SWIM-SERV-016 Service interfaces

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Requirement

Title	Service interfaces				
Identifier	SWIM-SERV-016				
Requirem ent	A service description shall list the service interfaces (provider side and consumer side interfaces), including for each service interface,				
	the name of the service interface;				
	 a textual description of the service interface including its purpose; an indication that the interface is a provider side interface or a consumer side interface; and 				
	for a provider side interface, the fully qualified network address at which the interface can be accessed.				
Rationale	This information facilitates the unambiguous identification of the interface, the understanding of its purpose, and the location to access it.				
Verification	Completeness: Verify that the list of interfaces is included; verify that the name, description and indication are included for each interface.				
	Consistency: For each provider side interface, verify that the network address is provided.				
	Correctness: Not Applicable.				
Examples /Notes	Note: To improve readability across service descriptions, it is best practice to apply following conventions for a service interface name (the appendix B "ISRM naming conventions" of the SESAR 1 Modelling Guidelines [RD 6] is a good source for naming conventions):				
	 be represented using UpperCamelCase; and use the <noun> <role> pattern where <noun> is a topic related to the service and <role> describes the roles in a composition /interaction sequence, based on the Message Exchange Pattern that is used.</role></noun></role></noun> 				
	Example service interface names: FlightPlanCoordinator, FlightPlanSubmitter, ForecastProvider, ForecastConsumer, ClearanceRequester, ClearanceManager, PreDepartureSequencer, FlightInformationPublisher, AlertListener.				
	Note: It is best practice to provide, in addition, the network address(es) for accessing the service instance(s) that can be used for testing and development purposes.				
Level of Implement ation	Mandatory				

Guidance

Examples

See the Interface Overview section and a specific Interface section within the Donlon TOBT Setting Service Description.

Guidance for JSON service description

Unable to render {include} The included page could not be found.

Schema

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

```
"InformationService" :
                        "description" : "A type of service that provides an ATM information sharing
capability.",
                        "type": "object",
                        "additionalProperties": false,
                        "required": ["descriptionInformation", "name", "version", "serviceAbstract",
"serviceProvision", "serviceCategorisation", "serviceGeneralDescription",
"serviceInformationDescription", "serviceTechnicalDescription", "serviceDescriptionReferences",
"serviceInterface"],
                        "properties":
                                "serviceInterface":
                                         "description" : "The means by which the underlying capabilities
of a service are accessed.",
                                        "type" : "array",
                                        "items" : { "$ref":"#/definitions/Interface" },
                                        "minItems": 1
                                },
                        }
                },
                "Interface" :
                        "description" : "The means by which the underlying capabilities of a service are
accessed. [SWIM-SERV-016]",
                        "type": "object",
                        "additionalProperties": false,
                        "required": ["name", "description", "interfaceProvisionSide",
"tiPrimitiveMessageExchangePattern", "endPoint", "serviceInterfaceBinding", "networkInterfaceBinding",
"interfaceBindingDescription", "operation", "behaviour"],
                        "properties":
                                "name":
                                {
                                        "description" : "The name of the interface. [SWIM-SERV-016]",
                                         "type" : "string",
                                        "minLength":1
                                },
                                "description":
                                        "description": "The description of the entity. [SWIM-SERV-016]",
                                        "type" : "string",
                                        "minLength":1
                                "interfaceProvisionSide":
                                        "description" : "An indication that the interface is a provider
side interface or a consumer side interface. [SWIM-SERV-016]",
                                        "$ref" : "#/definitions/CodeInterfaceSideType"
                                },
                                "endPoint":
                                        "description" : "Location at which information is received to
invoke and configure interaction. [SWIM-SERV-016]",
                                        "type" : "array",
                                        "items" : { "$ref":"#/definitions/EndPoint" },
                                        "minItems": 1
                                },
                        }
```

```
},
                "EndPoint" :
                        "description" : "Location at which information is received to invoke and
configure interaction.",
                        "type": "object",
                        "additionalProperties": false,
                        "required": ["address"],
                        "properties":
                                "name":
                                         "description" : "The name of the end point.",
                                        "type" : "string"
                                },
                                "description":
                                {
                                        "description" : "The description of the entity.",
                                         "type" : "string"
                                },
                                "address":
                                        "description" : "A network-visible identifier used to designate
specific endpoints in a network. [SWIM-SERV-016]",
                                        "type" : "string",
                                        "minLength":1
                                },
                                "addressableResource":
                                        "description" : "A resource that can be addressed through this
End Point.",
                                        "type" : "array",
                                         "items" : { "$ref":"#/definitions/Resource" },
                                        "minItems": 1
                                }
                       }
                },
                "Resource" :
                        "description" : "Anything that can have an identifier. Although resources in
general can be anything, SWIM is only concerned with those resources that are relevant to information
services and therefore have some additional characteristics. In particular, they incorporate the
concepts of ownership and control: a resource that appears in SWIM is a thing that has a name, may have
reasonable representations and which can be said to be owned. The ownership of a resource is critically
connected with the right to set policy on the resource.",
                        "type": "object",
                        "additionalProperties": false,
                        "required": ["name", "description"],
                        "properties":
                                "type":
                                        "description" : "The type of resource.",
                                        "$ref" : "#/definitions/CodeTechnicalResourceType"
                                },
                                "name":
                                        "description" : "The name of the resource.",
                                        "type" : "string",
                                        "minLength":1
                                },
                                "description":
                                        "description" : "The description of the resource.",
                                        "type" : "string",
                                        "minLength":1
                                }
```

