

Guidance starting from the schema

Guidance starting from the schema structure

Object under assessment

[Service Metadata Schema](#), as used by the SWIM Registry application for uploading / downloading Registry Entries.

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Legend

Rows	
	each row represents an attribute or a type of the schema
	attributes are in white background
	types are in light blue background
	the rows are in "logical" order for types and attributes, in order to facilitate the walk through
	this order could become standard practice for JSON service descriptions
Columns	1st = row number
	1/ derived from the schema
	col = name of the type
	col = name of the attribute (or "---" when not an attribute)
	col = description of the element (type or attribute)
	col = type of the attribute (or "---" when not an attribute)
	2/ "guidance"
	col = trace and link to the requirement(s)
	col = guideline to help in using this type / attribute
	3/ "rule"
	col = rule for COMPLIANT case
	col L = rule for CANDIDATE case
	col M = rule for DEFINITION case
	"same" means the compliant rule applies

Schema elements

Lists all elements (attributes and types). Except for the enumerated values which are in [Code Lists walk-through](#) or in related requirement.

1	Element Name	Attribute Name	Description	Attribute Type	Requirement info	Guideline	COMP Rule	CAND rule	DEFN Rule
2	---	information Service	The description of a service.[SWIM-SERV-001]	InformationService	SWIM-SERV-001 Description coverage	Rationale: The readability of a service description is improved by keeping it focussed on one service.	Mandatory	same	same

3	InformationService	---	A type of service that provides an ATM information sharing capability.	---	SWIM-SERV-001 Description coverage	Guidance: Describe here your prospective service, operational service or service definition.	(M)	same	same
4	InformationService	descriptionInformation	A container for Service Description metadata.	DescriptionInformation	multiple	Note: This information is about the document more than the underlying service.	Mandatory	same	same
5	InformationService	name	A piece of identifying information that gives stakeholders a way to reference or identify a service. [SWIM-SERV-006]	string	SWIM-SERV-006 Service identification	The name of the information service providing consumers the ability to reference or identify an information service through a name that gives an indication of the purpose of the information service. Guidance: Include only the name of the service.	Mandatory, minLength=1	same	same
6	InformationService	version	The version of the information service. [SWIM-SERV-006]	string	SWIM-SERV-006 Service identification	Structured description of the information service version; enabling consumers to distinguish between releases of the service. Guidance: An indicator of version is always provided regardless of whether or not there are multiple versions of a service. Each version of a service shall have its own completed description.	Mandatory, minLength=1	same	same
7	InformationService	serviceAbstract	A brief summary of the service offering. [SWIM-SERV-007]	string	SWIM-SERV-007 Service abstract	<p>Rationale: This information supports the decisions on whether the described service is suitable for use in a particular situation.</p> <p>Guidance: Include or introduce:</p> <ul style="list-style-type: none"> the operational need being addressed by the service the intended use of the service the intended consumer audience for the service the geographical extent <p>For a new version of a service, consider mentioning the service's first date of operation. Eg "XXX service is in operation since yyyy-mm-dd".</p>	Mandatory, minLength=5	same	same
8	InformationService	serviceProvider	A container for information about who provides the service, when and how it is supported.	ServiceProvider	SWIM-SERV-008 Service provider	<p>Rationale: Knowing the service provider is essential to business experts.</p> <p>Rationale: Point of contact allows getting additional information regarding the service.</p>	Mandatory	same	Optional if providerType moved outside
9	InformationService	serviceCategorisation	A taxonomy used to classify a service by the type of service provided or by some other technological or architectural solution. [SWIM-SERV-009]	ServiceCategorisation	SWIM-SERV-009 Service categories SWIM-REG-0004 Service categorization	Rationale: Service category information allows discovering services by a series of classification criteria.	Mandatory	same	same
10	InformationService	serviceGeneralDescription	A container for information about what the service provides, its purpose and under which conditions and quality levels it is provided.	ServiceGeneralDescription	multiple		Mandatory	same	same
11	InformationService	serviceInformationDescription	A container for the description of the information exchanged by the information service.	ServiceInformationDescription	multiple	Rationale: Provide a description of the information /data that is exchanged by the service.	Mandatory	Mandatory	Mandatory
12	InformationService	serviceTechnicalDescription	A container for information about the security mechanisms, technical constraints and monitoring of the information service.	ServiceTechnicalDescription	multiple	Note: the attribute is mandatory, so that authors consider the underlying Mandatory Conditional information.	Mandatory		
13	InformationService	serviceInterface	The means by which the underlying capabilities of a service are accessed.	Interface	multiple	<p>Guidance: Describe one or more interfaces.</p> <p>Provide all interfaces; provide r side and consumer side interfaces.</p>	Mandatory, minItems=1		
14	InformationService	serviceDescriptionReferences	A container for references to documents describing specific aspects of the service instance.	ServiceDescriptionReferences	multiple		Mandatory		

