# ETSI GS CIM 013 V1.1.1 (2021-05)



Context Information Management (CIM); NGSI-LD Test Purposes Descriptions

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Keywords

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# Foreword

This Group Specification (GS) has been produced by ETSI Industry Specification Group (ISG) cross-cutting Context Information Management (CIM).

# Modal verbs terminology

In the present document "shall", "shall not", "should", "should not", "may", "need not", "will", "will not", "can" and "cannot" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

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## 1 Scope

The present document contains the description of each abstract test case using the Test Template [i.2] and using the Test Purposes Description Language identified in ETSI GS CIM 012 [2] and ETSI GR CIM 011 [i.1]. The test cases are described in tabular form.

## 2 References

## 2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or nonspecific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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The following referenced documents are necessary for the application of the present document.

- [1] ETSI GS CIM 009 (V1.3.1) (08-2020): "Context Information Management (CIM); NGSI-LD API".
- [2] ETSI GS CIM 012 (V1.1.1) (03-2021): "Context Information Management (CIM); NGSI-LD Test Suite Structure".
- [3] ISO 8601: 2004: "Data elements and interchange formats -- Information interchange --Representation of dates and times".

#### 2.2 Informative references

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The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

- [i.1]ETSI GR CIM 011 (V1.1.1) (04-2021): "Context Information Management (CIM); NGSI-LD<br/>Testing Framework: Test Purposes Description Language (TPDL)".
- [i.2] ETSI GS CIM 016 (V1.1.1) (04-2021): "Context Information Management (CIM); NGSI-LD Testing Framework: Test Template".

## 3 Definition of terms, symbols and abbreviations

#### 3.1 Terms

For the purposes of the present document, the following terms apply:

context registry: software functional element where Context Sources register the information that they can provide

**context source:** source of context information which implements the NGSI-LD consumption and subscription (and possibly provision) interfaces defined by the present document

entity: informational representative of something that is supposed to exist in the real world, physically or conceptually

**valid:** According to the specification references in the normative reference. For example a datatype needs to be represented as stated in the specification.

## 3.2 Symbols

Void.

## 3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

CF	Config Identifier
DEL	DELETE
HTTP	HperText Transfer Protocol
JSON	Java Script Object Notation
PICS	Profile Implementation Conformance Statement
SUT	System Under Test
TP	Test Purpose
URI	Unified Resource Identification
URL	Unified Resource Location

# 4 Test Purposes Descriptions

## 4.1 Context Information

- 4.1.1 Provision
- 4.1.1.1 Entities
- 4.1.1.1.1 Create Entity

TP Id	TP/NGSI-LD/CI/Prov/E/001_01
Test objective	Check that you can create an entity
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.1
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_6_1
Initial conditions	with {     the SUT being in the "initial state" }

Expected behaviour		Test events		Direction
	URL set to /ng method set to Header: Conte	a valid Create Entity Request <b>from</b> the o psi-ld/v1/entities <b>and</b> POST <b>and</b> nt-Type <b>set to</b> \${contentType} <b>and</b> entity} to be created	client <b>containing</b>	SUT ← Client
	Respons	<b>s</b> a valid Response <b>containing</b> e Status Code <b>set to</b> 201 (CREATED) Entity <b>set to</b> \${entity}		SUT → Client
Permutatio	n on TP ld	\${contentType}	\${entit	y}
001_01_01		Application/json	Minimal entity	
001_01_02		Application/json+ld Application/json+ld	Simple properties Relationship of prop	ortios
001_01_03 001_01_04		Application/json+ld	With a location attrib	

TOLL		
TP Id	TP/NGSI-LD/CI/Prov/E/001_02	
Test objective	Check that you cannot create an entity with invalid content	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.1	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_6_1	
Initial conditions	with { the SUT being in the "initial state"	
	}	
	-	
Expected behaviour	Test events	Direction
	when { the SUT receives a Create Entity Request from the client containing	
	URL set to /ngsi-ld/v1/entities and	SUT ←Client
	method set to POST and	SUT Client
	Header: Content-Type set to application/ld+json and	
	body set to \${invalid_body}	
	then { the SUT sends a valid Response containing	
	Response Status Code <b>set to</b> 400 (Bad Request) <b>and</b>	
		SUT → Client
	Response Body containing	
	ProblemDetails element containing	
	type element set to \${problem_type} and	

	title element containing	
	more information about the error	
}		
Permutation on TP Id	\${invalid_body}	\${problem_type}
TP/NGSI-LD/CI/Prov/E/001_02_01	invalid JSON document	https://uri.etsi.org/ngsi- Id/errors/InvalidRequest
TP/NGSI-LD/CI/Prov/E/001_02_02	empty	https://uri.etsi.org/ngsi- Id/errors/BadRequestData
TP/NGSI-LD/CI/Prov/E/001_02_03	entity with no context	https://uri.etsi.org/ngsi- Id/errors/BadRequestData

TP ld	TP/NGSI-LD/CI/Prov/E/001_03		
Test objective	Check that you cannot create an entity with an existing id		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.1		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_6_1		
Initial conditions	with {     the SUT being in the "initial state" and containing an initial Entity with an id set to \${entityId}		
Expected	Test events	Direction	
behaviour	when {		
	the SUT receives a Create Entity Request from the client containing		
	URL set to /ngsi-ld/v1/entities and		
	method <b>set to</b> POST <b>and</b>	SUT $\leftarrow$ Client	
	Header: Content-Type set to application/ld+json and		
	body <b>containing</b> \${entity} with the id <b>set to</b> \${entityId}		
	}		
	then { the SUT sends a valid Response containing		
	Response Status Code set to 409 (Already Exists) and		
	Response Body containing		
	ProblemDetails element containing		
	type element <b>set to</b> https://uri.etsi.org/ngsi- ld/errors/AlreadyExists <b>and</b>	SUT → Client	
	title element containing		
	more information about the error		
	}		

TP ld	TP/NGSI-LD/CI/Prov/E/001_04		
Test objective	Check that the @context is obtained from a Link Header if the Content-Type header is "application/json"		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.5		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_6_3_5		
Initial conditions	with { the SUT being in the "initial state"		
	>		
Expected behaviour	Test events	Direction	
	<pre>when {     the SUT receives a valid Create Entity Request from the client     containing         URL set to /ngsi-ld/v1/entities and         Header: Content-Type set to application/json and         Header: Link set to a @context containing terms used by the entity to         create         body set to entity to be created     } </pre>	SUT ← Client	
	<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 201 (Created) and         Persisted Entity contains type and attributes expanded as per the supplied @context }</pre>	SUT → Client	

TP ld	TP/NGSI-LD/CI/Prov/E/001_05
Test objective	Check that the default @context is used if the Content-Type header is "application/json" and the Link header does not contain a JSON-LD @context
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.5
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_6_3_5
Initial conditions	with {     the SUT being in the "initial state"
	}

Expected behaviour	Test events	Direction
bonarioui	when {	
	the SUT receives a valid Create Entity Request from the client containing	
	URL set to /ngsi-ld/v1/entities and	SUT ← Client
	Header: Content-Type set to application/json and	
	<pre>body set to entity to be created }</pre>	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 201 (Created) and	SUT → Client
	Persisted Entity contains type and attributes expanded as per the default @context	
	}	

TP ld	TP/NGSI-LD/CI/Prov/E/001_06	
Test objective	Check that an HTTP error response of type BadRequestData is raised if the Content-Type header is "application/json" and the request payload body (as JSON) contains a "@context" term	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.5	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_6_3_5	
Initial conditions	<pre>with {    the SUT being in the "initial state" }</pre>	
Expected	Test events	Direction
behaviour		Direction
	<pre>when {     the SUT receives a valid Create Entity Request from the client     containing         URL set to /ngsi-ld/v1/entities and         Header: Content-Type set to application/json and         body set to entity containing a @context term }</pre>	SUT ← Client
	then { the SUT sends a valid Response containing Response Status Code set to 400 (Bad Request) and Response Body containing ProblemDetails element containing	SUT → Client

type element <b>set to</b> https://uri.etsi.org/ngsi- ld/errors/BadRequestData <b>and</b>	
title element containing	
more information about the error	
}	

