

orchestration-qos-reservations HTTP/TLS/JSON

Interface Design Description

Abstract

This document describes a HTTP protocol with TLS payload security and JSON payload encoding variant of the **orchestration-qos-reservations** service.

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1 Overview

This document describes the **orchestration-qos-reservations** service interface, which enables systems to get current provider reservations from the Orchestrator Core System. It's implemented using protocol, encoding as stated in the following table:

Profile type	Type	Version
Transfer protocol	HTTP	1.1
Data encryption	TLS	1.3
Encoding	JSON	RFC 8259 [1]
Compression	N/A	-

Table 1: Communication and semantics details used for the **orchestration-qos-reservations** service interface

This document provides the Interface Design Description IDD to the *orchestration-qos-reservations – Service Description* document. For further details about how this service is meant to be used, please consult that document.

The rest of this document describes how to realize the orchestration-qos-reservations service HTTP/TLS/JSON interface in details.

2 Interface Description

The service responds with the status code 201 Created if called successfully. The error codes are, 401 Unauthorized if improper client side certificate is provided, 500 Internal Server Error if Orchestrator is unavailable.

```
1 GET /orchestrator/qos_reservations HTTP/1.1
```

Listing 1: An [orchestration-qos-reservations](#) invocation.

```
1 {
2   "count": 1,
3   "data": [{
4     "id": 1,
5     "reservedProviderId": 2,
6     "reservedServiceId": 3,
7     "consumerSystemName": "TestConsumer",
8     "consumerAddress": "test-consumer.test.com",
9     "consumerPort": 10,
10    "reservedTo": "2020-03-18T22:18:32.143",
11    "temporaryLock": false,
12    "createdAt": "2020-03-18T22:13:32.143",
13    "updatedAt": "2020-03-18T22:13:32.143"
14  }]
15 }
```

Listing 2: An [orchestration-qos-reservations](#) response.

3 Data Models

Here, all data objects that can be part of the service calls associated with this service are listed in alphabetic order. Note that each subsection, which describes one type of object, begins with the *struct* keyword, which is meant to denote a JSON Object that must contain certain fields, or names, with values conforming to explicitly named types. As a complement to the primary types defined in this section, there is also a list of secondary types in Section 3.3, which are used to represent things like hashes, identifiers and texts.

3.1 struct QoSReservationList

Field	Type	Description
count	Number	The number of reservation records.
data	List<QoSReservation>	Reservation records.

3.2 struct QoSReservation

Field	Type	Description
consumerAddress	Address	Network address of the consumer system.
consumerPort	PortNumber	Port of the consumer system.
consumerSystemName	Name	The name of the consumer system.
createdAt	DateTime	Reservation record was created at this UTC timestamp.
id	Number	Identifier of the record.
reservedProviderId	Number	The id of the provider system.
reservedServiceId	Number	The id of the service that is reserved.
reservedTo	DateTime	Expiration of the reservation.
temporaryLock	Boolean	Is this reservation temporary (with short expiration)? Temporary reservation should be extend or removed before the end of the orchestration process.
updatedAt	DateTime	Reservation record was modified at this UTC timestamp.

3.3 Primitives

As all messages are encoded using the JSON format [2], the following primitive constructs, part of that standard, become available. Note that the official standard is defined in terms of parsing rules, while this list only concerns syntactic information. Furthermore, the Object and Array types are given optional generic type parameters, which are used in this document to signify when pair values or elements are expected to conform to certain types.

JSON Type	Description
Value	Any out of Object, Array, String, Number, Boolean or Null.
Object <A>	An unordered collection of [String: Value] pairs, where each Value conforms to type A.
Array <A>	An ordered collection of Value elements, where each element conforms to type A.
String	An arbitrary UTF-8 string.
Number	Any IEEE 754 binary64 floating point number [3], except for <i>+Inf</i> , <i>-Inf</i> and <i>NaN</i> .
Boolean	One out of <i>true</i> or <i>false</i> .
Null	Must be <i>null</i> .

With these primitives now available, we proceed to define all the types specified in the **orchestration-qos-reservations** SD document without a direct equivalent among the JSON types. Concretely, we define the **orchestration-qos-reservations** SD primitives either as *aliases* or *structs*. An *alias* is a renaming of an existing type, but with some further details about how it is intended to be used. Structs are described in the beginning of the parent section. The types are listed by name in alphabetical order.

3.3.1 alias Address = String

A string representation of a network address. An address can be a version 4 IP address (RFC 791), a version 6 IP address (RFC 2460) or a DNS name (RFC 1034).

3.3.2 alias DateTime = String

Pinpoints a moment in time in the format of ISO8601 standard "yyyy-mm-ddThh:mm:ss", where "yyy" denotes year (4 digits), "mm" denotes month starting from 01, "dd" denotes day starting from 01, "T" is the separator between date and time part, "hh" denotes hour in the 24-hour format (00-23), "MM" denotes minute (00-59), "SS" denotes second (00-59). " " is used as separator between the date and the time. An example of a valid date/time string is "2020-12-05T12:00:00"

3.3.3 alias List <A> = Array<A>

There is no difference.

3.3.4 alias Name = String

A String identifier that is intended to be both human and machine-readable.

3.3.5 alias PortNumber = Number

Decimal Number in the range of 0-65535.

4 References

- [1] T. Bray, "The JavaScript Object Notation (JSON) Data Interchange Format," RFC 8259, Dec. 2017. [Online]. Available: <https://rfc-editor.org/rfc/rfc8259.txt>
- [2] —, "The JavaScript Object Notation (JSON) Data Interchange Format," RFC 7159, 2014, RFC Editor. [Online]. Available: <https://doi.org/10.17487/RFC7159>
- [3] M. Cowlishaw, "IEEE Standard for Floating-Point Arithmetic," *IEEE Std 754-2019 (Revision of IEEE 754-2008)*, July 2019. [Online]. Available: <https://doi.org/10.1109/IEEESTD.2019.8766229>



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5 Revision History

5.1 Amendments

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1	YYYY-MM-DD	4.6.0		Xxx Yyy

5.2 Quality Assurance

No.	Date	Version	Approved by
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