Rules expressed for the cases as defined in Registry URD.

case	rules
COMPLIANT	mandatory
CANDIDATE	same
DEFINITION	same

Guidance

Within field serviceInterface, itself within field informationService, list one or more occurrences of type Interface.



(i) List all interfaces: provider side and consumer side interfaces



interface attributes

This requirement addresses many Interface attributes, but not all. The following requirements also involve Interface attributes

requirement	Interface attributes
SWIM-SERV-018 TI Profile and bindings	service Interface Binding, network Interface Binding, interface Binding Description
SWIM-SERV-019 Protocols and data format	interfaceBindingDescription
SWIM-SERV-021 Service operations	operation
SWIM-SERV-025 Service behaviour	behaviour

See example below

Interface - Mandatory

The means by which the underlying capabilities of a service are accessed.

Rationale: This information facilitates the unambiguous identification of the interface, the understanding of its purpose, and the location to access it.

description	type	guidance	rule		
The name of the interface.	string	Provide the actual name of the interface	Mandat ory		
The description of the entity.	string	Provide a textual description of the service interface including its purpose.	Mandat ory		
An indication that the interface is a			An indication that the interface is a provider side interface or a consumer side interface	Select the appropriate value.	Mandat ory
provider side interface or a	PROVIDER_SIDE_INTERFACE An interface provided by the service provider.		,		
consumer side interface.	CONS	CONSUMER_SIDE_INTERFACE An interface provided by the service consumer.			
	The name of the interface. The description of the entity. An indication that the interface is a provider side interface or a consumer side	The name of the interface. The description of the entity. An indication that the interface is a provider side interface or a consumer side interface by the service provider. PROVIDER_SIDE_INTERFACE An interface provided by the service consumer.	The name of the interface. The description of the entity. The description of the entity. The description of the interface or a consumer side interface or a consumer side on side of the interface is a provider side interface or a consumer side on side of the interface interface or a consumer side on interface or a consumer side or a consume		

tiPrimitive MessageExc hangePattern	The type of primitive MEP implemented by the interface.	itive MEP		a a contract of the contract of the	Manda ory
			A primitive MEP consisting of a message being sent from one infrastructure service to another.	Rationale: makes explicit the MEP used by the operations within this interface.	
		SYNCH RONO US_RE QUEST _RESP ONSE	A primitive MEP consisting of 1) a message (request) being sent from a consumer infrastructure service to a provider infrastructure service, 2) the consumer infrastructure service remaining blocked awaiting for a response and the provider infrastructure service remaining blocked processing the response and 3) a message (response) being sent from the provider infrastructure service to the consumer infrastructure service.		
endPoint	Location at which information is received to invoke and configure interaction.	EndPoint		Provide one or more end points. Provide the end point to be used for operational purpose. It is best practice to provide, in addition, the endpoint that can be used for testing and development purposes.	Mandar ory, minIte ms=1

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EndPoint - Mandatory

Location at which information is received to invoke and configure interaction.