TP/NGSI-LD/CI/Prov/E/001_07	
Check that the @context is obtained from the request payload body itself if the Content-Type header is "application/ld+json"	
ETSI GS CIM 009 V1.3.1 [1], clause 6.3.5	
CF_01	
V1.3.1	
PICS_6_3_5	
with {     the SUT being in the "initial state" }	
Test events	Direction
the SUT receives a valid Create Entity Request from the client containing URL set to /ngsi-ld/v1/entities and Header: Content-Type set to application/ld+json and body set to entity containing a @context term }	SUT ← Client
then { the SUT sends a valid Response containing Response Status Code set to 201 (Created) and Persisted Entity contains type and attributes expanded as per the supplied @context	SUT → Client
	Check that the @context is obtained from the request payload body itself if the header is "application/ld+json" ETSI GS CIM 009 V1.3.1 [1], clause 6.3.5 CF_01 V1.3.1 PICS_6_3_5 with {     the SUT being in the "initial state"     }     Test events when {         the SUT receives a valid Create Entity Request from the client         containing         URL set to /ngsi-ld/v1/entities and         Header: Content-Type set to application/ld+json and         body set to entity containing a @context term     } then {     the SUT sends a valid Response containing         Response Status Code set to 201 (Created) and         Persisted Entity contains type and attributes expanded as per the

TP ld	TP/NGSI-LD/CI/Prov/E/001_08
Test objective	Check that an HTTP error response of type BadRequestData is raised if the Content-Type header is "application/ld+json" and the request payload body does not contain a @context term
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.5
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_6_3_5

Initial conditions	with {     the SUT being in the "initial state" }	
Expected behaviour	Test events	Direction
Denavioui	when { the SUT receives a valid Create Entity Request from the client containing URL set to /ngsi-ld/v1/entities and Header: Content-Type set to application/ld+json and	SUT ← Client
	body set to entity not containing a @context term }	
	then { the SUT sends a valid Response containing	
	Response Status Code <b>set to</b> 400 (Bad Request) <b>and</b>	
	Response Body containing	
	ProblemDetails element containing	SUT → Client
	type element <b>set to</b> https://uri.etsi.org/ngsi- ld/errors/BadRequestData <b>and</b>	
	title element <b>containing</b>	
	more information about the error	

TP ld	TP/NGSI-LD/CI/Prov/E/001_09	
Test objective	Check that an HTTP error response of type BadRequestData is raised if the Content-Type header is "application/Id+json" and a JSON-LD Link header is present in the incoming HTTP request	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.5	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_6_3_5	
Initial conditions	<pre>with {    the SUT being in the "initial state" }</pre>	
Expected	Test events	Direction
behaviour	when { the SUT receives a valid Batch Entity Create Request from the client containing URL set to /ngsi-ld/v1/entities and Header: Content-Type set to application/ld+json and	SUT ← Client

Header: Link set to a @context containing terms used by the entity to create body set to entity to be created }	
then { the SUT sends a valid Response containing	
Response Status Code set to 400 (Bad Request) and	
Response Body containing	
ProblemDetails element containing	
type element <b>set to</b> https://uri.etsi.org/ngsi- ld/errors/BadRequestData <b>and</b>	SUT → Client
title element containing	
more information about the error	
}	

#### 4.1.1.1.2 Delete Entity

TP ld	TP/NGSI-LD/CI/Prov/E/002_01	
Test objective	Check that you can delete an entity by id	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.6	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_6_6	
Initial conditions	<pre>with {     the SUT being in the "initial state" and containing an initial Entity with an id \${entityId} }</pre>	set to
Expected behaviour	Test events	Direction
Denavioui	<pre>when {     the SUT receives a valid Delete Entity Request from the client     containing     URL set to /ngsi-ld/v1/entities/\${entityId} and     method set to DEL }</pre>	SUT ← Client
	then { the SUT sends a valid Response containing	SUT → Client
	Response Status Code set to 204 (No Content)	
	and does not contain an entity with \${entityId}	
	}	

TP Id		Prov/E/002_02		
	TP/NGSI-LD/CI/Prov/E/002_02			
Test objective	Check that you cannot delete an entity with invalid/missing id			
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.6			
Config Id	CF_01			
Parent Release	V1.3.1			
PICS Selection	PICS_5_6_6			
Initial conditions	with { the SUT being in the "initial state"			
	}			
Expected behaviour		Test events		Direction
Denaviour	when { the SUT receiv containing	<b>ves</b> an invalid Delete Entity Red	quest <b>from</b> the client	SUT ← Client
	URL set to	/ngsi-ld/v1/entities/ <b>{entityld_ir</b>	nvalid} and	
	method <b>se</b> t }	t to DEL		
	then { the SUT se	ends a valid Response contain	ing	SUT → Client
	Resp	onse Status Code <b>set to</b> 400 (B	Bad Request) <b>and</b>	
	Resp	onse Body <b>containing</b>		
	Р	roblemDetails element <b>contain</b>	ing	
		type element set to \${proble	em_type} and	
		title element containing		
		more information about	the error	
	}			
Permutation	on TP Id	\${entityId_invalid}	\${problem	typel
TP/NGSI-LD/CI/Prov/		Empty	https://uri.etsi.org/ng	_type}
	_,		Id/errors/BadReques	tData
TP/NGSI-LD/CI/Prov/E/002_02_02 inval		invalid URI	https://uri.etsi.org/ng Id/errors/BadReques	si-

TP ld	TP/NGSI-LD/CI/Prov/E/002_03
Test objective	Check that you cannot delete an entity if the entity id is not known to the system
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.6
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_6_6
Initial	with {
conditions	the SUT being in the "initial state"
	}

Expected behaviour	Test events	Direction
	when {     the SUT receives a valid Delete Entity Request from the client     containing	SUT ← Client
	URL set to /ngsi-ld/v1/entities/{entityId_notFound} and	
	method set to DEL }	
	then { the SUT sends a valid Response containing	SUT → Client
	Response Status Code set to 404 (Not Found) and	
	Response Body containing	
	ProblemDetails element containing	
	type element <b>set to</b> https://uri.etsi.org/ngsi- ld/errors/ResourceNotFound <b>and</b>	
	title element containing	
	more information about the error}	

## 4.1.1.2 Batch Entities

#### 4.1.1.2.1 Create batch of Entities

TP ld	TP/NGSI-LD/CI/Prov/BE/003_01	
Test objective	Check that you can create a batch of entities	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.7	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_6_7	
Initial conditions	with {     the SUT being in the "initial state"	
	}	
Expected behaviour	Test events	Direction
	when {     the SUT receives a valid Batch Entity Create Request from the client     containing	
	URL set to /ngsi-ld/v1/entityOperations/create and	SUT ← Client
	Header: Content-Type set to application/ld+json and	
	<pre>body set to array of \${entities} to be created }</pre>	
	then { the SUT sends a valid Response containing	SUT $\rightarrow$ Client
	Response Status Code set to 201 (Created) and	

Response Body set to and created resources set to }	o an array of created entities ids
Permutation on TP Id	\${entities}
TP/NGSI-LD/CI/Prov/BE/003_01_01	A list of (minimal entity)
TP/NGSI-LD/CI/Prov/BE/003_01_02	A list of (entity having only properties)
TP/NGSI-LD/CI/Prov/BE/003_01_03	A list of (entity having only relationships)
TP/NGSI-LD/CI/Prov/BE/003_01_04	A list of (entity having properties and relationships)

Reference ETSI GS (	t you can create a batch of entities where some will succeed and others will fail CIM 009 V1.3.1 [1], clause 5.6.7
	CIM 009 V1.3.1 [1], clause 5.6.7
0 11 07 01	
Config Id CF_01	
Parent Release V1.3.1	
PICS Selection PICS_5_6	_7
Initial conditions with { the SUT	being in the "initial state"
Expected behaviour	Test events
when {	receives a valid Batch Entity Create Request from the client containing
	set to /ngsi-ld/v1/entityOperations/create and
	der: Content-Type set to application/ld+json and
	y set to
	JSON-LD Array of two valid entities and one invalid entity to be
	created
}	
then {	SUT sends a valid Response containing
	Response Status Code set to 207 (Multi Status) and
	Response Body containing
	BatchOperationResult element containing
	success element set to
	URIs of the successfully created entities and
	errors element containing
	information about the error for each of the entities that could not be created
and	created resources set to the two valid entities
}	

