

# service-registry-management

## Service Description

### Abstract

This document provides service description for the **service-registry-management** service.

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# 1 Overview

This document describes the **service-registry-management** service, which enables systems (with operator role or proper permissions) to handle (register, revoke, lookup) devices, systems, service instances, service definitions and interface templates in bulk. The service also allows to get some information about the system behavior, such as log entries and configuration settings. An example of this interaction is that an operator uses the Management Tool to register interfaces, systems, and service instances manually.

The **service-registry-management** service contains the following operations:

- *get-log* lists the log entries of the system that matches the filtering requirements;
- *get-config* lists the current values of the specified configuration settings;
- *device-query* lists the devices that match the filtering requirements;
- *device-create* registers the specified devices;
- *device-updates* updates the specified existing devices;
- *device-remove* revokes the specified devices;
- *system-query* lists the systems that match the filtering requirements;
- *system-create* registers the specified systems;
- *system-update* updates the specified existing systems;
- *system-remove* revokes the specified devices;
- *service-definition-query* lists the service definitions;
- *service-definition-create* registers the specified service definitions;
- *service-definition-remove* revokes the specified definitions;
- *service-query* lists the service instances that match the filtering requirements;
- *service-create* registers the specified service instances;
- *service-update* updates the specified existing service instances;
- *service-remove* revokes the specified service instances;
- *interface-template-query* lists the interface templates that match the filtering requirements;
- *interface-template-create* registers the specified interface templates;
- *interface-template-remove* revokes the specified interface templates;

The rest of this document is organized as follows. In Section 2, we describe the abstract message operations provided by the service. In Section 3, we end the document by presenting the data types used by the mentioned operations.

## **1.1 How This Service Is Meant to Be Used**

The service's purpose is to handle the various entities of the Service Registry centrally and in bulk. Such entities are devices, systems, service definitions, service instances and interface templates. This approach makes possible that the individual application systems do not have to anything to work within the Local Cloud.

Application systems should not use this service, only operators (via the Management Tool, for example) or dedicated support systems.

## **1.2 Important Delimitations**

The requester has to identify itself to use any of the operations.

## **1.3 Access policy**

The service is only available for operators, dedicated support systems and those whose have the proper authorization rights to consume it.

## 2 Service Operations

This section describes the abstract signatures of each operations of the service. In particular, each subsection names an operation, an input type and one or two output types (unsuccessful operations can return different structure), in that order. The input type is named inside parentheses, while the output type is preceded by a colon. If the operation has two output types, they are separated by a slash. Input and output types are only denoted when accepted or returned, respectively, by the operation in question. All abstract data types named in this section are defined in Section 3.

### 2.1 operation **get-log** (**LogRequest**) : **LogResponse** / **ErrorResponse**

The input data must meet the following criteria:

- The operation returns results in pages. There are default page data settings, but the requester can provide a custom specification.
- If page number is specified, the page size must be specified as well and vice versa.
- In some Local Clouds there is a maximum page size.
- If both date parameters are specified (*from*, *to*), the date *from* must precede the date *to*.

### 2.2 operation **get-config** (**ConfigRequest**) : **ConfigResponse** / **ErrorResponse**

The input data must meet the following criteria:

- Some configuration settings (e. g. passwords) can not be acquired with this operation. Such setting names will be ignored.

### 2.3 operation **device-query** (**DeviceQueryRequest**) : **DeviceListResponse** / **ErrorResponse**

The query data must meet the following criteria:

- The operation returns results in pages. There are default page data settings, but the requester can provide a custom specification.
- If page number is specified, the page size must be specified as well and vice versa.
- In some Local Clouds there is a maximum page size.
- If a filter expects a list, there is an OR relation between the elements of the filter.
- There is an AND relation between different kind of filters.

## 2.4 operation **device-create** (**DeviceListRequest**) : **DeviceListResponse** / **ErrorResponse**

The creation data must meet the following criteria:

- Device names are case insensitive and have to be unique within the Local Cloud.
- Device names can contain maximum 63 character of letters (english alphabet), numbers and dash (-), and have to start with a letter (also cannot end with dash).
- Device has to have at least one address. It is recommended to use MAC address and/or IP address.
- Keys in the metadata structure can not contain dot (.) character.
- Multiple devices can be created at once, but it is forbidden to specify devices with the same name.
- It is forbidden to create a device that is already registered into the Local Cloud.

