SWIM-SERV-025 Service behaviour

- Requirement
- Guidance
  - Examples
- Guidance for JSON service description
  - Schema
  - Guidance
    - Interface - additional attribute
    - Behaviour - Mandatory
    - Behaviour document - Optional
  - Example

Requirement

Title	Service behaviour
Identifier	SWIM-SERV-025
Requirement	A service description **shall** include information on the behaviour of the service including: • the sequence of service operations; and • the handling of unexpected behaviour.
Rationale	This requirement facilitates the understanding of the service behaviour, including the sequencing of service operations to support operational processes, and the error handling.
Verification	Completeness: Verify that the behaviour information is included and covers the errors handling as well. Consistency: Verify that the names of the interfaces, service operations and exchanged information are consistent with the interface definitions. Correctness: Not Applicable.
Examples /Notes	Examples of behaviour specification: • The behaviour under normal conditions; • The behaviour with incorrect input data (e.g., out of range or incorrect data type); • The use of error messages, and error handling in general; • The list of error codes and expected effects. Note: The service behaviour can be captured in formal modelling notations such as a Unified Modeling Language (UML) sequence diagram, and/or expressed as textual description in plain language.
Level of Implementation	Mandatory

Guidance

Examples

See the Service behaviour section within the Donlon TOBT Setting Service Description.

Guidance for JSON service description

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Schema

The guidance concerns JSON Schema v0.0.3 (see Schema releases).

```
                "Interface" :
                {
                        "description" : "The means by which the underlying capabilities of a service are
accessed. [SWIM-SERV-016]",
```

```
                        "type": "object",
                        "additionalProperties": false,
                        "required": ["name", "description", "interfaceProvisionSide",
"tiPrimitiveMessageExchangePattern", "endPoint", "serviceInterfaceBinding", "networkInterfaceBinding",
"interfaceBindingDescription", "operation", "behaviour"],
                        "properties":
                        {
                                "behaviour":
                                {
                                        "description" : "The manner in which a service operates under
normal and unexpected conditions. [SWIM-SERV-025]",
                                        "type" : "array",
                                        "items" : { "$ref":"#/definitions/ServiceBehaviour" },
                                        "minItems": 1
                                },

                }


                "ServiceBehaviour" :
                {
                        "description" : "The manner in which a service operates under normal and
unexpected conditions. [SWIM-SERV-025]",
                        "type": "object",
                        "additionalProperties": false,
                        "required": ["name", "description"],
                        "properties":
                        {
                                "description":
                                {
                                        "description" : "The description of the service behaviour. [SWIM-
SERV-025]",
                                        "type" : "string",
                                        "minLength":1
                                },
                                "name":
                                {
                                        "description" : "The name of the service behaviour. [SWIM-SERV-
025]",
                                        "type" : "string",
                                        "minLength":1
                                }
                        }
                }


                        "serviceDocument":
                        {
                                "description" : "A document that relates to the information service.",
                                "type" : "array",
                                "items" : { "$ref":"#/definitions/Document" },
                                "minItems": 1
                        }


                "Document" :
                {
                        "description" : "A piece of written, printed, or electronic matter that provides
information or evidence or that serves as an official record.",
                        "type": "object",
                        "additionalProperties": false,

                        "properties":
                        {
                                "documentType":
                                {
                                        "description" : "The type of document.",
                                        "$ref" : "#/definitions/CodeDocumentType"
                                },
                                "title":
                                {
```

```
                                        "description" : "The name by which the document is formally
known. [SWIM-SERV-005;SWIM-SERV-010]",
                                        "type" : "string"
                                },
                                "version":
                                {
                                        "description" : "The current version or revision level of the
document.",
                                        "type" : "string"
                                },
                                "description":
                                {
                                        "description" : "The description of the document.",
                                        "type" : "string"
                                },
                                "reference":
                                {
                                        "description" : "An external reference at which the document can
be retrieved or consulted.",
                                        "type" : "string"
                                }
                        }
                }
```

Rules expressed for the cases as defined in Registry URD.

case	rules
COMPLIANT	mandatory
CANDIDATE	same
DEFINITION	same

Guidance

Additional attributes to Interface type as described in SWIM-SERV-016 Service interfaces.

In JSON the service behaviour is expressed per service interface.

This may be complemented by a service SERVICE_BEHAVIOUR_DESCRIPTION document.

tip

The service behaviour can be captured in formal modelling notations such as a Unified Modeling Language (UML) sequence diagram, and /or expressed as textual description in plain language.

In the latter case, whether for a model file or for a document with diagrams, use a SERVICE_BEHAVIOUR_DESCRIPTION document.

Interface - additional attribute

Additional attribute to Interface type as described in SWIM-SERV-016 Service interfaces.

service vs interface

In the Schema the service behaviour is **split** per interface.

- This is often ok, as the behaviour often concerns closely related operations in the same interface.
- When behaviour concern relate operations from various interfaces, feel free to describe it in one of the concerned interface.

Behaviour document

Service behaviour may be made available as a service document.

- This allows in particular to add (sequence) diagrams.

attribute name	description	type	guidance	rule
behaviour	The manner in which a service operates under normal and unexpected conditions.	Service Behaviour	Provide **one or more** behaviours. Rationale: This requirement facilitates the understanding of the service behaviour, including the sequencing of service operations to support operational processes, and the error handling. Note: The behaviour description may refer to a SERVICE_BEHAVIOUR_DESCRIPTION document.	Mandatory, minItems =1

Behaviour - Mandatory

It is mandatory to provide **one or more** service behaviour(s) for each interface.

Notes:

- Service behaviour often concerns closely related operations in the same interface. When service behaviour relate operations from different interfaces, feel free to describe it in one of the concerned interfaces.
- When service behaviour is made available in a document, make this clear in the behaviour.description of each interface

attribute name	description	type	guidance	rule
name	The name of the service behaviour.	string	Provide a short name for the behaviour	Mandatory
description	The description of the service behaviour.	string	Describe the behaviour as - the sequence of service operations; and - the handling of unexpected behaviour. And / or make reference to a SERVICE_BEHAVIOUR_DESCRIPTION document.	Mandatory

Behaviour document - Optional

Service behaviour may be provided as a document of type SERVICE_BEHAVIOUR_DESCRIPTION.

See Guidance on serviceDocument on how to fill in documents.

Example

behaviour without document

```
        "serviceInterface": [
            {

                        "behaviour": [
                    {
                        "name": "nominal behaviour",
                        "description": "Each operation of the interface can be called independently.\r\nThe
following diagram illustrates the interaction between the service consumer and the service"
                    }
            ]

                        }
        ]
```

behaviour with document

```
        "serviceInterface": [
            {

                        "behaviour": [
                    {
                        "name": "behaviour document",
                        "description": "The service behaviour is fully described in the
SERVICE_BEHAVIOUR_DESCRIPTION document"
                    }
                ]

                        }
        ]

        "serviceDocument": [
                {
                    "documentType": "SERVICE_BEHAVIOUR_DESCRIPTION "
                    "title": "Service Behaviour",
                    "version": "1.0",
                    "description": "",
                    "reference": "... ...",
                }
        ]
```

A complete JSON example is available in page JSON example - Donlon TOBT Setting service description.