TP ld	TP/NGSI-LD/CI/Prov/BE/00	03_03		
Test objective	Check that you cannot crea	te a batch of entities with an invalid	request	
Reference	ETSI GS CIM 009 V1.3.1 [1	], clause 5.6.7		
Config Id	CF_01			
Parent Release	V1.3.1			
PICS Selection	PICS_5_6_7			
Initial conditions	with { the SUT being in the "init	tial state"		
	}			
Expected behaviour		Test events		Direction
	when { the SUT receives an inva containing	alid Batch Entity Create Request <b>frc</b>	om the client	
	URL set to /ngsi-ld/v1	/entityOperations/create and		SUT ← Client
	Header: Content-Type	e set to application/ld+json and		
	body set to \${invalid_ }	_body}		
	then { the SUT sends a vali	d Response containing		
	Response Statu	s Code <b>set to</b> 400 (Bad Request) <b>a</b>	nd	
	Response Body	containing		
	ProblemDeta	ails element containing		SUT → Client
	type eler	ment set to \${problem_type} and		
	title elem	nent containing		
	mo	pre information about the error		
	}			
Permu	tation on TP Id	\${invalid_body}	\${proble	m type}
TP/NGSI-LD/CI/Pro		invalid JSON document	https://uri.etsi.org	g/ngsi-
TP/NGSI-LD/CI/Pro	ov/BE/003_03_02	empty	https://uri.etsi.org	g/ngsi-

TP ld	TP/NGSI-LD/CI/Prov/BE/003_04
Test objective	Check that the @context is obtained from a Link Header if the Content-Type header is "application/json"
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.7
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_6_3_5
Initial conditions	with {     the SUT being in the "initial state"

	}	
Expected behaviour	Test events	Direction
	when {     the SUT receives a valid Batch Entity Create Request from the client containing	
	URL set to /ngsi-ld/v1/entityOperations/create and	
	Header: Content-Type set to application/json and	$SUT \leftarrow Client$
	Header: Link <b>set to</b> a @context <b>containing</b> terms used by the entity to create	
	body <b>set to</b> entity to be created }	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 201 (Created) and	
	Response Body <b>set to</b> an array with the created entity id <b>and</b>	SUT $\rightarrow$ Client
	Persisted Entity contains type and attributes expanded as per the supplied @context	
	}	
TP ld	TP/NGSI-LD/CI/Prov/BE/003_05	
Test objective	Check that the default @context is used if the Content-Type header is "applicatio Link header does not contain a JSON-LD @context	n/json" and the
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.7	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_6_3_5	
Initial conditions	with { the SUT being in the "initial state"	
	}	
Expected behaviour	Test events	Direction
benaviour	when {     the SUT receives a valid Batch Entity Create Request from the client     containing	
	URL set to /ngsi-ld/v1/entityOperations/create and	SUT $\leftarrow$ Client
	Header: Content-Type set to application/json and	
	body set to entity to be created }	

then { the SUT se	nds a valid Response containing	
Respo	onse Status Code set to 201 (Created) and	
Respo	onse Body <b>set to</b> an array of created entities ids <b>and</b>	SUT → Client
Persis default @context	ted Entity contains type and attributes expanded as per the	
}		

TP ld	TP/NGSI-LD/CI/Prov/BE/003_06	
Test objective	Check that an HTTP error response of type BadRequestData is raised if the Con header is "application/json" and the request payload body (as JSON) contains a	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.7	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_6_3_5	
Initial conditions	<pre>with {    the SUT being in the "initial state" }</pre>	
Expected behaviour	Test events	Direction
	<pre>when {     the SUT receives a valid Batch Entity Create Request from the client     containing         URL set to /ngsi-ld/v1/entityOperations/create and         Header: Content-Type set to application/json and         body set to entity containing a @context term }</pre>	SUT ← Client
	<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 400 (Bad Request) and         Response Body containing         ProblemDetails element containing         type element set to https://uri.etsi.org/ngsi- Id/errors/BadRequestData and         title element containing         more information about the error }</pre>	SUT → Client

TP ld	TP/NGSI-LD/CI/Prov/BE/003_07	
Test objective	Check that the @context is obtained from the request payload body itself if the Context is "application/Id+json"	ontent-Type
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.7	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_6_3_5	
Initial conditions	with { the SUT being in the "initial state"	
	}	
Expected	Test events	Direction
behaviour		
	when {     the SUT receives a valid Batch Entity Create Request from the client     containing	
	URL set to /ngsi-ld/v1/entityOperations/create and	SUT ← Client
	Header: Content-Type set to application/ld+json and	
	body <b>set to</b> entity <b>containing</b> a @context term }	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 201 (Created) and	
	Response Body <b>set to</b> an array with the created entity id <b>and</b>	SUT → Client
	Persisted Entity contains type and attributes expanded as per the supplied @context	
	}	

TP ld		
IF IU	TP/NGSI-LD/CI/Prov/BE/003_08	
Test objective	Check that an HTTP error response of type BadRequestData is raised if the Content-Type	
	header is "application/Id+json" and the request payload body does not contain a @	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.7	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_6_3_5	
Initial conditions	with {	
	the SUT being in the "initial state"	
	}	
Expected behaviour	Test events	Direction
Denaviour	when {	
	the SUT receives a valid Batch Entity Create Request from the client	
	containing	SUT $\leftarrow$ Client
	URL set to /ngsi-ld/v1/entityOperations/create and	

Header: Content-Type <b>set to</b> application/ld+json <b>and</b> body <b>set to</b> entity <b>not containing</b> a @context term }	
then { the SUT sends a valid Response containing	
Response Status Code set to 400 (Bad Request) and	
Response Body containing	
ProblemDetails element containing	
type element <b>set to</b> https://uri.etsi.org/ngsi- Id/errors/BadRequestData <b>and</b>	SUT → Client
title element containing	
more information about the error	
}	

TP ld	TP/NGSI-LD/CI/Prov/BE/003_09	
Test objective	Check that an HTTP error response of type BadRequestData is raised if the Cont header is "application/Id+json" and a JSON-LD Link header is present in the incor request	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.7	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_6_3_5	
Initial conditions	with {     the SUT being in the "initial state"	
	}	
Expected behaviour	Test events	Direction
	when {     the SUT receives a valid Batch Entity Create Request from the client containing	
	URL set to /ngsi-ld/v1/entityOperations/create and	
	Header: Content-Type <b>set to</b> application/ld+json <b>and</b>	$SUT \leftarrow Client$
	Header: Link <b>set to</b> a @context <b>containing</b> terms used by the entity to create	
	body <b>set to</b> entity to be created }	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 400 (Bad Request) and	SUT → Client
	Response Body containing	
	ProblemDetails element containing	

type element <b>set</b> to https://uri.etsi.org/ngsi- ld/errors/BadRequestData <b>and</b>	
title element containing	
more information about the error	
}	

## 4.1.1.2.2 Upsert batch of Entities

TP Id	TP/NGSI-LD/CI/Prov/BE/004_01		
Test objective	Check that you can upsert a batch of non-existing entities and they will be created		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.8		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_6_8		
Initial conditions	with { the SUT being in the "initia	with { the SUT being in the "initial state"	
Expected behaviour		Test events	Direction
Denaviour	when { the SUT receives a valid Batch Entity Upsert Request from the client containing URL set to /ngsi-ld/v1/entityOperations/upsert and		
	Header: Content-Type set to application/Id+json and     SUT ← Client       body set to array of \${entities} to be upserted		SUI ← Client
	then {       the SUT sends a valid Response containing       Response Status Code set to 201 (Created) and         Response Body set to an array of created entities ids       SUT → Client         and updated resources set to \${entities}       }		
Permu	tation on TP Id	\${entities}	
TP/NGSI-LD/CI/Prov/		A list of (entity having only properties)	
TP/NGSI-LD/CI/Prov/		A list of (entity having only relationships)	
TP/NGSI-LD/CI/Prov/	BE/004_01_03	A list of (entity having properties and relations	hips)

TP ld	TP/NGSI-LD/CI/Prov/BE/004_02
-	Check that you can upsert a batch of non-existing and existing entities where non-existing will be created and existing will be replaced
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.8