## 2.5 operation **device-update** (**DeviceListRequest**) : **DeviceListResponse** / **ErrorResponse**

The update data must meet the following criteria:

- Device names are case insensitive and have to be unique within the Local Cloud.
- Device names can contain maximum 63 character of letters (english alphabet), numbers and dash (-), and have to start with a letter (also cannot end with dash).
- Device has to have at least one address. It is recommended to use MAC address and/or IP address.
- Keys in the metadata structure can not contain dot (.) character.
- Multiple devices can be updated at once, but it is forbidden to specify devices with the same name.
- It is not possible to update a device that is not registered into the Local Cloud.

## 2.6 operation **device-remove** (**DeviceRemoveRequest**) : **OperationStatus** / **ErrorResponse**

The input operation data must meet the following criteria:

- Can only revoke devices without any system assignment.



## 2.7 operation **system-query** (**SystemQueryRequest**) : **SystemListResponse** / **ErrorResponse**

The query data must meet the following criteria:

- The operation returns results in pages. There are default page data settings, but the requester can provide a custom specification.
- If page number is specified, the page size must be specified as well and vice versa.
- In some Local Clouds there is a maximum page size.
- If a filter expects a list, there is an OR relation between the elements of the filter.
- There is an AND relation between different kind of filters.

## 2.8 operation **system-create** (**SystemListRequest**) : **SystemListResponse** / **ErrorResponse**

The creation data must meet the following criteria:

- System names are case insensitive and have to be unique within the Local Cloud.
- System names can contain maximum 63 character of letters (english alphabet), numbers and dash (-), and have to start with a letter (also cannot end with dash).
- System has to have at least one address (including those that come from the referenced device, if any). It is recommended to use IP address.
- Keys in the metadata structure can not contain dot (.) character.
- Device, if specified, has to be present in the Local Cloud.
- Multiple systems can be created at once, but it is forbidden to specify systems with the same name.
- It is forbidden to create a system that is already registered into the Local Cloud.

## 2.9 operation **system-update** (**SystemListRequest**) : **SystemListResponse** / **ErrorResponse**

The update data must meet the following criteria:

- System names are case insensitive and have to be unique within the Local Cloud.
- System names can contain maximum 63 character of letters (english alphabet), numbers and dash (-), and have to start with a letter (also cannot end with dash).
- System has to have at least one address (including those that come from the referenced device, if any). It is recommended to use IP address.
- Keys in the metadata structure can not contain dot (.) character.

- Device, if specified, has to be present in the Local Cloud.
- Multiple systems can be updated at once, but it is forbidden to specify systems with the same name.
- It is not possible to update a system that is not registered into the Local Cloud.

## **2.10 operation `system-remove` (`SystemRemoveRequest`) : `OperationStatus` / `ErrorResponse`**

## **2.11 operation `service-definition-query` (`PageRequest`) : `ServiceDefinitionListResponse` / `ErrorResponse`**

The query data must meet the following criteria:

- The operation returns results in pages. There are default page data settings, but the requester can provide a custom specification.
- If page number is specified, the page size must be specified as well and vice versa.
- In some Local Clouds there is a maximum page size.

## **2.12 operation `service-definition-create` (`ServiceDefinitionListRequest`) : `ServiceDefinitionListResponse` / `ErrorResponse`**

The creation data must meet the following criteria:

- Service definition names are case insensitive and have to be unique within the Local Cloud.
- Service definition names can contain maximum 63 character of letters (english alphabet), numbers and dash (-), and have to start with a letter (also cannot end with dash).
- Multiple service definitions can be created at once, but it is forbidden to specify service definitions with the same name.
- It is forbidden to create a service definition that is already registered into the Local Cloud.

## **2.13 operation `service-definition-remove` (`ServiceDefinitionRemoveRequest`) : `OperationStatus` / `ErrorResponse`**

## **2.14 operation `service-query` (`ServiceQueryRequest`) : `ServiceListResponse` / `ErrorResponse`**

The query data must meet the following criteria:

- The operation returns results in pages. There are default page data settings, but the requester can provide a custom specification.

- If page number is specified, the page size must be specified as well and vice versa.
- In some Local Clouds there is a maximum page size.
- If a filter expects a list, there is an OR relation between the elements of the filter.
- There is an AND relation between different kind of filters.
- To use this operation, an application system must specify at least one service instance id OR one provider name OR one service definition.

