields

Field Name	Type	Req	Notes
poll_response	object		
id	string	Yes	
in_response_to	string	Yes	A string equal to the value of the id field to which this message is a response
collection_name	string	Yes	A Collection Name for the TAXII Data Collection
more	boolean	No	Absence of this field indicates false
result_id	string	Dep	A Result ID MUST be present if more=true
result_part_number	number	No	A positive non-zero integer. Absence of this field indicates 1.
subscription_id	string	No	A Subscription ID value.
exclusive_begin_timestamp	string	No	This field MUST NOT be present if the named Data Collection is a Data Set. Otherwise, absence of this field indicates that the response covers the earliest content within the Data Feed.
inclusive_end_timestamp	string	No	This field MUST be present if the named Data Collection is a Data Feed. It MUST NOT be present if the named Data Collection is a Data Set.
record_count	number	No	A positive integer
partial_count	boolean	No	Absence of this field indicates false
message	string	No	
content_blocks	array of objects	No	
content_encoding	string	Yes	A STIX Content Binding Version ID
content	string	Yes	This may contain any content
timestamp_label	string	No	Timestamp
message	string	No	
padding	string	No	
extended_headers	object	No	Extend TAXII for third party needs

3.10. TAXII Inbox Message

Table 3.10-1 TAXII Inbox Message Fields

Field Name	Type	Req	Notes
inbox_message	object		
id	string	Yes	
result_id	string	No	A Result ID
destination_collection_names	array	No	A Collection Name, each value of this array identifies one Destination Collection Name
message	string	No	
source_subscription	object	No	
collection_name	string	Yes	The Collection Name for the TAXII Data Collection
subscription_id	string	Yes	A Subscription ID value
exclusive_begin_timestamp	string	No	This field MUST NOT be present if the named Data Collection is a Data Set. Otherwise, absence of this field indicates that the response covers the earliest content within the Data Feed.
inclusive_end_timestamp	string	No	This field MUST be present if the named Data Collection is a Data Feed. It MUST NOT be present if the named Data Collection is a Data Set.
record_count	number	No	A positive integer
partial_count	boolean	No	Absence of this field indicates false
content_blocks	array of objects	No	
content_encoding	string	Yes	A STIX Content Binding Version ID
content	string	Yes	This may contain any content
timestamp_label	string	No	Timestamp
message	string	No	
padding	string	No	
extended_headers	object	No	Extend TAXII for third party needs

3.11. Poll Fulfillment Request

Table 3.11-1 Poll Fulfillment Request Fields

Field Name	Type	Req	Notes
poll_fulfillment	object		
id	string	Yes	
collection_name	string	Yes	A Collection name for the TAXII Data Collection
result_id	string	Yes	A Result ID
result_part_number	number	Yes	A positive non-zero integer. Absence of this field indicates 1
extended_headers	object	No	Extend TAXII for third party needs

4. TAXII Message Examples

This section gives examples of the JSON structures used to express all TAXII Messages as defined in Section 4 of the TAXII Services Specification. Each TAXII Message type is described below in its corresponding JSON structures.

4.1. TAXII Status Message Example

See example at: https://github.com/jordan2175/freetaxii/tree/master/libtaxii/status

```
{
    "status_message" : {
        "id" : "b.com:sm-UUID",
        "in_response_to" : "a.com:dreq-UUID",
        "type" : "PENDING",
        "details" : {
            "ESTIMATED_WAIT" : 10,
            "RESULT_ID" : "some unique ID value",
            "WILL_PUSH" : false
        },
        "message" : "Your delay is to be expected"
    }
}
```

4.2. TAXII Discovery Request Example

See example at: https://github.com/jordan2175/freetaxii/tree/master/libtaxii/discovery

```
{
    "discovery_request" : {
        "id" : "a.com:dreq-UUID",
    }
}
```

4.3. TAXII Discovery Response Example

See example at: https://github.com/jordan2175/freetaxii/tree/master/libtaxii/discovery

```
{
    "discovery_response" : {
        "id" : "b.com:dres-UUID",
        "in_response_to" : "a.com:dreq-UUID",
        "services" : [
            {
                "type" : "INBOX",
                "available" : true,
                "address" : "http://taxiitest.mitre.org/services/inbox/default",
                "version" : "urn:taxii.mitre.org:services:1.1",
                "protocol" : "urn:taxii.mitre.org:protocol:http:1.0",
                "encodings" : [
                    "urn:taxii.mitre.org:message:json:1.1"
                ],
                "content_encodings" : [
                    "urn:six.mitre.org:json:1.0"
                ],
                "supported_queries" : {
                    "urn:taxii.mitre.org:query:default:1.0" : [
                        "some supported query format"
                    ]
                },
                "message" : "This INBOX service is open to all"
            }
        ]
    }
}
```

4.4. TAXII Collection Information Request Example

See example at: https://github.com/jordan2175/freetaxii/tree/master/libtaxii/collection

```
{
    "collection_information_request" : {
        "id" : "a.com:cireq-UUID"
    }
}
```