Config Id	CF_01			
-				
Parent Release	V1.3.1			
PICS Selection	PICS_5_6_8			
Initial conditions	with { the SUT being in the "initial state" and containing \${existing_entities}			
	}			
Expected behaviour		Test events		Direction
	when { the SUT receives containing	<b>s</b> a valid Batch Entity Upsert Request <b>fr</b>	r <b>om</b> the client	
	URL set to /n	gsi-ld/v1/entityOperations/upsert and		SUT ← Client
	Header: Cont	ent-Type <b>set to</b> application/ld+json <b>and</b>	l	
	body set to array of \${new_existing_entities} and \${non_existing_entities} }			
	then { the SUT sends a valid Response containing			
	Response Status Code set to 201 (Created) and			
	Response Body <b>set to</b> an array of			
	\${non_existing_entities} ids		SUT → Client	
	and created resources set to \${non_existing_entities}			
	and updated resources set to \${new_existing_entities}			
	}			
Permutation	on TP Id	\${existing_entities}	\${non_exis	ting_entities}
TP/NGSI-LD/CI/Prov/B		A list of (entity having properties and relationships)	A list of (entity ha	
TP/NGSI-LD/CI/Prov/B		A list of (entity having properties and relationships)	A list of (entity har relationships)	•••
TP/NGSI-LD/CI/Prov/BE/004_02_03       A list of (entity having properties and relationships)       A list of (entity having properties and relationships)				

TP ld	TP/NGSI-LD/CI/Prov/BE/004_03
Test objective	Check that you can upsert a batch of existing entities and they will be replaced
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.8
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_6_8
Initial conditions	<pre>with {    the SUT being in the "initial state" and containing existing entities }</pre>

Expected behaviour		Test events	Direction
	when { the SUT receives a valid Ba containing	tch Entity Upsert Request <b>from</b> the client	
	URL set to /ngsi-ld/v1/entityOperations/upsert and		
	Header: Content-Type se	et to application/Id+json and	SUT ← Client
	body set to array of \${en	itities}	
	}		
	then { the SUT sends a valid R	esponse containing	
	Response Status C	ode set to 204 (No Content)	
			SUT → Client
	and updated resources set to \${entities}		
	}		
Permut	tation on TP Id	\${existing_entities}	
TP/NGSI-LD/CI/Prov/B		A list of (entity having only properties)	
TP/NGSI-LD/CI/Prov/B		A list of (entity having only relationships)	
TP/NGSI-LD/CI/Prov/B	E/004_03_03	A list of (entity having properties and relation	ships)

75.11		
TP ld	TP/NGSI-LD/CI/Prov/BE/004_04	
Test objective	Check that you can upsert a batch of entities with update option	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.8	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_6_8	
Initial conditions	<pre>with {    the SUT being in the "initial state" and containing \${existing_entities} }</pre>	
Expected behaviour	Test events	Direction
	when {     the SUT receives a valid Batch Entity Upsert Request from the client     containing	
	URL set to /ngsi-Id/v1/entityOperations/upsert and	
	Header: Content-Type set to application/ld+json and	$SUT \leftarrow Client$
	Query parameter: options <b>set to</b> update <b>and</b>	
	body set to array of \${new_existing_entites} and \${non_existing_entities} }	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 201 (Created) and	SUT → Client
	Response Body set to an array of created entities ids	

and updated r	and created resources set to the \${non_existing_entities} and updated resources set to \${existing_entities} updated with attributes in \${new_existing_entites} }		
Permutation on TP Id	\${existing_entities}	\${non_existing_entities}	
TP/NGSI-LD/CI/Prov/BE/004_04_01	A list of (entity having properties and relationships)	A list of (entity having only properties)	
TP/NGSI-LD/CI/Prov/BE/004_04_02	A list of (entity having properties and relationships)	A list of (entity having only relationships)	
TP/NGSI-LD/CI/Prov/BE/004_04_03	A list of (entity having properties and relationships)	A list of (entity having properties and relationships)	

TP Id	TP/NGSI-LD/CI/Prov/BE/004_05		
Test objective	Check that you can upsert a batch of entities where some will succeed and others will fail		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.8		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_6_8		
Initial conditions	<pre>with {    the SUT being in the "initial state" and containing existing entities }</pre>		
Expected behaviour	Test events	Direction	
	<pre>the SUT receives a valid Batch Entity Upsert Request from the client containing     URL set to /ngsi-ld/v1/entityOperations/upsert and     Header: Content-Type set to application/ld+json and     body set to     JSON-LD Array of two valid entities and one invalid entity } then {</pre>	SUT ← Client	
	the SUT sends a valid Response containing         Response Status Code set to 207 (Multi Status) and         Response Body containing         BatchOperationResult element containing         success element set to         Ids of successfully created or updated entities and         errors element containing         information about the error for each of the entities that         could not be created or updated	SUT → Client	

and updated resources set to the two valid entities	
}	

TP Id	TP/NGSLI D/CI/Prov/BE/	004 06		
	TP/NGSI-LD/CI/Prov/BE/004_06			
Test objective	Check that you cannot upsert a batch of entities with an invalid request			
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.8			
Config Id	CF_01			
Parent Release	V1.3.1			
PICS Selection	PICS_5_6_8			
Initial conditions	with { the SUT being in the "i	nitial state"		
	}			
Expected behaviour		Test events		Direction
	containing URL set to /ngsi-ld/	hvalid Batch Entity Upsert Request <b>f</b> /v1/entityOperations/upsert <b>and</b> /pe <b>set to</b> application/Id+json <b>and</b> <b>id_body}</b>	rom the client	SUT ← Client
	then { the SUT sends a valid Response containing			
	Response Status Code set to 400 (Bad Request) and			
	Response Boo	dy <b>containing</b>		
	ProblemDetails element containing SUT			SUT $\rightarrow$ Client
	type element set to \${problem_type} and			
	title ele	ement containing		
	r	nore information about the error		
	}			
Permuta	tion on TP Id	\${invalid_body}	\${problem	n_type}
TP/NGSI-LD/CI/Prov/		Is invalid JSON document	https://uri.etsi.org/r	ngsi-
TP/NGSI-LD/CI/Prov/	/BE/004_06_02	Contains a null value in any of its items	Id/errors/InvalidRed https://uri.etsi.org/r Id/errors/BadReque	ngsi-

TP ld	TP/NGSI-LD/CI/Prov/BE/005_01		
Test objective	Check that you can update a batch of entities		
Reference	ETSI GS CIM 009 V1.3.1 [1], claus	se 5.6.9	
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_6_9		
Initial conditions	with { the SUT being in the "initial state" and containing \${existing_entities} }		
Expected behaviour		Test events	Direction
	the SUT receives a valid Batch Entity Update Request from the client containing URL set to /ngsi-ld/v1/entityOperations/update and Header: Content-Type set to application/ld+json and body set to array of \${entities} }		SUT ← Client
	the SUT sends a valid Response containing       Response Status Code set to 204 (No Content)         and updated resources set to \${existing_entities} updated with attributes in \${entities}       SUT → Client		
Perr	nutation on TP Id	\${entities}	I
TP/NGSI-LD/CI/Prov		A list of (entity having only properties)	
TP/NGSI-LD/CI/Prov/BE/005_01_02		A list of (entity having only relationships)	
TP/NGSI-LD/CI/Prov		A list of (entity having properties and relations)	hips)
		properties and relations	(190)

4.1.1.2.3	Update batch of Entities
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TP Id	TP/NGSI-LD/CI/Prov/BE/005_02
Test objective	Check that you can update a batch of entities with noOverwrite option
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.9
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_6_9
Initial conditions	<pre>with {    the SUT being in the "initial state" and containing \${existing_entities} }</pre>

Expected behaviour	Te	est events	Direction
Benaviour	when {		
	the SUT receives a valid Batch E containing	ntity Update Request <b>from</b> the client	
	URL set to /ngsi-ld/v1/entityO	perations/update <b>and</b>	SUT $\leftarrow$ Client
	Header: Content-Type set to a	application/ld+json <b>and</b>	
	Query Parameter: options set	to noOverwrite and	
	body set to array of \${entities }	5}	
	then { the SUT updates the requester attributes and	ed entities without overwriting existing	
	sends a valid Response con	taining	
	Response Status Code	set to 204 (No Content)	SUT $\rightarrow$ Client
	and updated resources set to from \${entities} appended	\${existing_entities} with new attributes	
	}		
Per	mutation on TP Id	\${entities}	
TP/NGSI-LD/CI/Prov		A list of (entity having only properties)	
TP/NGSI-LD/CI/Prov		A list of (entity having only relationships)	
TP/NGSI-LD/CI/Prov	//BE/005_02_03	A list of (entity having properties and relation	ships)