## 2.15 operation **service-create** (**ServiceCreateListRequest**) : **ServiceListResponse** / **ErrorResponse**

The creation data must meet the following criteria:

- The provider systems have to be present in the Local Cloud.
- Service definition names are case insensitive and have to be unique within the Local Cloud.
- Service definition names can contain maximum 63 character of letters (english alphabet), numbers and dash (-), and have to start with a letter (also cannot end with dash).
- If an expiration date is specified, it cannot point to a past date.
- Keys in the metadata structure can not contain dot (.) character.
- For every instance, at least one interface must be specified with its template name, the used policy and all the necessary template-specific properties.
- If a specified interface template is not present in the Local Cloud, a protocol also has to be defined. In some Local Clouds using previously unknown interface templates during the service instance creation may be forbidden and thus rejected.
- Multiple service instances can be created at once, but it is forbidden to specify service instances with the same provider, service definition and version.
- Service instances can create multiple times, the appropriate old service instances are discarded.

## 2.16 operation **service-update** (**ServiceUpdateListRequest**) : **ServiceListResponse** / **ErrorResponse**

The update data must meet the following criteria:

- Only expiration date, metadata and interfaces can be updated with this operation.
- If an expiration date is specified, it cannot point to a past date.
- Keys in the metadata structure can not contain dot (.) character.
- For every instance, at least one interface must be specified with its template name, the used policy and all the necessary template-specific properties.

- If a specified interface template is not present in the Local Cloud, a protocol also has to be defined. In some Local Clouds using previously unknown interface templates during the service instance creation may be forbidden and thus rejected.
- Multiple service instances can be updated at once, but it is forbidden to specify service instances with the same service instance ids.
- It is not possible to update a service instance that is not registered into the Local Cloud.

## 2.17 operation **service-remove** (**ServiceRemoveRequest**) : **OperationStatus** / **Error-Response**

## 2.18 operation **interface-template-query** (**InterfaceTemplateQueryRequest**) : **InterfaceTemplateListResponse** / **ErrorResponse**

The query data must meet the following criteria:

- The operation returns results in pages. There are default page data settings, but the requester can provide a custom specification.
- If page number is specified, the page size must be specified as well and vice versa.
- In some Local Clouds there is a maximum page size.
- If a filter expects a list, there is an OR relation between the elements of the filter.
- There is an AND relation between different kind of filters.

## 2.19 operation **interface-template-create** (**InterfaceTemplateListRequest**) : **InterfaceTemplateListResponse** / **ErrorResponse**

The creation data must meet the following criteria:

- Interface template names are case insensitive and have to be unique within the Local Cloud.
- Protocol names are case insensitive and can contain maximum 63 characters.
- Property names can contain maximum 63 characters and can not contain dot (.) character.
- It is forbidden to specify properties with the same name for the same interface templates.
- Validator is optional, but it is forbidden to specify validator parameters without a validator.
- Multiple interface templates can be created at once, but it is forbidden to specify interface templates with the same name.
- It is forbidden to create an interface template that is already registered into the Local Cloud.

## 2.20 operation **interface-template-remove** (**InterfaceTemplateRemoveRequest**) : **OperationStatus** / **ErrorResponse**

## 3 Information Model

Here, all data objects that can be part of the **service-registry-management** service provides to the hosting System are listed. Note that each subsection, which describes one type of object, begins with the *struct* keyword, which is used to denote a collection of named fields, each with its own data type. As a complement to the explicitly defined types in this section, there is also a list of implicit primitive types in Section 3.47, which are used to represent things like hashes and identifiers.

### 3.1 struct LogRequest

Field	Type	Mandatory	Description
authentication	Identity	yes	The requester of the operation.
pageNumber	Number	no (yes)	The number of the requested page. It is mandatory, if page size is specified.
pageSize	Number	no (yes)	The number of entries on the requested page. It is mandatory, if page number is specified.
pageSortField	String	no	The identifier of the field which must use in the sorting the entries.
pageDirection	Direction	no	The direction of the sorting.
from	DateTime	no	Requester is looking for log entries with timestamp that not precedes this one.
to	DateTime	no	Requester is looking for log entries with timestamp that not succeeds this one.
severity	LogSeverity	no	Requester is looking for log entries with severity that equals to or is higher than the specified one.
loggerStr	String	no	Requester is looking for log entries with logger that name contains the specified text.