15	DescriptionInformation	---	Information identifying the service description.	---	multiple	Note: This groups information specific to the service description, and not about the underlying service.	(M)	same	same
16	DescriptionInformation	serviceDescriptionIdentification	Information identifying the service description.	ServiceDescription	SWIM-SERV-005 Description identification		Mandatory	same	same
17	DescriptionInformation	abbreviations	Abbreviations or acronyms used by the service description.	Abbreviation	SWIM-SERV-003 Define abbreviations	Guidance: Define all abbreviations and acronyms used in the description. Unless they are systematically made explicit, such as in "IFR (Instrument Flight Rules)".	Mandatory , minItems=0	same	same
18	ServiceDescription	---	Information needed in order to use, or consider using, a service.	---	SWIM-SERV-005 Description identification	Rationale: supports the identification and citation of a service description.	(M)	same	same
19	ServiceDescription	serviceDescriptionTitle	The name by which the document is formally known. [SWIM-SERV-005;SWIM-SERV-010]	string	SWIM-SERV-005 Description identification		Mandatory , minLength=5	same	same
20	ServiceDescription	serviceDescriptionEdition	Manifestations of a publication embodying essentially the same content. [SWIM-SERV-005]	string	SWIM-SERV-005 Description identification	Note: The edition of the service description is not to be confused with the version of the service. A service description can evolve to a new edition while still describing the same service version.	Mandatory , minLength=1	same	same
21	ServiceDescription	serviceDescriptionReferenceDate	The date at which the document has been published. [SWIM-SERV-005]	string	SWIM-SERV-005 Description identification		Mandatory , format is "yyyy-mm-dd"	same	same
22	Abbreviation	---	An abbreviation or acronym used by the service description. [SWIM-SERV-003]	---	SWIM-SERV-003 Define abbreviations	Guidance: Be in accordance with the AIRM abbreviation list. It is allowed to use abbreviations/acronyms not defined in AIRM abbreviation list. However, when using one of those, their definitions must be the same.	(M)	same	same
23	Abbreviation	name	The name of the abbreviation. [SWIM-SERV-003]	string	SWIM-SERV-003 Define abbreviations	The abbreviated form eg "IFR". Verification: Check if the abbreviation exists in AIRM, verify the term is the same.	Mandatory , minLength=1	same	same
24	Abbreviation	description	The description of the abbreviation.	string	SWIM-SERV-003 Define abbreviations	The term in full length eg "Instrument Flight Rules". Verification: Check if the term exists in AIRM and is abbreviated, verify the abbreviation is the same.	Mandatory , minLength=5	same	same
25	ServiceProvider	---	Description of who provides the service, when and how it is supported.	---	SWIM-SERV-008 Service provider		(M)		
26	ServiceProvider	provider	The full official name of the organisation. [SWIM-SERV-008]	string	SWIM-SERV-008 Service provider	Rationale: Knowing the service provider is essential to business experts.	Mandatory , minLength=1		
27	ServiceProvider	providerDescription	Description of the organisational unit responsible for the service. [SWIM-SERV-008]	string	SWIM-SERV-008 Service provider	Guidance: Provide a small description of the organisation and/or the unit responsible for the service Consider including information on provider certification when relevant for the service being described (e.g. for a Meteorological service).	Mandatory , minLength=5		
28	ServiceProvider	providerType	The type of service provider.	CodeStakeholderType	SWIM-SERV-009 Service categories		Mandatory , minItems=1		
29	ServiceProvider	dateInOperation	Date at which the service went into operation or is planned to become operational.	string	SvcOvw	Provide the date at which this service version became operational. Note: The date at which the service became operational for the first time may be mentioned in the service abstract.	Mandatory , format is "yyyy-mm-dd"		

30	ServiceProvision	serviceSupport	Provision of material and guidance necessary for the use of the information service.	string	SvcOvw	Specify days and hours the information service provider can be contacted by users requiring support for the provided service. Rationale: A description of the support a provider is offering to consumers on all relevant aspects related to the information service. Rationale: Consumer needs will vary and may require different levels of provider support.	Optional		same
31	ServiceProvision	pointOfContact	A person or group within the service provider organization, suitable for making a human contact for any purpose. [SWIM-SERV-008]	PointOfContact	SWIM-SERV-008 Service provider	Provide one or more points of contact where additional information can be obtained, including name, contact information and role.	Mandatory , minItems=1		
32	PointOfContact	---	A person or group within an organization, suitable for making a human contact for any purpose. [SWIM-SERV-008]	---	SWIM-SERV-008 Service provider	Guidance: At least one contact information is required. Example contact information: email address; postal address; phone number; URL. Example points of contact: "Customer Relations, to request access to the service, http://www.donlon-airport.com/swim/service-request "; "Service Desk, to report incidents on services in operation, contact [24/7] +693 555 01 service-desk@donlon-airport.com ".	(M)		
33	PointOfContact	name	The name of the point of contact.	string	SWIM-SERV-008 Service provider		Mandatory , minLength=1		
34	PointOfContact	description	The description of the point of contact.	string	SWIM-SERV-008 Service provider	Describe the role / function of the point of contact. When applicable add contact info such as URL link or postal address.	Mandatory , minLength=5		
35	PointOfContact	email	An electronic mail address used to correspond in writing with the point of contact.	string	SWIM-SERV-008 Service provider	Guidance: At least one contact information is required.	Optional		
36	PointOfContact	phoneNumber	A telephone number used to communicate orally with the point of contact.	string	SWIM-SERV-008 Service provider	Guidance: At least one contact information is required.	Optional		
37	ServiceCategorisation	---	A taxonomy used to classify a service by the type of service provided or by some other technological or architectural solution. [SWIM-SERV-009]	---	SWIM-SERV-009 Service categories	Rationale: Service category information allows discovering services by a series of classification criteria.	(M)	same	same
38	ServiceCategorisation	serviceType	An indication of the status of the service with regard to SWIM Service conformance.	CodeSWIMServiceConformanceStatusType	SWIM-REG-0004 Service categorization	Guidance: Select a code as indicated in Code Lists walk-through .	Mandatory , value=SWIM_COMPLIANT	same, value=SWIM_CANDIDATE	same, value=DEFINITION
39	ServiceCategorisation	lifeCycleStage	A classification of services based on their current, past, or future availability for provisioning. [SWIM-SERV-009]	CodeLifeCycleStepType	SWIM-REG-0004 Service categorization	This is the life-cycle stage of a service instance. Use OPERATIONAL if already operational, either use PROSPECTIVE. Don't put any value for a DEFN.	Mandatory , value=OPERATIONAL		(absent)
40	ServiceCategorisation	businessActivityType	The type of business activity.	CodeBusinessActivityType	SWIM-REG-0004 Service categorization	Select one or more code values	Mandatory , minItems=1		
41	ServiceCategorisation	intendedConsumer	The types of service consumers that this service is intended to serve.	CodeStakeholderType	SWIM-REG-0004 Service categorization	Select one or more code values Note: list the "intended" consumer audience from your point of view. This does not mean that consumers outside that list wouldn't benefit from the service.	Mandatory , minItems=1		
42	ServiceCategorisation	informationCategory	TBD	CodeInformationExchangeCategory	SWIM-SERV-009 Service categories	Select one or more code values	Mandatory , minItems=1		