TP ld	TP/NGSI-LD/CI/Prov/BE/005_03	
Test objective	Check that you can update a batch of entities where some will succeed and other	s will fail
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.9	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_6_9	
Initial conditions	<pre>with {     the SUT being in the "initial state" and containing \${existing_entities} }</pre>	
Expected	Test events	Direction
Expected behaviour	Test events when {	Direction
		Direction
	when { the SUT receives a valid Batch Entity Update Request from the client	Direction SUT ← Client
	when { the SUT receives a valid Batch Entity Update Request from the client containing	

then { the SUT sends a valid Response containing	
Response Status Code set to 207 (Multi Status) and	
Response Body containing	
BatchOperationResult element containing	
success element <b>set to</b>	
Ids of successfully updated entities and	
errors element containing	SUT → Client
information about the error for each of the	
entities that could not be updated	
and updated resources set to \${existing_entities} updated with attributes in \${new_existing_entities}	

TP Id	TP/NGSI-LD/CI/Prov/BE/005_04			
Test objective	Check that you cannot update a batch of entities with an invalid request			
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.9	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.9		
Config Id	CF_01			
Parent Release	V1.3.1			
PICS Selection	PICS_5_6_9			
Initial conditions	with { the SUT being in the "initial state"			
	}			
Expected behaviour	Test events	Direction		
	<pre>when {     the SUT receives an invalid Batch Entity Update Request from the client     containing         URL set to /ngsi-ld/v1/entityOperations/update and         Header: Content-Type set to application/ld+json and         body set to \${invalid_body} }</pre>	SUT ← Client		
	then { the SUT sends a valid Response containing Response Status Code set to 400 (Bad Request) and Response Body containing ProblemDetails element containing type element set to \${problem_type} and	SUT → Client		

title ele	ement containing		
n n	nore information about the error		
}			
Permutation on TP Id	\${invalid_body}	\${problem	_type}
TP/NGSI-LD/CI/Prov/BE/005_04_01	Is invalid JSON document	https://uri.etsi.org/n ld/errors/InvalidRed	
TP/NGSI-LD/CI/Prov/BE/005_04_02	Is not syntactically correct according to the @context	https://uri.etsi.org/n ld/errors/BadReque	

#### 4.1.1.2.4 Delete batch of Entities

TP ld	TP/NGSI-LD/CI/Prov/BE/006_01	
Test objective	Check that you can delete a batch of entities	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.10	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_6_10	
Initial conditions	with { the SUT being in the "initial state" and containing existing entities	
	}	
Expected behaviour	Test events	Direction
	<pre>when {     the SUT receives a valid Batch Entity Delete Request from the client     containing         URL set to /ngsi-ld/v1/entityOperations/delete and         Header: Content-Type set to application/ld+json and         body set to JSON-LD Array of \${entities_ids} to be deleted     } </pre>	SUT ← Client
	<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 204 (No Content)     and the SUT not containing resources with id in \${entities_ids} }</pre>	SUT → Client

TP ld	TP/NGSI-LD/CI/Prov/BE/006_02
Test objective	Check that you can delete a batch of entities where some will succeed and others will fail
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.10
Config Id	CF_01
Parent Release	V1.3.1

PICS Selection	PICS_5_6_10	
Initial conditions	with { the SUT being in the "initial state" and containing existing entities	
	}	
Expected	Test events	Direction
behaviour	when {	
	the SUT receives a valid Batch Entity Delete Request from the client containing	
	URL set to /ngsi-ld/v1/entityOperations/delete and	SUT $\leftarrow$ Client
	Header: Content-Type set to application/ld+json and	
	body set to JSON-LD Array of \${existing_entities_ids} and \${non- existing_entities_ids} to be deleted }	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 207 (Multi Status) and	
	Response Body containing	
	BatchOperationResult element containing	
	success element <b>set to</b>	
	Ids of successfully deleted entities and	SUT → Client
	errors element containing	
	information about the error for each of the	
	entities that could not be deleted	
	and the SUT not containing resources with id in \${existing_entities_ids}	
	}	

TP ld	TP/NGSI-LD/CI/Prov/BE/006_03
Test objective	Check that you cannot delete a batch of entities with an invalid request
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.10
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_6_10
Initial conditions	with {     the SUT being in the "initial state" }

Expected behaviour		Test events		Direction
	containing URL set to /ngsi-ld/\	valid Batch Entity Delete Request fr /1/entityOperations/delete <b>and</b> be <b>set to</b> application/ld+json <b>and</b> <b>d_body}</b>	<b>om</b> the client	SUT ← Client
	Response Stat	alid Response <b>containing</b> tus Code <b>set to</b> 400 (Bad Request)	and	
		etails element <b>containing</b>		SUT → Client
	title ele	ement set to \${problem_type} and ment containing nore information about the error		
Permuta	tion on TP Id	\${invalid_body}	\${problem	tvpe}
TP/NGSI-LD/CI/Prov/		Is invalid JSON document	https://uri.etsi.org/n ld/errors/InvalidRed	igsi-
TP/NGSI-LD/CI/Prov/	/BE/006_03_02	Is empty	https://uri.etsi.org/n Id/errors/BadReque	igsi-

## 4.1.1.3 Temporal Entity

## 4.1.1.3.1 Create temporal representation of Entity

TP ld	TP/NGSI-LD/CI/PROV/TE/007_01
Test objective	Check that you can create a temporal representation of an entity
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.11
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_6_11
Initial conditions	with {     the SUT being in the "initial state" }

Expected behaviour	Test events			Direction
	when { the SUT receives a valid Create Temporal Entity Request from the client containing			
	URL set to	/ngsi-ld/v1/entities and		
	method <b>set to</b> POST <b>and</b> Header: Content-Type <b>set to</b> \${contentType} <b>and</b>			
	body set to	<pre>\${entityTemporal} to be created</pre>		
	Respo	<b>nds</b> a valid Response <b>containing</b> onse Status Code <b>set to</b> 201 (CREATE ed Entity <b>set to</b> \${entity}	D)	SUT → Client
Permutation	on TP Id	\${contentType}	\${entityTem	poral}
007_01_01		Application/json	entity with simplified temporal representation of an Entity (clause 4.5.9)	
007_01_02		Application/json+ld	entity with simple temp (arrays of (Property or instances represented objects) as defined in o and 4.5.8	Relationship) by JSON-LD
007_01_03		Application/json	No Context	

TP Id	TP/NGSI-LD/CI/PROV/TE/007_02		
Test objective	Check that you cannot create a temporal entity with an invalid request		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.11		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_6_11		
Initial conditions	<pre>with {    the SUT being in the "initial state" }</pre>		
Expected	Test events	Direction	
behaviour			
	when {     the SUT receives a valid Create Temporal Entity Request from the client     containing		
	URL set to /ngsi-ld/v1/entities and		
	method <b>set to</b> POST <b>and</b>	SUT ← Client	
	Header: Content-Type <b>set to</b> \${contentType} <b>and</b>		
	<pre>body set to \${invalid_body} to be created }</pre>		
	then { the SUT sends a valid Response containing	SUT $\rightarrow$ Client	

Resp	onse Status Code <b>set to</b> 400 (Bad Reque	est) and		
Response Body containing				
ProblemDetails element containing				
type element set to \${problem_type} and				
title element containing				
more information about the error				
}				
Permutation on TP Id	\${invalid_body}	\${problem_type}		
007_02_01	Is not syntactically correct according	https://uri.etsi.org/ngsi-		
	to the @context	Id/errors/BadRequestData		
007_02_02	Is invalid JSON document	https://uri.etsi.org/ngsi-		
		Id/errors/InvalidRequest		