### 3.2 struct Identity

An Object which describes the identity of a system. It also contains whether the identified system has higher level administrative rights.

### 3.3 struct LogResponse

Field	Type	Description
status	OperationStatus	Status of the operation.
entries	List<LogEntry>	A page of log entries.
count	Number	Total number of entries that match the filters.

### 3.4 struct **LogEntry**

Field	Type	Description
logId	String	Unique identifier of the entry.
entryDate	DateTime	The timestamp of the entry.
logger	String	The logger that created the entry.
severity	LogSeverity	The severity of the entry.
message	String	The log message
exception	String	If the log entry is an error, information of the related exception may appear here.

### 3.5 struct **ErrorResponse**

Field	Type	Description
status	OperationStatus	Status of the operation.
errorMessage	String	Description of the error.
errorCode	Number	Numerical code of the error.
type	ErrorType	Type of the error.
origin	String	Origin of the error.

### 3.6 struct **ConfigRequest**

Field	Type	Mandatory	Description
authentication	Identity	yes	The requester of the operation.
keys	List<Name>	yes	The names of the requested configuration settings.

### 3.7 struct **ConfigResponse**

Field	Type	Description
status	OperationStatus	Status of the operation.
map	ConfigMap	The actual values of the requested settings,

### 3.8 struct **ConfigMap**

An Object which maps String keys to String values.

### 3.9 struct **DeviceQueryRequest**

Field	Type	Mandatory	Description
authentication	Identity	yes	The requester of the operation.
pageNumber	Number	no (yes)	The number of the requested page. It is mandatory, if page size is specified.
pageSize	Number	no (yes)	The number of entries on the requested page. It is mandatory, if page number is specified.
pageSortField	String	no	The identifier of the field which must use in the sorting the entries.
pageDirection	Direction	no	The direction of the sorting.
deviceNames	List<Name>	no	Requester is looking for devices with any of the specified names.
addresses	List<Address>	no	Requester is looking for devices with any of the specified addresses.
addressType	AddressType	no	Requester is looking for devices with the specified type of address.
metadataRequirementsList	List<MetadataRequirements>	no	Requester is looking for devices that are matching any of the specified metadata requirements.

### 3.10 struct **MetadataRequirements**

A special Object which maps String keys to Object, primitive or list values, where

- Keys can be paths (or multi-level keys) which access a specific value in a Metadata structure, where parts of the path are delimited with dot character (e.g. in case of "key.subkey" path we are looking for the key named "key" in the metadata, which associated with an embedded object and in this object we are looking for the key named "subkey").
- Values are special Objects with two fields: an operation (e.g. less than) and an actual value (e.g. a number). A metadata is matching a requirement if the specified operation returns true using the metadata value referenced by a key path as first and the actual value as second operands.
- Alternatively, values can be ordinary primitives, lists or Objects. In this case the operation is equals by default.

### 3.11 struct DeviceListResponse

Field	Type	Description
status	OperationStatus	Status of the operation.
entries	List<DeviceResult>	A page of devices.
count	Number	Total number of devices that match the filters.

### 3.12 struct DeviceResult

Field	Type	Description
name	Name	Unique identifier of the device.
metadata	Metadata	Additional information about the device.
addresses	List<AddressDescriptor>	Different kind of addresses of the device.
createdAt	DateTime	Device was registered at this timestamp.
updatedAt	DateTime	Device was modified at this timestamp.

### 3.13 struct Metadata

An Object which maps String keys to primitive, Object or list values.

### 3.14 struct AddressDescriptor

Field	Type	Description
type	AddressType	Type of the address.
address	Address	Address.

### 3.15 struct DeviceListRequest

Field	Type	Mandatory	Description
authentication	Identity	yes	The requester of the operation.
devices	List<DeviceRequest>	yes	A list of devices.



### 3.16 struct **DeviceRequest**

Field	Type	Mandatory	Description
name	Name	yes	Unique identifier of the device.
metadata	Metadata	no	Additional information about the device.
addresses	List<Address>	yes	Different kind of addresses of the device.

### 3.17 struct **DeviceRemoveRequest**

Field	Type	Mandatory	Description
authentication	Identity	yes	The requester of the operation.
names	List<Name>	yes	Names of the devices that need to remove.