43	ServiceCategorisation	applicationMessageExchangePattern	The type of Application MEP. [SWIM-SERV-017]	CodeApplicationMessageExchangePatternType	SWIM-SERV-017 Message exchange pattern	<p>Select one or more code values.</p> <p>Message exchange pattern at application level. Typical values are: Request/Reply (synchronous or asynchronous); Publish/Subscribe (Push or Pull); One Way. See as well doc xxx (see handbook).</p>	Mandatory , minItems=1		
44	ServiceCategorisation	geospatialCategorisation	The geographic coverage of the information provided by the service. [SWIM-SERV-009]	GeographicalExtent	SWIM-REG-0004 Service categorization	<p>Rationale: Allow consumer to understand and search on the geographical coverage of the service.</p> <p>Guidance: Consider summarising it in the service abstract as well.</p>	Optional		
45	GeographicalExtent	---	The geographic coverage of the information provided by the service.	---	SWIM-REG-0004 Service categorization SERV-OVW-008 Geographical extent	<p>Guidance: Geographical coverage may be expressed in terms of ICAO state, FIR, Aerodrome.</p> <p>Rationale: Allow consumer to understand the geographical coverage of the service.</p>	(O)	same	same
46	GeographicalExtent	stateICAONationalityLetters	Nationality letters of a State as defined by ICAO. [SWIM-SERV-009]	string	SWIM-REG-0004 Service categorization	List zero or more code values. Applicable values are in ICAO doc 7910.	Optional	same	same
47	GeographicalExtent	firICAOLocationIndicator	A four-letter code group formulated in accordance with rules prescribed by ICAO and assigned to the airspace. [SWIM-SERV-009]	string	SWIM-REG-0004 Service categorization	List zero or more code values. Applicable values are in ICAO doc 7030.	Optional	same	same
48	GeographicalExtent	aerodromeICAOLocationIndicator	A four-letter code group formulated in accordance with rules prescribed by ICAO and assigned to the aerodrome. [SWIM-SERV-009]	string	SWIM-REG-0004 Service categorization	List zero or more code values. Applicable values are in ICAO doc 7910.	Optional	same	same
49	ServiceGeneralDescription	---	Description of the service in terms of what it provides, the purpose and under which conditions and quality levels the service is provided.	---	multiple		(M)	same	same
50	ServiceGeneralDescription	operationalNeed	The operational need fulfilled by the service [SWIM-SERV-011]	OperationalNeed	SWIM-SERV-011 Operational needs	<p>List the operational needs such as operational context and requirements that are at the origin of the service.</p> <p>Rationale: Operational needs relate to the operational context in which the service is used. IERs reference the requirements that are at the origin of the service. This information supports decision making in terms of service suitability within a particular operational context.</p>	Mandatory , minItems=1	same	same
51	ServiceGeneralDescription	functionality	A type of activity describing the functionality of a service. [SWIM-SERV-012]	Functionality	SWIM-SERV-012 Service functionality	<p>Express the functionality offered by the service as a list of service functions.</p> <p>Rationale: The functions provide business and operational experts with a business view of the interactions with the service, without having to look at the interface details.</p>	Mandatory , minItems=1	same	same
52	ServiceGeneralDescription	accessAndUseCondition	A condition which applies to accessing and using the service, such as legal constraint, service policies, service consumption constraints and security constraints. [SWIM-SERV-013]	AccessAndUseCondition	SWIM-SERV-013 Access and use conditions	<p>List the conditions that apply to access or use the service.</p> <p>Rationale: This requirement ensures that a service consumer is aware of any limitations on the access and use of the service. It is good practice to share business constraint information associated with the conditions of usage of the service.</p>	Mandatory , minItems=1		

53	ServiceGeneralDescription	qualityOfService	The degree or level of confidence that the performance of a service meets users requirements. [SWIM-SERV-014]	QualityOfService	SWIM-SERV-014 Quality of service	<p>Guidance: Include at least statements on the quality of service offered with regards to availability, response time and throughput of the service.</p> <p>Rationale: This is a key criterion in deciding to use the service. This is key information to be included in a service level agreement and will influence the content of the SLA. It informs contract negotiations between consumers and providers.</p>	Mandatory , minItems=3		
54	ServiceGeneralDescription	concepts	Optional information intended for a good understanding of the service. This may cover design concepts related to the service, logical model, design considerations, or any other information not pertaining to the other fields.	Concept	SWIM-SERV-ADD Additional info SWIM-SERV-024 Filter capabilities SERV-OVW-008 Geographical extent SERV-OVW-017 Sources of information	<p>List additional information deemed useful for a good use of the service.</p> <p>Use as well for pre-defined uses such as, for instance, Filter capabilities or Sources of information.</p> <p>The Concept type covers some predefined uses as well. Each predefined use is related to a requirement, and proposes a value for the "name" field (which would allow automatic processing).</p>	Optional, minItems=0	same	same
55	ServiceGeneralDescription	validation	Activity whereby a service is checked for conformance with the service objectives and requirements. [SWIM-SERV-027]	ValidationOfService	SWIM-SERV-027 Service validation	List one or more validation activities.	Mandatory , minItems=1	Optional	
56	Operational Need	---	A statement of the operational attributes of a system needed for the effective and/or efficient provision of air traffic services to users. [SWIM-SERV-011]	---	SWIM-SERV-011 Operational needs	<p>This requirement supports decision making in terms of service suitability within a particular operational context.</p> <p>Guidance:</p> <ul style="list-style-type: none"> include information about the operational needs fulfilled by the service; indicate whether information exchange requirements (IER) were used in the identification of the needs for the service; and if so include or refer to the information exchange requirements (IER). indicate relationship to PCP and/or SESAR Deployment Plan <p>Rationale: Operational needs relate to the operational context in which the service is used. IERs reference the requirements that are at the origin of the service.</p>	(M)	same	same
57	Operational Need	name	The name of the operational requirement.	string	SWIM-SERV-011 Operational needs	Guidance: provide a short name for the operational need	Mandatory , minLength=1	same	same
58	Operational Need	description	Description of the operational needs fulfilled by the service. Includes or refers to information exchange requirements [SWIM-SERV-011].	string	SWIM-SERV-011 Operational needs	<p>Describe the operational context of the service. And make reference to the ConOps, OSED or other applicable reference document where additional information on the operational concept can be found.</p> <p>Make explicit the needs addressed by the service.</p> <p>List the requirements at the origin of the service (eg IERs).</p>	Mandatory , minLength=5	same	same