## 4.1.1.3.2 Update temporal representation of Entity

TP ld	TP/NGSI-LD/CI/PROV/TE/008_01			
Test objective	Check that you can update a temporal representation of an entity with simple temporal properties (arrays of (Property or Relationship) instances represented by JSON-LD objects) as defined in clauses 4.5.7 and 4.5.8			
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.11			
Config Id	CF_01			
Parent Release	V1.3.1			
PICS Selection	PICS_5_6_11			
Initial conditions	<pre>with {     the SUT being in the "initial state" with at least one entity with a temporal representation }</pre>			
Expected behaviour	Test events	Direction		
Denavioui	when {     the SUT receives a valid Update Temporal Entity Request from the client     containing			
	URL set to /ngsi-Id/v1/entities and			
	method set to POST and	SUT ← Client		
	Header: Content-Type <b>set to</b> \${contentType} <b>and</b>			
	body <b>set to</b> \${entityTemporal} to be created }			
	then { the SUT sends a valid Response containing			
	Response Status Code <b>set to</b> 204	SUT $\rightarrow$ Client		
	Updated Entity <b>set to</b> \${entityTemporal}			
	}			

#### 4.1.1.3.3 Add Attributes to Temporal Representation of an Entity

TP ld	TP/NGSI-LD/CI/PROV/TEA/014_01			
Test objective	Check that you can add a simple temporal attribute to a temporal representation of an entity			
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.12			
Config Id	CF_01			
Parent Release	V1.3.1			
PICS Selection	PICS_5_6_12			
Initial conditions		the "initial state" <b>containi</b> oral attribute with an id <b>se</b> t	ng an initial Entity <b>\${entity}</b> with a t to <b>\${atrrId}</b>	n id <b>set to</b>
Expected behaviour	Test events		Direction	
	<pre>when {     the SUT receives a valid Add Temporal Attribute Request from the client     containing         URL set to /ngsi-ld/v1/ entities/\${entityId}/attrs and         method set to POST and         Header: Content-Type set to \${contentType} and         body set to \${entityTemporalFragment} to be created     }     then {         the SUT sends a valid Response containing         Response Status Code set to 204     } }</pre>			SUT ← Client
	}	e Status Code <b>Set 10</b> 204		SUT → Client
Permutation on TP		\${contentType}	\${entityTemporalFra	
014_01_01 014_01_02	Existing Id Existing Id	Application/json Application/json+ld	Simplified temporal attribute (cla entity with simple temporal prop (Property or Relationship) insta represented by JSON-LD objec clauses 4.5.7 and 4.5.8	perties (arrays of nces
014_01_03	Existing Id	Application/json	No Context	

TP ld	TP/NGSI-LD/CI/F	PROV/TEA/014_02			
Test objective	check that an err not present)	or BadRequestData is raisec	l if you add an attribute to a non-	existing Entity (id	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.12				
Config Id	CF_01				
Parent Release	V1.3.1	V1.3.1			
PICS Selection	PICS_5_6_12				
Initial conditions	with { the SUT conta }	ining no Entity with an id se	t to \${entityId}		
Expected	•	Test events		Direction	
behaviour	when { the SUT receiv from the client co	ves a valid Add Temporal att ontaining	ribute to non-existing entity		
	URL set to	SUT ← Client			
	method set				
		ntent-Type <b>set to</b> \${content]			
	body set to }	\${entityTemporalFragment}	to be created		
	then { the SUT se	ends a valid Response conta	ining		
	Respo	onse Status Code <b>set to</b> 400	(Bad Request) and		
	Respo	onse Body <b>containing</b>			
	Pi	ProblemDetails element <b>containing</b> SUT → Client			
		type element set to \${prol	olem_type} and		
		title element containing			
		more information abo	out the error		
	}				
Permutation on TP Id	\${EntityId)	\${entityTemporalFragme nt} to	\${problem_type	e}	
014_02_01	Non Existing valid https://uri.etsi.org/ngsi-Id/errors/BadRequestDa				
014_02_02	invalid URI	valid	https://uri.etsi.org/ngsi-Id/errors/	BadRequestData	

TP ld	TP/NGSI-LD/CI/PROV/TEA/ 014_03_01
Test objective	check that an error <b>ResourceNotFound</b> is raised if you add an attribute with an endpoint that has no existing temporal representation of an Entity with the passed id
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.12
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_6_12

	vith { containing an initial ttribute	Entity <b>\${entity}</b> with an id <b>set to \$</b>	\${entityId} and no exis	sting temporal
}				
Expected behaviour		Test events		Direction
M	epresentation of an ex URL <b>set to</b> /ngsi- method <b>set to</b> PC Header: Content- body <b>set to</b> \${ent	valid Add temporal attribute to a n kisting entity <b>from</b> the client <b>conta</b> Hd/v1/ entities/\${EntityId}/attrs <b>and</b> DST <b>and</b> Type <b>set to</b> \${contentType} <b>and</b> kityTemporalFragment} to be creat	lining	SUT ← Client
t	<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 404 (Not Found) and         Response Body containing         ProblemDetails element containing         type element set to \${problem_type} and         title element containing         more information about the error }</pre>			SUT → Client
Permutation on TP Id	\${EntityId)	<pre>\${entityTemporalFragment}</pre>	\${problem_	_type}
014_03_01	Existing, no existing temporal representation	valid	https://uri.etsi.org/ngs ld/errors/ResourceNo	

## 4.1.1.3.4 Delete Attribute from Temporal Representation of an Entity

TP Id	TP/NGSI-LD/CI/PROV/TEA/015_01		
Test objective	Check that you can delete an attribute of a temporal representation of an entity with simplified temporal representation of an Entity (clause 4.5.9) by id		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.13		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_6_13		
Initial conditions	<pre>with {     the SUT containing an initial Entity \${entity} with an id set to \${entityId} ar     with an id set to \${atrrId} }</pre>	nd an attribute	
Expected behaviour	Test events	Direction	
		SUT ← Client	

	from the clien URL set method	<pre>wnen {     the SUT receives a valid Delete temporal attribute of an existing entity from the client containing     URL set to /ngsi-ld/v1/ entities/\${EntityId}/attrs/\${attrId} and     method set to DEL and     Header: Content-Type set to \${contentType}</pre>			
	}	}			
	then { the SUT sends a valid Response containing				
	Response Status Code <b>set to</b> 204				SUT → Client
Permutation on	\${EntityId}	\${attrld}	\${deleteAll	\${contentT	ype}
TP Id			}		
015_01_01	Existing	Existing		Application/json	
015_01_02	Existing	Existing			
015_01_03	Existing	Existing	Not present	Application/json+ld	

TP ld	TP/NGSI-LD/CI/PROV/TEA/015_02			
Test objective	Check that you can delete an attribute of a temporal representation of an entity with simplified temporal representation of an Entity (clause 4.5.9) by id. Check that if the deleteAll flag is set, all target attributes are deleted from the target temporal Entity			
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.13			
Config Id	CF_01			
Parent Release	V1.3.1			
PICS Selection	PICS_5_6_13			
Initial conditions	<pre>with {     the SUT containing an initial Entity \${entity} with an id set to \${entityId} and an attribute with an id set to \${atrrId} }</pre>			
Expected behaviour	Test events	Direction		
	<pre>when {     the SUT receives a valid Delete temporal attribute of an existing entity from the client containing     URL set to /ngsi-ld/v1/ entities/\${EntityId}/attrs/\${attrId} and     method set to DEL and     Header: Content-Type set to \${contentType} and     Query Parameter: datasetId set to \${datasetId} and     Query Parameter: deleteAll set to \${deleteAll} }</pre>	SUT ← Client		
	then { the SUT sends a valid Response containing	SUT → Client		

Response Status Code set to 204				
}				
Permutation on TP Id	\${EntityId)	\${attrld}	\${datasetID}	\${deleteAll}
015_02_01	Existing	Existing	Not provided	True
015_02_02	Existing	Existing	Valid	Not set
015_02_03	Existing	Existing	Not provided	Not set