### 3.18 struct **SystemQueryRequest**

Field	Type	Mandatory	Description
authentication	Identity	yes	The requester of the operation.
verbose	Boolean	no	If true detailed device information also returns.
pageNumber	Number	no (yes)	The number of the requested page. It is mandatory, if page size is specified.
pageSize	Number	no (yes)	The number of entries on the requested page. It is mandatory, if page number is specified.
pageSortField	String	no	The identifier of the field which must use in the sorting the entries.
pageDirection	Direction	no	The direction of the sorting.
systemNames	List<Name>	no	Requester is looking for systems with any of the specified names.
addresses	List<Address>	no	Requester is looking for systems with any of the specified addresses.
addressType	AddressType	no	Requester is looking for systems with the specified type of address.
metadataRequirementsList	List<MetadataRequirements>	no	Requester is looking for systems that are matching any of the specified metadata requirements.
versions	List<Version>	no	Requester is looking for systems with any of the specified versions.

deviceNames	List<Name>	no	Requester is looking for systems that are running on any of the specified devices.
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### 3.19 struct SystemListResponse

Field	Type	Description
status	OperationStatus	Status of the operation.
entries	List<SystemResult>	A page of systems.
count	Number	Total number of systems that match the filters.

### 3.20 struct SystemResult

Field	Type	Description
name	Name	Unique identifier of the system.
metadata	Metadata	Additional information about the system.
version	Version	Version of the system.
addresses	List<AddressDescriptor>	Different kind of addresses of the system.
device	DeviceResult	Information about the device on which the system is running.
createdAt	DateTime	System was registered at this timestamp.
updatedAt	DateTime	System was modified at this timestamp.

### 3.21 struct SystemListRequest

Field	Type	Mandatory	Description
authentication	Identity	yes	The requester of the operation.
systems	List<SystemRequest>	yes	A list of systems.

### 3.22 struct SystemRequest

Field	Type	Mandatory	Description
name	Name	yes	The name of the system.
metadata	Metadata	no	Additional information about the system.
version	Version	no	Version of the system.
addresses	List<Address>	yes	Different kind of addresses of the system.
deviceName	Name	no	Unique identifier of the device on which the system is running.

### 3.23 struct **SystemRemoveRequest**

Field	Type	Mandatory	Description
authentication	Identity	yes	The requester of the operation.
names	List<Name>	yes	Names of the systems that need to remove.

### 3.24 struct **PageRequest**

Field	Type	Mandatory	Description
authentication	Identity	yes	The requester of the operation.
pageNumber	Number	no (yes)	The number of the requested page. It is mandatory, if page size is specified.
pageSize	Number	no (yes)	The number of entries on the requested page. It is mandatory, if page number is specified.
pageSortField	String	no	The identifier of the field which must use in the sorting the entries.
pageDirection	Direction	no	The direction of the sorting.

### 3.25 struct **ServiceDefinitionListResponse**

Field	Type	Description
status	OperationStatus	Status of the operation.
entries	List<ServiceDefinitionResult>	A page of service definitions.
count	Number	Total number of service definitions.

### 3.26 struct **ServiceDefinitionResult**

Field	Type	Description
name	Name	Unique identifier of the service definition.
createdAt	DateTime	Service definition was registered at this timestamp.
updatedAt	DateTime	Service definition was modified at this timestamp.

### 3.27 struct **ServiceDefinitionListRequest**

Field	Type	Mandatory	Description
authentication	Identity	yes	The requester of the operation.
serviceDefinitionNames	List<Name>	yes	A list of service definition names.

### 3.28 struct **ServiceDefinitionRemoveRequest**

Field	Type	Mandatory	Description
authentication	Identity	yes	The requester of the operation.
names	List<Name>	yes	Names of the service definitions that need to remove.