4.5. TAXII Collection Information Response Example

See example at: https://github.com/jordan2175/freetaxii/tree/master/libtaxii/collection

```
{
    "collection_information_response" : {
        "id" : "b.com:cires-UUID",
        "in_response_to" : "a.com:cireq-UUID",
        "collections" : [
            {
                "name" : "default",
                "type" : "DATA_FEED",
                "available" : true,
                "description" : "Data feed of interesting indicators",
                "volume" : someNumber,
```

```
            "content_encodings" : [
                "urn:six.mitre.org:json:1.0"
            ],
            "delivery_parameters" : [
                {
                    "protocol" : "urn:taxii.mitre.org:protocol:http:1.0",
                    "encodings" : [
                        "urn:taxii.mitre.org:message:json:1.1"
                    ]
                }
            ],
            "poll_services" : [
                {
                    "address" : "http://example.com/services/poll/",
                    "protocol" : "urn:taxii.mitre.org:protocol:http:1.0",
                    "encodings" : [
                        "urn:taxii.mitre.org:message:json:1.1"
                    ]
                }
            ],
            "subscription_services" : [
                {
                    "address" : "http://example.com/services/collection-management/",
                    "protocol" : "urn:taxii.mitre.org:protocol:http:1.0",
                    "encodings" : [
                        "urn:taxii.mitre.org:message:json:1.1"
                    ]
                }
            ],
            "inbox_services" : [
                {
                    "address" : "http://example.com/services/inbox/",
                    "protocol" : "urn:taxii.mitre.org:protocol:http:1.0",
                    "encodings" : [
                        "urn:taxii.mitre.org:message:json:1.1"
                    ],
                    "content_encodings" : [
                        "urn:six.mitre.org:json:1.0"
                    ]
                }
            ]
        }
    ]
}
```

4.6. TAXII Managed Collection Subscription Request Example

See example at: https://github.com/jordan2175/freetaxii/tree/master/libtaxii/subscription

```
{
    "subscription_management_request" : {
        "id" : "a.com:smreq-UUID",
        "collection_name" : "default",
        "action" : "SUBSCRIBE",
```

```
        "subscription_parameters" : {
            "response_type" : "FULL",
            "content_encodings" : [
                "urn:six.mitre.org:json:1.0"
            ]
        }
    }
}
```

4.7. TAXII Managed Collection Subscription Response Example

See example at: https://github.com/jordan2175/freetaxii/tree/master/libtaxii/subscription

```
{
    "subscription_management_response" : {
        "id" : "b.com:smres-UUID",
        "in_response_to" : "a.com:smreq-UUID",
        "collection_name" : "default",
        "subscriptions" : [
            {
                "status" : "ACTIVE",
                "subscription_id" : "subscription001"
            }
        ],
    }
}
```

4.8. TAXII Poll Request Example

See example at: https://github.com/jordan2175/freetaxii/tree/master/libtaxii/poll

```
{
    "poll_request" : {
        "id" : "a.com:preq-UUID",
        "collection_name" : "default",
        "exclusive_begin_timestamp" : "2014-12-19T00:00:00-07:00",
        "inclusive_end_timestamp" : "2014-12-19T12:00:00-07:00",
        "poll_parameters" : {
            "allow_async" : false,
            "response_type" : "FULL",
            "content_encodings" : [
                "urn:six.mitre.org:json:1.0"
            ]
        }
    }
}
```

4.9. TAXII Poll Response Example

See example at: https://github.com/jordan2175/freetaxii/tree/master/libtaxii/poll

```
{
    "poll_response" : {
        "id" : "b.com:pres-UUID",
        "in_response_to" : "a.com:preq-UUID",
        "collection_name" : "default",
        "more" : false,
```

```
    "result_part_number" : 1,
    "inclusive_end_timestamp" : "2014-12-19T12:00:00-07:00",
    "record_count" : 1,
    "partial_count" : false,
    "content_blocks" : [
        {
            "content_encoding" : "urn:six.mitre.org:json:1.0",
            "content" : "Some STIX data blob"
        }
    ],
    }
}
```

4.10. TAXII Inbox Message Example

See example at: https://github.com/jordan2175/freetaxii/tree/master/libtaxii/inbox

```
{
    "inbox_message" : {
        "id" : "a.com:im-UUID",
        "content_blocks" : [
            {
                "content_encoding" : "urn:six.mitre.org:json:1.0",
                "content" : "Some STIX data blob"
            }
        ],
    }
}
```

4.11. Poll Fulfillment Request

See example at: https://github.com/jordan2175/freetaxii/tree/master/libtaxii/poll

```
{
    "poll_fulfillment" : {
        "id" : "b.com:pf-UUID",
        "collection_name" : "default",
        "result_id" : "29321",
        "result_part_number" : 1,
    }
}
```

5. Bibliography

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