75.11				
TP ld	TP/NGSI-LD/CI/PROV/TEA/015_04			
	Check that you an error <b>BadRequestData</b> is raised if you delete an attribute to a non-existing Entity (id not present)			
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.13			
Config Id	CF_01			
Parent Release	V1.3.1			
PICS Selection	PICS_5_6_13			
Initial conditions	with { the SUT conta	ining no Entity with an id se	t to \${entityId}	
	}			
Expected behaviour		Test events		Direction
	when { the SUT receiv from the client co			
	URL set to	/ngsi-ld/v1/ entities/\${Entityle	d}/attrs/\${attrld} and	SUT ← Client
	method set to DEL and			
	Header: Content-Type <b>set to</b> \${contentType}			
1	}			
1	then { the SUT sends a valid Response containing			
	Response Status Code set to 400 (Bad Request) and			
	Respo	onse Body <b>containing</b>		
	Pr	oblemDetails element conta	ining	SUT → Client
		type element set to \${prol	olem_type} and	
		title element containing		
		more information abo	out the error	
]	}			
Permutation on TP Id	\${EntityId)	\${attr	\${problem_type}	
015_04_01	Non Existing	valid	https://uri.etsi.org/ngsi-	
015_04_02	invalid URI	valid	ld/errors/BadRequestData https://uri.etsi.org/ngsi- ld/errors/BadRequestData	

TP ld	TP/NGSI-LD/CI/PRO	OV/TEA/015_05				
Test objective	check that an error <b>BadRequestData</b> is raised if you delete an attribute with an invalid attribute Name of an temporal entity					
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.13					
Config Id	CF_01	CF_01				
Parent Release	V1.3.1					
PICS Selection	PICS_5_6_13					
Initial conditions	with { the SUT containi	<b>ng</b> Entity with an id <b>set to</b>	\${entityId}			
	}					
Expected behaviour		Test events		Direction		
	when { the SUT receives from the client cont		attribute to non-existing entity			
	URL set to /ngsi-ld/v1/ entities/\${EntityId}/attrs/\${attrId} and					
	method set to DEL and $SUT \leftarrow C$					
	Header: Content-Type <b>set to</b> \${contentType}					
	1					
		}				
		then { the SUT sends a valid Response containing				
	Respons	se Status Code <b>set to</b> 400	(Bad Request) and			
	Respons	e Body <b>containing</b>				
	ProblemDetails element <b>containing</b> SUT $\rightarrow$ Client					
	type element set to \${problem_type} and					
	title element containing					
	more information about the error					
	}					
Permutation on TP	ld \${EntityId)	\${attrID}	\${problem_type	}		
015_05	Non Existing	Invalid	https://uri.etsi.org/ngsi- Id/errors/BadRequestData			

TP ld	TP/NGSI-LD/CI/PROV/TE/015_06
Test objective	check that an error <b>ResourceNotFound</b> is raised if you delete an attribute with an endpoint that has no existing temporal representation of an Entity with the passed id
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.13
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_6_13

	<pre>with {     containing an initial Entity \${entity} with an id set to \${entityId} and no existing temporal attribute }</pre>			
Expected behaviour		Test events		Direction
Ī	emporal represe URL <b>set to</b> method <b>set</b>	<b>ves</b> a valid Delete temporal a ntation of an existing entity fi /ngsi-ld/v1/ entities/\${Entityle to DEL and ntent-Type set to \${content]	rom the client containing d}/attrs/\${attrld} and	SUT ← Client
t	then { the SUT sends a valid Response containing			
	Response Status Code set to 404 (Not Found) and			
	Response Body containing			
	ProblemDetails element <b>containing</b> SUT →			
		type element set to \${prob	plem_type} and	
		title element containing		
		more information abo	out the error	
}				
Permutation on TP Id	\${EntityId)	\${attrld}	\${problem_type}	
015_06_01	Existing	Non existing temporal representation	https://uri.etsi.org/ngsi- ld/errors/ResourceNotFound	
015_06_02	Existing	Non existing	https://uri.etsi.org/ngsi- Id/errors/ResourceNotFound	

## 4.1.1.3.5 Partial update Attribute instance in Temporal Representation of an Entity

TP ld	TP/NGSI-LD/CI/PROV/TEA/016_01
Test objective	Check that you can update an attribute instance by its instanceld of a temporal representation of an entity with simple temporal properties (arrays of (Property or Relationship) instances represented by JSON-LD objects) as defined in clauses 4.5.7 and 4.5.8
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.14
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_6_14
Initial conditions	<pre>with {     the SUT being in the "initial state" containing an initial Entity \${entity} with an id set to \${entityId} an temporal attribute with an id set to \${atrrId} and an existing \${instanceID} }</pre>

Expected behaviour		Test even	ts	Direction	
1	<pre>when {     the SUT receives a valid Update Temporal Attribute Instance Request from     the client containing         URL set to /ngsi-ld/v1/ entities/\${entityId}/attrs/\${attrId}/\${instanceId} and         method set to POST and         Header: Content-Type set to \${contentType} and         body set to \${entityTemporalFragment} to be created }</pre>				
1	then { the SUT sen	ds a valid Response con	taining		
	Respon	se Status Code <b>set to</b> 20	4 and	SUT $\rightarrow$ Client	
	Update	t set to \${entityTemporalFragment}			
[	}				
Permutation on TP Id	\${InstanceId}	\${contentType}	\${entityTemporalFragr	nent}	
016_01_01	Existing Id	Application/json	Simplified temporal attribute (claus	e 4.5.9)	
016_01_02	Existing Id	Application/json+ld	entity with simple temporal properties (arrays of (Property or Relationship) instances represented by JSON-LD objects) as defined in clauses 4.5.7 and 4.5.8		
016_01_03	Existing Id	Application/json	No Context		

TP ld	TP/NGSI-LD/CI/PROV/TE/016_02	
Test objective	Check that you an error <b>BadRequestData</b> is raised if you update an attribute inst instanceld of a non-existing temporal Entity (id not present)	ance by its
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.14	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_6_14	
Initial conditions	<pre>with {    the SUT being in the "initial state" containing no Entity \${entity} with an id set }</pre>	to \${entityId}
Expected behaviour	Test events	Direction
	<pre>when {     the SUT receives a valid Update Temporal Attribute Instance Request from     the client containing         URL set to /ngsi-ld/v1/ entities/\${entityId}/attrs/\${attrId}/\${instanceId} and         method set to POST and         Header: Content-Type set to \${contentType} and         body set to \${entityTemporalFragment} to be created</pre>	SUT ← Client

1	then { the SUT send			
	Respon			
	Respon	se Body <b>containing</b>		
	Prol	blemDetails element <b>conta</b> i	ining	SUT $\rightarrow$ Client
		type element <b>set to \${prob</b>	lem_type} and	
		title element containing		
c c	ł			
Permutation on TP	\${EndityId}	\${InstanceId}	\${problem_type}	
016 02 01	Not existing	n/a	https://uri.etsi.org/ngsi-ld/errors/Ba	dRequestData
016_02_02	Invalid URI n/a https://uri.etsi.org/ngsi-ld/errors/BadRequestData			
016_02_03	Invalid Name	n/a	https://uri.etsi.org/ngsi-ld/errors/Ba	

TP Id	TP/NGSI-LD/CI/PROV/TE/016_03				
Test objective	check that an error BadRequestData is raised if you update an attribute instance by its				
	instanceld of a temporal Entity with an not valid URI for the instanceld				
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.14				
Config Id	CF_01				
Parent Release	V1.3.1				
PICS Selection	PICS_5_6_14				
Initial conditions	<pre>with {     the SUT being in the "initial state" containing an initial Entity \${entity} with an     \${entityId} an temporal attribute with an id set to \${atrrId} and an non existing \$ }</pre>				
Expected	Test events	Direction			
behaviour	uter (				
	when { the SUT receives a valid Update Temporal Attribute Instance Request from the client containing				
	URL set to /ngsi-ld/v1/ entities/\${entityId}/attrs/\${attrId}/\${instanceId} and				
	method <b>set to</b> POST <b>and</b>	SUT ← Client			
	Header: Content-Type <b>set to</b> \${contentType} <b>and</b>				
	Header: Content-Type set to \${contentType} and body set to \${entityTemporalFragment} to be created }				

the		<b>s</b> a valid Response <b>cont</b> a	C		
	Respons	e Status Code set to 400	(Bad Request) and		
	Respons	e Body <b>containing</b>			
	Probl	emDetails element <b>conta</b>	ining	SUT $\rightarrow$ Client	
	ty	pe element set to \${prol	plem_type} and		
	tit	le element <b>containing</b>			
more information about the error					
}					
Permutation on TP Id	\${EndityId}	\${InstanceId}	\${problem_typ	e}	
016_03_01	Existing	InstanceName not present	https://uri.etsi.org/ngsi- Id/errors/BadRequestData		
016_03_02	Existing	Invalid URI	https://uri.etsi.org/ngsi- Id/errors/BadRequestData		
016_03_03	Existing	Non Existing	https://uri.etsi.org/ngsi- Id/errors/BadRequestData		