### 3.29 struct **ServiceQueryRequest**

Field	Type	Mandatory	Description
authentication	Identity	yes	The requester of the operation.
verbose	Boolean	no	If true detailed system and device information also returns.
pageNumber	Number	no (yes)	The number of the requested page. It is mandatory, if page size is specified.
pageSize	Number	no (yes)	The number of entries on the requested page. It is mandatory, if page number is specified.
pageSortField	String	no	The identifier of the field which must use in the sorting the entries.
pageDirection	Direction	no	The direction of the sorting.
instanceIds	List<Name>	no (yes)	Requester is looking for service instances with any of the specified identifiers. Mandatory if no providerNames nor serviceDefinitionNames are specified.
providerNames	List<Name>	no (yes)	Requester is looking for service instances that are provided by any of the specified systems. Mandatory if no serviceInstanceIds nor serviceDefinitionNames are specified.

serviceDefinitionNames	List<Name>	no (yes)	Requester is looking for service instances with any of the specified service definition names. Mandatory if no serviceInstanceIds nor providerNames are specified.
versions	List<Version>	no	Requester is looking for service instances with any of the specified versions.
aliveAt	DateTime	no	Requester is looking for service instances that will be available at the specified moment of the future.
metadataRequirementsList	List<MetadataRequirements>	no	Requester is looking for service instances that are matching any of the specified metadata requirements.
interfaceTemplateNames	List<InterfaceTemplate>	no	Requester is looking for service instances with any of the specified interface template names.
interfacePropertyRequirementsList	List<MetadataRequirements>	no	Requester is looking for service instances with interfaces that are matching any of the specified properties requirements.
policies	List<SecurityPolicy>	no	Requester is looking for service instances with any of the specified security policies.

### 3.30 struct **ServiceListResponse**

Field	Type	Description
status	OperationStatus	Status of the operation.
entries	List<ServiceResult>	A page of service instances.
count	Number	Total number of service instances that match the filters.

### 3.31 struct **ServiceResult**

Field	Type	Description
instanceId	Name	Unique identifier of the service instance.
provider	SystemResult	Information about the service instance provider system.
serviceDefinition	ServiceDefinitionResult	Information about the service definition.
version	Version	Version of the service instance.
expiresAt	DateTime	The moment of the future from which the service instance will not be available.
metadata	Metadata	Additional information about the service instance.
interfaces	List<ServiceInterfaceDescriptor>	Available access interfaces of the service instance.
createdAt	DateTime	Service instance was registered at this timestamp.
updatedAt	DateTime	Service instance was modified at this timestamp.

### 3.32 struct **ServiceInterfaceDescriptor**

Field	Type	Description
templateName	InterfaceTemplate	The name of the interface template that describes the interface structure.
protocol	Protocol	The communication protocol of the interface.
policy	SecurityPolicy	The security of the interface.
properties	Metadata	Interface template-specific data.

### 3.33 struct **ServiceCreateListRequest**

Field	Type	Mandatory	Description
authentication	Identity	yes	The requester of the operation.
instances	List<ServiceRequest>	yes	A list of service instances.

### 3.34 struct **ServiceRequest**

Field	Type	Mandatory	Description
systemName Name	yes	The provider of the instance.	
serviceDefinitionName	Name	yes	The service definition of the instance.
version	Version	no	Version of the service instance.
expiresAt	DateTime	no	The moment of the future from which the service instance will not be available.

metadata	Metadata	no	Additional information about the service instance.
interfaces	List<ServiceInterfaceRequest>	yes	Available access interfaces of the service instance.

### 3.35 struct **ServiceInterfaceRequest**

Field	Type	Mandatory	Description
templateName	InterfaceTemplate	yes	The name of the interface template that describes the interface structure.
protocol	Protocol	no (yes)	The communication protocol of the interface. Only mandatory if the interface template is not previously known in the Local Cloud.
policy	SecurityPolicy	yes	The security of the interface.
properties	Metadata	yes	Interface template-specific data.

### 3.36 struct **ServiceUpdateListRequest**

Field	Type	Mandatory	Description
authentication	Identity	yes	The requester of the operation.
instances	List<ServiceUpdateRequest>	yes	A list of service instances.

### 3.37 struct **ServiceUpdateRequest**

Field	Type	Mandatory	Description
instanceId	Name	yes	The unique identifier of the service instance.
expiresAt	DateTime	no	The moment of the future from which the service instance will not be available.
metadata	Metadata	no	Additional information about the service instance.
interfaces	List<ServiceInterfaceRequest>	yes	Available access interfaces of the service instance.

### 3.38 struct **ServiceRemoveRequest**

Field	Type	Mandatory	Description
authentication	Identity	yes	The requester of the operation.
instances	List<Name>	yes	Identifiers of the service instances that need to remove.