Rationale: This information facilitates the the understanding of the location to access the interface.

attribute name	description	type	guidance	rule
name	The name of the end point.	string	Provide a concise name that makes clear the usage of the end-point. Example: "Operational", "Pre-operational evaluation".	Manda tory
description	The description of the entity.	string	If useful, provide additional information on the end-point, such as usage, accessibility, etc.	Option al
address	A network-visible identifier used to designate specific endpoints in a network.	string	Provide the fully qualified network address at which the interface can be accessed	Manda tory
addressable Resource	A resource that can be addressed through this End Point. Resour ce Resour ce Resour ce Consider providing zero or more additional information to describe the resource that available at the endpoint for the consumer to better understand the connection and the endpoint. • E.g. An endpoint that provides a QUEUE as a resource, can be further describ behaviour e.g. FIFO, LIFO. • E.g. An endpoint that provides a REST-RESOURCE indicates the architecture and the fact that the endpoint can have multiple resources it enables to list all the provides and the fact that the endpoint can have multiple resources it enables to list all the provides and the fact that the endpoint can have multiple resources it enables to list all the provides and the fact that the endpoint can have multiple resources it enables to list all the provides and the fact that the endpoint can have multiple resources it enables to list all the provides and the fact that the endpoint can have multiple resources it enables to list all the provides and the fact that the endpoint can have multiple resources it enables to list all the provides and the fact that the endpoint can have multiple resources it enables to list all the provides and the fact that the endpoint can have multiple resources it enables to list all the provides and the fact that the endpoint can have multiple resources it enables to list all the provides and the fact that the endpoint can have multiple resources it enables to list all the provides and the fact that the endpoint can have multiple resources it enables to list all the provides and the fact that the endpoint can have multiple resources it enables to list all the provides and the fact that the endpoint can have multiple resources it enables to list all the provides and the fact that the endpoint can have multiple resources it enables to list all the provides and the fact that the endpoint can have multiple resources it enables the provides and the provi		 E.g. An endpoint that provides a QUEUE as a resource, can be further described to explain its behaviour e.g. FIFO, LIFO. E.g. An endpoint that provides a REST-RESOURCE indicates the architecture of the service, and the fact that the endpoint can have multiple resources it enables to list all the REST resources available under an endpoint for which all operations of the interface apply (typical of 	Option al

Resource - Optional

Consider providing additional information to describe the resource that is made available at the endpoint for the consumer to better understand the connection and exchanges with the endpoint.

Although resources in general can be anything, SWIM is only concerned with those resources that are relevant to information services and therefore have some additional characteristics. In particular, they incorporate the concepts of ownership and control: a resource that appears in SWIM is a thing that has a name, may have reasonable representations and which can be said to be owned. The ownership of a resource is critically connected with the right to set policy on the resource.

- E.g. An endpoint that provides a QUEUE as a resource, can be further described to explain its behaviour e.g. FIFO, LIFO,.
- E.g. An endpoint that provides a REST-RESOURCE indicates the architecture of the service, and the fact that the endpoint can have multiple resources it enables to list all the REST resources available under an endpoint for which all operations of the interface apply (typical of REST architecture)

attribute name	description	type		guidance	
type	The type of resource.			Select the applicable value, if any. Rationale: Indicates the type of the resource: QUEUE,	Option al
		QUEUE	A staging area that contains messages that have been sent and are waiting to be read.	TOPIC,	
		REST_RESO URCE			
		SERVICE_RE QUEST_LIST ENER			
		TOPIC			
name	The name of the resource.	string		Provide a self descriptive name	Manda tory
description	The description of the resource.	string		Consider providing additional information that enables to understand the resource (E.g. For QUEUE the behavior FIFO)	Option al

Example

```
"informationService": {
                "serviceInterface": [
                                "name": "TOBTSettingReceiver",
                                "description": "The interface allows setting or deleting the TOBT of the
specified flight.",
                                "interfaceProvisionSide": "PROVIDER_SIDE_INTERFACE",
                                "tiPrimitiveMessageExchangePattern": "SYNCHRONOUS_REQUEST_RESPONSE",
                                "serviceInterfaceBinding": "...",
                                "networkInterfaceBinding": "...",
                                "interfaceBindingDescription": "...",
                                "endPoint": [
                                                 "name": "Production Service Endpoint",
                                                 "description": "The service is available for consumption for
operational usage at this endpoint",
                                                 "address": "http://www.swim.donlon-airport.com/swim-ops
/gateway",
                                                 "addressableResource": [
                                                        {
                                                                 "name": "Request Handler",
                                                                 "description": "At this endpoint a resource
is available to handle service requests",
                                                                 "type": "SERVICE_REQUEST_LISTENER"
                                                        }
                                                ]
                                                 "name": "pre-operational evaluation",
                                                 "description": "",
                                                 "address": "http://www.swim.donlon-airport.com/swim-pre-ops
/gateway"
                                ],
                                "operation": [...],
                                "behaviour": [...]
                        }
                ]
    }
```