59	Functionality	---	A type of activity describing the functionality of a service.	---	SWIM-SERV-012 Service functionality		(M)	same	same
60	Functionality	name	The name of the service function.	string	SWIM-SERV-012 Service functionality	Provide a short name for the service function	Mandatory , minLength =1	same	same
61	Functionality	description	Description of the service function. [SWIM-SERV-012]	string	SWIM-SERV-012 Service functionality	Describe here the service function. Note: A function is a type of activity describing the functionality of a service. Every function usually (but not always) can be mapped to service operations defined as a part of the service's interface; i.e., functions provide a "business view" and service operations provide a "technical view" of a particular service activity.	Mandatory , minLength =5	same	same
62	Functionality	realWorldEffect	An ultimate purpose associated with the interaction with the service. It may be the response to a request for information or the change in the state of some entities shared between the participants in the interaction. [SWIM-SERV-012]	string	SWIM-SERV-012 Service functionality	Describe here the real-world-effect, if any. Note: A real world effect is an ultimate purpose associated with the interaction with the service. It may be the response to a request for information or the change in the state of some entities shared between the participants in the interaction.	Mandatory , minLength =0	same	same
63	AccessAndUseCondition	---	A condition which applies to accessing and using the service, such as legal constraint, service policies, service consumption constraints and security constraints. [SWIM-SERV-011]	---	SWIM-SERV-013 Access and use conditions		(M)		
64	AccessAndUseCondition	type	The type of service access or use condition. [SWIM-SERV-013]	CodeAccessAndUseConditionType	SWIM-SERV-013 Access and use conditions	Select the code value indicating the type of condition: LEGAL CONSTRAINT , SERVICE POLICY, SERVICE CONSUMPTION CONSTRAINT, SECURITY CONSTRAINT, OTHER.	Mandatory		
65	AccessAndUseCondition	name	The name of the condition.	string	SWIM-SERV-013 Access and use conditions	Provide a short name for the condition.	Mandatory , minLength =1		
66	AccessAndUseCondition	description	Description of the conditions that influence accessing and using the service, such as legal constraint; service policies; service consumption constraints (SWIM-SERV-013). Concrete access control and other security mechanisms are described in the technical section of the form.	string	SWIM-SERV-013 Access and use conditions	Describe the conditions which apply to accessing and using the service, so that the consumer is aware of any limitations on the access and use of the service. Note: the SD spec includes examples of such conditions. Note: Concrete access control and other security mechanisms are described in the technical section of the form (see SecurityMechanism)	Mandatory , minLength =5		
67	QualityOfService	---	The degree or level of confidence that the performance of a service meets users requirements.	---	SWIM-SERV-014 Quality of service		(M)		
68	QualityOfService	name	The name of the quality of service. [SWIM-SERV-014]	string	SWIM-SERV-014 Quality of service	Provide a clear and concise name for the quality of service, such as "Availability", "Response time", "Throughput". Consider as well describing less quantitative aspects such as "Integrity", "Confidentiality" and other service related qualities defined in ISO 25010	Mandatory , minLength =1		

69	QualityOfService	description	Description of the quality of service offered with regards to: 1) availability of the service; 2) response time of the service; and 3) throughput of the service (SWIM-SERV-014). It also describes less quantitative aspects such as 4) integrity, 5) confidentiality and possibly any other service related qualities defined in ISO 25010	string	SWIM-SERV-014 Quality of service	See Notes / Examples of the requirement.	Mandatory , minLength =5		
70	Concept	---	Optional information intended for a good understanding of the service. This may cover design concepts related to the service, logical model, design considerations, or any other information not pertaining to the other fields.	---	SWIM-SERV-ADD Additional info SWIM-SERV-024 Filter capabilities SERV-OVW-008 Geographical extent SERV-OVW-017 Sources of information	<p>Include useful information that could not fit nicely in another section.</p> <p>Use as well to cope with shortcomings of the schema. Eg Filter capabilities.</p> <p>Rationale: The requirements prescribe the minimum set of elements to be contained by a service description. Additional information useful for a good use of the service should be made available.</p>	(O)	same	same
71	Concept	name	The name of the concept.	string	SWIM-SERV-ADD Additional info	<p>Guidance: Define a name that makes clear what the description is about.</p> <p>For -predefine use, use the name as defined below precisely (which would allow automatic processing):</p> <ul style="list-style-type: none"> • SWIM-SERV-024 Filter capabilities "Filter capabilities" • SERV-OVW-008 Geographical extent "Geographical extent" • SERV-OVW-017 Sources of information "Sources of information" 	Mandatory , minLength =1		
72	Concept	description	Description of the concept.	string	SWIM-SERV-ADD Additional info	Provide the description.	Mandatory , minLength =5		
73	ValidationOfService	---	An activity whereby a service is checked for conformance with the service objectives and requirements. Note: the service objectives and requirements are captured in the service overview and the technical specifications. [SWIM-SERV-027]	---	SWIM-SERV-027 Service validation	<p>Indicate whether a validation of the service has been performed; and if so, the method used; and the results achieved.</p> <p>Rationale: User needs to know how the information service was validated in order to have confidence in the service.</p>	(M)		
74	ValidationOfService	type	The type of service validation. [SWIM-SERV-027]	CodeServiceValidationType	SvcOvw SWIM-SERV-027 Service validation	<p>Select the code value corresponding to the validation method used, (User Validated, Self-Validation, Collaborative, or Independent)</p> <p>Note: Is mandatory except for the case not validated.</p>	Optional		