### 3.39 struct **InterfaceTemplateQueryRequest**

Field	Type	Mandatory	Description
authentication	Identity	yes	The requester of the operation.
pageNumber	Number	no (yes)	The number of the requested page. It is mandatory, if page size is specified.
pageSize	Number	no (yes)	The number of entries on the requested page. It is mandatory, if page number is specified.
pageSortField	String	no	The identifier of the field which must use in the sorting the entries.
pageDirection	Direction	no	The direction of the sorting.
templateNames	List<InterfaceTemplate>	no	Requester is looking for interface templates with any of the specified names.
protocols	List<Protocol>	no	Requester is looking for interface templates with any of the specified protocols.

### 3.40 struct **InterfaceTemplateListResponse**

Field	Type	Description
status	OperationStatus	Status of the operation.
entries	List<InterfaceTemplateResult>	A page of interface templates.
count	Number	Total number of interface templates that match the filters.

### 3.41 struct **InterfaceTemplateResult**

Field	Type	Description
name	Name	Unique name of the interface template.
protocol	Protocol	Protocol of the interface template.
propertyRequirements	List<InterfaceTemplatePropertyDescriptor>	Properties of the interface template.
createdAt	DateTime	Interface template was registered at this timestamp.
updatedAt	DateTime	Interface template was modified at this timestamp.



### 3.42 struct **InterfaceTemplatePropertyDescriptor**

Field	Type	Description
name	String	Name of the property.
mandatory	Boolean	True if the property is mandatory, false if optional.
validator	PropertyValidator	Name of the validator assigned to the property.
validatorParams	List<String>	Parameter values of the validator (if needed).

### 3.43 struct **InterfaceTemplateListRequest**

Field	Type	Mandatory	Description
authentication	Identity	yes	The requester of the operation.
interfaceTemplates	List<InterfaceTemplateRequest>	yes	A list of interface templates.

### 3.44 struct **InterfaceTemplateRequest**

Field	Type	Mandatory	Description
name	Name	yes	Unique name of the interface template.
protocol	Protocol	yes	Protocol of the interface template.
propertyRequirements	List<InterfaceTemplatePropertyRequest>	yes	Properties of the interface template.

### 3.45 struct **InterfaceTemplatePropertyRequest**

Field	Type	Mandatory	Description
name	String	yes	Name of the property.
mandatory	Boolean	yes	True if the property is mandatory, false if optional.
validator	PropertyValidator	no	Name of the validator assigned to the property.
validatorParams	List<String>	no	Parameter values of the validator.

### 3.46 struct **InterfaceTemplateRemoveRequest**

Field	Type	Mandatory	Description
authentication	Identity	yes	The requester of the operation.
names	List<InterfaceTemplate>	yes	Names of the interface templates that need to remove.

### 3.47 Primitives

Types and structures mentioned throughout this document that are assumed to be available to implementations of this service. The concrete interpretations of each of these types and structures must be provided by any IDD document claiming to implement this service.

Type	Description
Address	A string representation of the address.
AddressType	Any suitable type chosen by the implementor or service.
Boolean	One out of true or false.
DateTime	Pinpoints a specific moment in time.
Direction	The direction of a sorting operation. Possible values are the representation of ascending or descending order.
ErrorType	Any suitable type chosen by the implementor of service.
InterfaceTemplate	A string identifier of an interface descriptor.
List<A>	An <i>array</i> of a known number of items, each having type A.
LogSeverity	The kind and seriousness of a log message.
Name	A string identifier that is intended to be both human and machine-readable.
Number	Decimal number.
Object	Set of primitives and possible further objects.
OperationStatus	Logical, textual or number value that indicates whether an operation is a success or a failure. Multiple values can be used for success and error cases to give additional information about the nature of the result.
PropertyValidator	An identifier of any suitable validator function chosen by the implementor of service.
Protocol	A string representation of a communication protocol.
SecurityPolicy	Any suitable security policy chosen by the implementor of service.
String	A chain of characters.
Version	Specifies a service instance version. Version must follow the Semantic Versioning.



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## 4 References

## 5 Revision History

### 5.1 Amendments

No.	Date	Version	Subject of Amendments	Author
1	YYYY-MM-DD	5.0.0		Xxx Yyy

### 5.2 Quality Assurance

No.	Date	Version	Approved by
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