75	ValidationOf Service	description	The description of the service validation. [SWIM-SERV-027]	string	SWIM-SERV-027 Service validation	<p>Include a brief statement on the validation results, and if /how the potential consumers may obtain the validation evidence.</p> <p>Example: This information service has undergone extensive testing prior to deployment by the information service provider "LMN", infrastructure service provider "ABC", and regulator "XYZ" to ensure that specific QoS standards are met. Operational monitoring by the information service provider is in place and the information service continues to meet all QoS requirements. For more information on this organization's validation policies please see <URL>. Specific information regarding the validation by the regulator is available in a validation report upon request.</p>	Mandatory		
76	ServiceInformationDescription	---	A container for the description of the information exchanged by the information service.	---	multiple	<p>Rationale: Provide a description of the information /data that is exchanged by the service.</p> <p>Guidance: SWIM-SERV-022 Information definition requires a description of the elements of the exchanged information. This is provided here. It can be provided by reference and can make use of a published information exchange model. Therefore, use the option best suited to your service.</p>	(M)	(M)	(M)
77	ServiceInformationDescription	informationDefinition	A formal representation of information concepts or data concepts. [SWIM-SERV-022]	InformationDefinition	SWIM-SERV-022 Information definition	Rationale: Enables to understand the information provided by the service, with a specific focus to the semantics of the information	Mandatory , minItems=1	Mandatory	Mandatory
78	ServiceInformationDescription	exchangeSchema	Formal description of the data involved in an information exchange.	ExchangeSchema	SWIM-SERV-019 Protocols and data format	List the data formats used.	Mandatory , minItems=1	Optional	Optional
79	InformationDefinition	---	A formal representation of information concepts or data concepts. [SWIM-SERV-022]	---	SWIM-SERV-022 Information definition	Rationale: Enables to understand the information provided by the service, with a specific focus to the semantics of the information	(M)	(M)	(M)
80	InformationDefinition	name	The name of the Information Definition. [SWIM-SERV-022]	string	SWIM-SERV-022 Information definition	Guidance: Provide a name that indicates which part of all the information exchanged by the service is going to be described. In the absence of multiple parts a generic name can be provides e.g. Information Definition	Mandatory , minLength=1	Mandatory	Mandatory
81	InformationDefinition	description	The description of the Information Definition. [SWIM-SERV-022]	string	SWIM-SERV-022 Information definition	<p>Guidance: introduce this information definition. Eg use the information definition abstract SWIM-INFO-005 Information definition scope.</p> <p>Guidance: Make sure to have one or several service documents with type INFORMATION_DEFINITION. See Guidance on serviceDocument.</p>	Mandatory , minLength=5	Optional	Optional
82	InformationDefinition	airmConformant	An indication whether the information definition used by the service conforms to the ATM Information Reference Model. [SWIM-SERV-023]	boolean	SWIM-SERV-023 AIRM conformance	Guidance: Indicate whether the service payload has semantic correspondence with the AIRM.	Mandatory	Mandatory	Mandatory

83	InformationDefinition	airmVersion	The applicable version of the ATM Information Reference Model. [SWIM-SERV-023]	string	SWIM-SERV-023 AIRM conformance	<p>Rule: Mandatory when airmConformant is true. No use otherwise.</p> <p>Guidance: Version of the AIRM that was used to establish semantic correspondence.</p> <p>Whether stand-alone or integrated, make sure the semantic correspondence is made available in a service document with type INFORMATION_DEFINITION.</p>	Conditional Mandatory	Optional	same
84	ExchangeSchema	---	Formal description of the data involved in an information exchange.	---	SWIM-SERV-019 Protocols and data format	Rationale: Enables to understand data format(s).	(M)	(M)	(O)
85	ExchangeSchema	name	The name of the exchange schema. [SWIM-SERV-019]	string	SWIM-SERV-019 Protocols and data format	Guidance: Provide the name of the data format that is used to exchange data via the service interface.	Mandatory	Mandatory	Mandatory
86	ExchangeSchema	schemaLanguage	Description of the language used (e.g. XML, JSON). [SWIM-SERV-019]	string	SWIM-SERV-019 Protocols and data format	Guidance: Indicate the language in which the data format is expressed (e.g. XSD, JSON, natural language,...)	Mandatory	Optional	Optional
87	ExchangeSchema	reference	A reference to the exchange schema containing the specifications of the data structures.	string	SWIM-SERV-019 Protocols and data format	Guidance: Indicate with a reference the location of where the data format is defined (e.g. See service documents)	Optional	Optional	Optional
88	ServiceTechnicalDescription	---	Description of the technical aspects of the service including data structures, interface and operations behaviour, security mechanisms and technical constraints	---	multiple	Note: It may be possible that this results in an empty object.	(M)		
89	ServiceTechnicalDescription	technicalConstraint	A characteristic of the environment or larger system within which the service operates. [SWIM-SERV-015]	TechnicalConstraint	SWIM-SERV-015 Technical constraint	<p>Rationale: Knowing and satisfying the pre-requisite constraints of a service facilitate good use of the service, such as benefiting from the indicated quality of service statements. It also supports decision making in terms of assessing the implication, costs and feasibility, of using the service.</p> <p>Guidance: When technical constraints exist, it is mandatory to describe them.</p> <p>Guidance: Describe zero or more technical constraints.</p>	Optional, minItems=0	same	same
90	ServiceTechnicalDescription	securityMechanism	A process (or a device incorporating such a process) that is utilized or implemented by the service in order to address a security threat.	SecurityMechanism	SWIM-SERV-019 Protocols and data format	<p>Guidance: list the (security protocols) that are global for the service, if any.</p> <p>Note: In Interface. interfaceBindingDescription list per interface the protocols not already mentioned here.</p>	Optional, minItems=0		
91	ServiceTechnicalDescription	serviceMonitoring	A service monitoring mechanism available to service consumers. [SWIM-SERV-028]	ServiceMonitoring	SWIM-SERV-028 Service monitoring	<p>Guidance: When such a mechanism is made available to consumers, it is mandatory to describe it.</p> <p>Rationale: Allow the service consumer to use the available mechanism and monitor the service.</p>	Conditional Mandatory	Optional	Optional
92	SecurityMechanism	---	A process (or a device incorporating such a process) that is utilized or implemented by the service in order to address a security threat.	---	SWIM-SERV-019 Protocols and data format	<p>Guidance: (security mechanism) protocol valid for the service.</p> <p>See as well Interface. interfaceBindingDescription</p>	(M)		
93	SecurityMechanism	name	The name of the security mechanism.	string	SWIM-SERV-019 Protocols and data format	<p>Provide the name and version of the protocol.</p> <p>Eg X.509v3 Client Certificate</p>	Mandatory		

94	SecurityMechanism	description	The description of the security mechanism.	string	SWIM-SERV-019 Protocols and data format	Describe the mechanism Eg Authentication performed based on X.509 client certificates over a secured connection based on TLS.	Mandatory		
95	SecurityMechanism	type	The type of security mechanism.	CodeSecurityMechanismType	SWIM-SERV-019 Protocols and data format	Select zero or more code values that indicate the type of security mechanism.	Optional, minItems=0		
96	TechnicalConstraint	---	A characteristic of the environment or larger system within which the service operates. [SWIM-SERV-015]	---	SWIM-SERV-015 Technical constraint	Note: Mandatory when existing. Example technical constraints: firewall, minimum bandwidth or server resources, interface language, integration pattern, protocol and communication ports.	(O)	same	same
97	TechnicalConstraint	name	The name of the technical constraint. [SWIM-SERV-015]	string	SWIM-SERV-015 Technical constraint	Guidance: Provide a concise name for the technical constraint.	Mandatory, minLength=1		
98	TechnicalConstraint	description	The description of the technical constraint. [SWIM-SERV-015]	string	SWIM-SERV-015 Technical constraint	Guidance: describe the technical constraint.	Mandatory, minLength=5		
99	ServiceMonitoring	---	Tracking state and operational conditions related to the execution, performance, and real-world effects of services.	---	SWIM-SERV-028 Service monitoring	Note: Mandatory when available.	(O)	same	same
100	ServiceMonitoring	monitoringDescription	Description if available of the existing monitoring capabilities and how this can be used by the consumer. [SWIM-SERV-028].	string	SWIM-SERV-028 Service monitoring	Guidance: provide the description so that the mechanism can be used by the consumer.	Mandatory, minLength=5		
101	Interface	---	The means by which the underlying capabilities of a service are accessed. [SWIM-SERV-016]	---	SWIM-SERV-016 Service interfaces	Rationale: This information facilitates the unambiguous identification of the interface, the understanding of its purpose, and the location to access it.	(M)		
102	Interface	name	The name of the interface. [SWIM-SERV-016]	string	SWIM-SERV-016 Service interfaces		Mandatory, minLength=1		
103	Interface	description	The description of the entity. [SWIM-SERV-016]	string	SWIM-SERV-016 Service interfaces	Guidance: a textual description of the service interface including its purpose.	Mandatory, minLength=5		
104	Interface	interfaceProvisionSide	An indication that the interface is a provider side interface or a consumer side interface. [SWIM-SERV-016]	CodeInterfaceSideType	SWIM-SERV-016 Service interfaces	Guidance: select the appropriate value.	Mandatory		
105	Interface	tiPrimitiveMessageExchangePattern	The type of primitive MEP implemented by the interface.	CodePrimitiveMessageExchangePatternType	N/A	Rationale: makes explicit the MEP used by the operations within this interface. Guidance: select the appropriate value.	Mandatory		
106	Interface	serviceInterfaceBinding	An interface binding that enables services to exchange data with consuming applications. [SWIM-SERV-018]	CodeServiceInterfaceBindingType	SWIM-SERV-018 TI Profile and bindings	Rationale: To support the concept of interoperability between the service provider and service consumer, the SWIM TI Profiles only allow a certain set of technical solutions, which can be chosen by the service designer. Guidance: select the appropriate code value. Note: the code value also indicates the TI profile and version.	Mandatory		
107	Interface	networkInterfaceBinding	An interface binding that enables the SWIM TI to exchange data with the network. [SWIM-SERV-018]	CodeNetworkInterfaceBindingType	SWIM-SERV-018 TI Profile and bindings	Guidance: select the appropriate code value.	Mandatory		

108	Interface	interfaceBindingDescription	Complementary description of the protocols and other specifications used by the interface complementing the selected bindings, or any additional requirement specified in a SWIM TI Profile that is supported by the interface. [SWIM-SERV-018], [SWIM-SERV-019]	string	SWIM-SERV-018 TI Profile and bindings SWIM-SERV-019 Protocols and data format	<p>Rationale: Makes explicit within the service description what the protocols are.</p> <p>Guidance: Provide here a textual description of</p> <ul style="list-style-type: none"> • additionally supported requirements as specified in the selected SWIM TI Profile • list of service interface protocols (including name and version), except for the protocols already mentioned in securityMechanism. 	Mandatory , minLength=1		
109	Interface	endPoint	Location at which information is received to invoke and configure interaction. [SWIM-SERV-016]	EndPoint	SWIM-SERV-016 Service interfaces	<p>Rationale: This information facilitates the the understanding of the location to access the interface.</p> <p>Guidance: 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.</p>	Mandatory , minItems=1		
110	Interface	operation	Specification of a transformation or query that an object may be called to execute. [SWIM-SERV-021]	Operation	SWIM-SERV-021 Service operations	<p>Rationale: The consumer needs to know which service operations are available to be called for the expected result.</p> <p>Guidance: describe all service operations of the interface (one or more operations).</p>	Mandatory , minItems=1		
111	Interface	behaviour	The manner in which a service operates under normal and unexpected conditions. [SWIM-SERV-025]	ServiceBehaviour	SWIM-SERV-025 Service behaviour	<p>Rationale: This requirement facilitates the understanding of the service behaviour, including the sequencing of service operations to support operational processes, and the error handling.</p> <p>Guidance: provide one or more behaviours.</p> <p>Note: The behaviour description may refer to a SERVICE_BEHAVIOUR_DESCRIPTION document.</p> <p>Note: Behaviour often concerns closely related operations in the same interface. Would behaviour relate operations from different interface, feel free to describe it in one of the concerned interface.</p>	Mandatory , minItems=1		
112	EndPoint	---	Location at which information is received to invoke and configure interaction.	---	SWIM-SERV-016 Service interfaces	<p>Rationale: This information facilitates the the understanding of the location to access the interface.</p>	(M)	(O)	NA
113	EndPoint	name	The name of the end point.	string	SWIM-SERV-016 Service interfaces	<p>Guidance: Provide a concise name that makes clear the usage of the end-point. Example: "Operational", "Pre-operational evaluation".</p>	Mandatory	Mandatory	NA
114	EndPoint	description	The description of the entity.	string	SWIM-SERV-016 Service interfaces	<p>Guidance: If useful, provide additional information on the end-point, such as usage, accessibility, etc.</p>	Optional	Optional	NA
115	EndPoint	address	A network-visible identifier used to designate specific endpoints in a network. [SWIM-SERV-016]	string	SWIM-SERV-016 Service interfaces	<p>Guidance: provide the fully qualified network address at which the interface can be accessed</p>	Mandatory	Optional	NA

116	EndPoint	addressable Resource	A resource that can be addressed through this End Point.	Resource	N/A	<p>Guidance: consider providing additional information describe the resource that is made available at the endpoint for the consumer to better understand the connection and exchanges with the endpoint.</p> <p>E.g. An endpoint that provides a QUEUE as a resource, can be further described to explain its behaviour e.g. FIFO, LIFO.</p> <p>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)</p>	Optional	Optional	NA
117	Resource	---	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.	---	N/A	<p>Guidance: consider providing additional information describe the resource that is made available at the endpoint for the consumer to better understand the connection and exchanges with the endpoint.</p> <p>E.g. An endpoint that provides a QUEUE as a resource, can be further described to explain its behaviour e.g. FIFO, LIFO..</p> <p>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)</p>	(O)	(O)	NA
118	Resource	type	The type of resource.	CodeTechnicalResourceType	N/A	Rationale: Indicates the type of the resource: QUEUE, TOPIC,...	Optional	Optional	NA
119	Resource	name	The name of the resource.	string	N/A	Guidance: provide a self descriptive name	Mandatory, minLength=1	Mandatory	NA
120	Resource	description	The description of the resource.	string	N/A	Guidance: Consider providing additional information that enables to understand the resource (E.g. For QUEUE the behavior FIFO)	Optional	Optional	NA
121	Operation	---	Specification of a transformation or query that an object may be called to execute.	---	SWIM-SERV-021 Service operations	Guidance: provide a technical description of a service operation	(M)		
122	Operation	name	The name of the operation. [SWIM-SERV-021]	string	SWIM-SERV-021 Service operations	<p>Guidance: Provide the name of the operation.</p> <p>Note: For readability and understanding of services implemented using REST methods, it is best practice to define logical operations and to map these to the underlying REST methods being used.</p>	Mandatory, minLength=1		
123	Operation	description	The description of the operation.	string	SWIM-SERV-021 Service operations	Guidance: Provide a description of the intent and the results of the service operation; and	Mandatory, minLength=5		
124	Operation	idempotency	A value that indicates whether the operation is "idempotent" or "non-idempotent". [SWIM-SERV-021]	CodeIdempotencyType	SWIM-SERV-021 Service operations	Guidance: Optionally, select the appropriate code value.	Optional		

125	Operation	synchronicity	A value that indicates whether the operation is "synchronous" or "asynchronous". [SWIM-SERV-021]	CodeSynchronicityType	SWIM-SERV-021 Service operations	Guidance: Optionally, select the appropriate code value.	Optional		
126	Operation	tiProtocolMethod	A protocol method used to implement the operation.	string	SWIM-SERV-021 Service operations	Guidance: Optionally, provide the protocol method being used, such as the HTTP method. Example: HTTP GET, HTTP POST.	Optional, minItems=0		
127	Operation	precondition	A description of the state or condition that should be true before the operation can proceed.	string	SWIM-SERV-021 Service operations	Guidance: Describe the precondition(s) to execute the operation.	Optional		
128	Operation	processingConsideration	A step, constraint or action that is required to be taken on data received as part of a service request (input) in order to produce the desired output or change of internal state.	ProcessingConsideration	SWIM-SERV-021 Service operations	Guidance: Provide the list of processing considerations relevant for service consumers. This may be expressed as business rule.	Optional, minItems=0		
129	Operation	operationMessage	A message associated with the operation. [SWIM-SERV-021]	Message	SWIM-SERV-021 Service operations	Guidance: Describe the information exchanged by the service operation, as one or more input, output or error messages.	Mandatory, minItems=1		
130	Message	---	A discrete unit of communication intended by the source for consumption by a given recipient or group of recipients.	---	SWIM-SERV-021 Service operations	A type of message exchanged by the service operation	(M)	(O)	(O)
131	Message	direction	A value that indicates whether the message is "input" or "output". [SWIM-SERV-021]	CodeDirectionType	SWIM-SERV-021 Service operations	Guidance: Select the code value corresponding to the direction of the message: <ul style="list-style-type: none">• IN = input to the operation• OUT = output of the operation	Mandatory	Mandatory	Mandatory
132	Message	name	The name of the message. [SWIM-SERV-021]	string	SWIM-SERV-021 Service operations	Guidance: Provide the name of the message. Note: this name will make the link to the information definition.	Mandatory	Mandatory	Mandatory
133	Message	description	The description of the message.	string	SWIM-SERV-021 Service operations	Guidance: Optionally provide a description of the message. Note: The message description is optional in the service description, but is mandatory in the information definition.	Optional	Optional	Optional
134	Message	isFault	An indication whether the message is a fault or not. [SWIM-SERV-021]	boolean	SWIM-SERV-021 Service operations	Guidance: Optionally indicate whether the message is an error message.	Optional	Optional	Optional
135	Message	headers	The description of the headers.	string	SWIM-SERV-021 Service operations	Guidance: Consider providing indication of those headers that are important for processing the message (E.g. Content Type XML, JSON, Content Encoding GZIP,...)	Optional	Optional	Optional
136	Message	body	The description of the body.	string	SWIM-SERV-021 Service operations	Guidance: Consider indicating the detailed structure of the payload. E.g. AIXM_v.5.1.1.AIXM.AIXM Features.Airport/Heliport. Airport/Heliport	Optional	Optional	Optional
137	ProcessingConsideration	---	A step or action that is required to be taken on data received as part of a service request (input) in order to produce the desired output or change of internal state.	---	SWIM-SERV-021 Service operations	Guidance: Consider indicating all constraints that further qualify a service operation (e.g. It does not accept request for a date in the past, or an update that is too close to the current value, or a certain frequency of request).	(O)	(O)	(O)
138	ProcessingConsideration	name	The name of the processing consideration.	string	SWIM-SERV-021 Service operations	Guidance. Provide a self descriptive name.	Mandatory	Mandatory	Mandatory

139	ProcessingConsideration	description	The description of the processing consideration.	string	SWIM-SERV-021 Service operations	Guidance. Explain the constraint in sufficient detail (e.g. It does not accept request for a date in the past, or an update that is too close to the current value, or a certain frequency of request).	Mandatory		
140	ServiceBehaviour	---	The manner in which a service operates under normal and unexpected conditions. [SWIM-SERV-025]	---	SWIM-SERV-025 Service behaviour	<p>Examples of behaviour specification:</p> <ul style="list-style-type: none"> • 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. <p>Note: The behaviour description may refer to a SERVICE_BEHAVIOUR_DESCRIPTION document.</p> <p>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.</p>	(M)		
141	ServiceBehaviour	name	The name of the service behaviour. [SWIM-SERV-025]	string	SWIM-SERV-025 Service behaviour	Guidance: provide a short name for the behaviour	Mandatory , minLength=1		
142	ServiceBehaviour	description	The description of the service behaviour. [SWIM-SERV-025]	string	SWIM-SERV-025 Service behaviour	<p>Guidance:</p> <p>Describe the behaviour as</p> <ul style="list-style-type: none"> • the sequence of service operations; and • the handling of unexpected behaviour. <p>And / or make reference to a SERVICE_BEHAVIOUR_DESCRIPTION document.</p>	Mandatory , minLength=5		
143	ServiceDescriptionReferences	---	References to complementary documents that provide additional details about the service.	---	multiple		(M)		
144	ServiceDescriptionReferences	implementedStandard	A standard used for the implementation of the service.	Implemented Standard	SWIM-SERV-010 Service standard reference	<p>Guidance: use this list for</p> <ul style="list-style-type: none"> • indicating whether the service adheres to a service standard (mandatory) • self declaration of conformance to the SWIM specifications (optional). 	Mandatory , minItems=1		
145	ServiceDescriptionReferences	serviceDocument	A document that relates to the information service.	Document	multiple	Guidance: list here one or more documents related to the service description. At the minimum, the Information Definition must be provided.	Mandatory , minItems=1		
146	Implemented Standard	---	A standard used for the implementation of the service.	---	SWIM-SERV-010 Service standard reference	<p>Guidance is split between "Serv_std" and "SWIM_spec".</p> <p>Rationale Serv_std: The reference to standards is essential information, fostering reuse.</p> <p>Rule Serv_std: Mandatory</p> <p>Rationale SWIM_spec: help understand the gap to SWIM spec conformance for CAND.</p> <p>Rule SWIM_spec: Optional.</p>	(M)		

147	Implemented Standard	standardType	The type of implemented standard.	CodeService StandardType	SWIM-SERV-010 Service standard reference	Guidance Serv_Std: Select code SERVICE_STANDARD. Guidance SWIM_spec: Select code of the concerned SWIM spec.	Mandatory		
148	Implemented Standard	isConformant	An indication whether the information service conforms to a reference. [SWIM-SERV-010]	boolean	SWIM-SERV-010 Service standard reference	Guidance Serv_Std: Indicate whether the service adheres to a service standard. Guidance SWIM_spec: Indicate whether the service conforms to the spec.	Mandatory		
149	Implemented Standard	title	The name by which the document is formally known. [SWIM-SERV-005;SWIM-SERV-010]	string	SWIM-SERV-010 Service standard reference	Rule Serv_Std: Mandatory when adherence. No use otherwise. Guidance Serv_Std: provide the name of the service standard or the title of the service standard document. Rule SWIM_spec: Optional (no added value)	Mandatory Conditional (Optional in Schema)		
150	Implemented Standard	version	The current version or revision level of the document.	string	SWIM-SERV-010 Service standard reference	Rule Serv_Std: Mandatory when adherence. No use otherwise. Guidance Serv_Std: makes clear the version of the adhered service standard. Guidance SWIM_spec: provide version of spec (eg "1.0").	Mandatory Conditional (Optional in Schema)		
151	Implemented Standard	conformanceStatement	A statement about the degree of conformance of the service against the standard.	string	SWIM-SERV-010 Service standard reference	Rule Serv_Std: Optional when adherence. No use otherwise. Guidance Serv_Std: indicate implemented options and/or deviations, if any. Guidance SWIM_spec: Can be used to indicate the gap to conformance.	Mandatory Conditional (Optional in Schema)		
152	Implemented Standard	description	The description of the entity.	string	SWIM-SERV-010 Service standard reference	Rule Serv_Std: Optional when adherence. No use otherwise. Guidance Serv_Std: optionally provide a description of the service standard. Guidance SWIM_spec: leave empty.	Optional		
153	Implemented Standard	reference	An external reference at which the standard can be retrieved or consulted.	string	SWIM-SERV-010 Service standard reference	Rule Serv_Std: Optional when adherence. No use otherwise. Guidance Serv_Std: optionally provide an external link to the service standard. Note: In case of doubt, the version field makes clear the version of the standard. Guidance SWIM_spec: provide a reference to the conformance assessment report.	Optional		
154	Document	---	A piece of written, printed, or electronic matter that provides information or evidence or that serves as an official record.	---	SWIM-SERV-020 Machine-readable interface SWIM-SERV-026 Model view SWIM-SERV-029 Examples of code	Rationale: The JSON service description does not include all information useful to service consumers. Some information is made available separately (eg Information Definition), some other are best as separate files (eg machine readable service description). Guidance: Provide at least a document with type INFORMATION_DEFINITION See as well Guidance on serviceDocument .	(M)		

155	Document	documentType	The type of document.	CodeDocumentType	multiple	Guidance: Select the code according to usage described in Code Lists walk-through .	Mandatory		
156	Document	title	The name by which the document is formally known. [SWIM-SERV-005; SWIM-SERV-010]	string	multiple		Mandatory , minLength=5		
157	Document	version	The current version or revision level of the document.	string	multiple	Guidance: in absence of a version, consider providing a reference date.	Mandatory , minLength=1		
158	Document	description	The description of the document.	string	multiple SWIM-SERV-026 Model view	Guidance for SERVICE_MODEL: declare the notation used to express the model view	Optional		
159	Document	reference	An external reference at which the document can be retrieved or consulted.	string	multiple	Guidance: in absence of an external reference, leave empty. Later on, Registry may help providing a reference.	Optional		