TP Id	TP/NGSI-LD/CI/PROV/TEA/016_05	
Test objective	check that the term expansion is applied when obtaining the target attribute to up attribute instance by its instanceld of a temporal Entity	date an
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.14	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_6_14	
Initial conditions	<pre>with {     the SUT being in the "initial state" containing an initial Entity \${entity} with an \${entityId} an temporal attribute with an id set to \${atrrId} and an existing \${inst }</pre>	
Expected behaviour	Test events	Direction
benaviou	when { the SUT receives a valid Update Temporal Attribute Instance Request from the client containing	
	URL set to /ngsi-ld/v1/ entities/\${entityId}/attrs/\${attrId}/\${instanceId} and	SUT ← Client
	method set to POST and	
	Header: Content-Type <b>set to</b> \${contentType} <b>and</b>	
	<pre>body set to \${entityTemporalFragment} to be created }</pre>	

				-	
	then { the SUT ser	ids a valid Response conta	ining		
	Respo	nse Status Code <b>set to</b> 204			
	Check term expansion)	that response contains t	he complete term (applying	SUT → Client	
	}				
TP ld	TP/NGSI-LD/CI/PI	ROV/TEA/016_04			
Test objective		nporal Entity with an endpoi	ised if you update an attribute insta nt that has no existing temporal rep		
Reference		V1.3.1 [1], clause 5.6.14			
Config Id	CF_01				
Parent Release	V1.3.1				
PICS Selection	PICS_5_6_14				
Initial conditions	with { the SUT being i \${entityId} and no }	n the "initial state" <b>containi</b> temporal attribute with an	<b>ng</b> an initial Entity <b>\${entity}</b> with ar id <b>set to \${atrrId</b> }	n id set to	
Expected		Test events	8	Direction	
	the client <b>containi</b> URL <b>set to</b> / method <b>set t</b> Header: Con	Attribute Instance Request <b>from</b> d}/attrs/\${attrld}/\${instanceId} <b>and</b> Fype} <b>and</b> to be created	SUT ← Client		
	then {       the SUT sends a valid Response containing       Response Status Code set to 400 (Bad Request) and         Response Body containing       ProblemDetails element containing       Status Code set to \${problem_type} and         type element set to \${problem_type} and       title element containing       Status Code set to \${problem_type} and         more information about the error       }       Response Status Code set to \${problem_type} and       Status Code set to \${problem_type} and				
	}	more information abc	out the error		
Permutation on TP	} \${EndityId}	more information abc	out the error \${problem_type}		
Permutation on TP Id 016_04_01 004_04_02	}  \${EndityId} Existing Existing			adRequestData	

	-				
TP ld	TP/NGSI-L	_D/CI/PROV/TEA/	017_01		
Test objective	Check that you can delete an attribute instance by its instanceld of a temporal representation of an entity with simple temporal properties (arrays of (Property or Relationship) instances represented by JSON-LD objects) as defined in clauses 4.5.7 and 4.5.8				
Reference	ETSI GS (	CIM 009 V1.3.1 [1]	, clause 5.6.15		
Config Id	CF_01				
Parent Release	V1.3.1				
PICS Selection	PICS_5_6	_15			
Initial conditions			al state" <b>containing</b> an initial Entity <b>\${entity}</b> with an bute with an id <b>set to \${atrrId}</b> and an existing <b>\${inst</b>		
Expected behaviour			Test events	Direction	
benaviour	when { the SUT the client o URL meth Head	SUT ← Client			
	then {       the SUT sends a valid Response containing       SUT → Client         Response Status Code set to 204 and       SUT → Client         Temporal attribute is none       SUT → Client				
		<b>A1 A B</b>			
Permutation on	IPId	\${InstanceId}	\${contentType}		
017_01_01 017 01 02		Existing Id	Application/json		
017_01_02		Existing Id	Application/json+ld		

# 4.1.1.3.6 Delete Attribute instance from Temporal Representation of an Entity

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TP Id	TP/NGSI-LD/CI/PROV/TEA/017_02
Test objective	Check that you an error <b>BadRequestData</b> is raised if you delete an attribute instance by its instanceld of a non-existing temporal Entity (id not present)
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.15
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_6_15
Initial conditions	<pre>with {     the SUT being in the "initial state" not containing an initial Entity \${entity} with an id set to \${entityId} }</pre>

when { the SUT receives a valid Delete Temporal Attribute Instance Request from the client containing URL set to /ngsi-ld/v1/ entities/\${entityld}/attrs/\${attrld}/\${instanceld} and method set to DEL and Header: Content-Type set to \${contentType}}       SUT ← Client         Image: the sum of the set to DEL and Header: Content-Type set to \${contentType}}       SUT ← Client         Image: the sum of the set to DEL and Header: Content-Type set to \${contentType}}       SUT ← Client         Image: the sum of the set to \${problem_type} and title element containing more information about the error       SUT → Client         Permutation on TP Id       \${Endityld}       \${InstanceId} n/a       \${problem_type} the sum of the s	Expected behaviour		Direction				
Image: method set to DEL and Header: Content-Type set to \${contentType}       SUT ← Client         Image: Header: Content-Type set to \${contentType}       Image: Header: Content-Type set to \${contentType}         Image: Image: Header: Content-Type set to \${contentType}       Image: Header: Content-Type set to \${containing Response Status Code set to 400 (Bad Request) and Response Body containing ProblemDetails element containing Image: Header: Content type element set to \${problem_type} and title element containing more information about the error       SUT → Client         Permutation on TP Id       \${EndityId} \${InstanceId} \${problem_type} and title element containing more information about the error       SUT → Client         017_02_01       Non Existing n/a       https://uri.etsi.org/ngsi-Id/errors/BadRequestData         017_02_02       Invalid uri       n/a		the SUT receives		ttribute Instance Request <b>from</b>			
}       then {       then {       the SUT sends a valid Response containing       Response Status Code set to 400 (Bad Request) and       Response Body containing       Response Body containing       ProblemDetails element containing       SUT → Client         ProblemDetails element containing       Type element set to \${problem_type} and       SUT → Client         title element containing       more information about the error       SUT → Client         }       Permutation on TP Id       \${EndityId} \${InstanceId} \${problem_type} and       StanceId/errors/BadRequestData         017_02_01       Non Existing       n/a       https://uri.etsi.org/ngsi-Id/errors/BadRequestData							
time 1       then 2         the SUT sends a valid Response containing       Response Status Code set to 400 (Bad Request) and         Response Body containing       ProblemDetails element containing         ProblemDetails element containing       SUT → Client         title element set to \${problem_type} and       title element containing         more information about the error       more information about the error         }       Permutation on TP Id       \${EndityId} \${InstanceId} https://uri.etsi.org/ngsi-Id/errors/BadRequestData         017_02_01       Non Existing       n/a       https://uri.etsi.org/ngsi-Id/errors/BadRequestData		Header: Conte	nt-Type set to \${contentTy	/pe}			
inte SUT sends a valid Response containing       Response Status Code set to 400 (Bad Request) and       Response Body containing         Response Body containing       ProblemDetails element containing       SUT → Client         type element set to \${problem_type} and       title element containing       SUT → Client         more information about the error       more information about the error       SUT → Client         Permutation on TP Id       \${EndityId}       \${InstanceId}       \${problem_type}-tesi.org/ngsi-Id/errors/BadRequestData         017_02_02       Invalid uri       n/a       https://uri.etsi.org/ngsi-Id/errors/BadRequestData		}					
Response Body containing       ProblemDetails element containing       SUT → Client         type element set to \${problem_type} and       title element containing       SUT → Client         title element containing       more information about the error       SUT → Client         }       Permutation on TP Id       \${Endityld}       \${InstanceId}       \${problem_type}         017_02_01       Non Existing       n/a       https://uri.etsi.org/ngsi-Id/errors/BadRequestData         017_02_02       Invalid uri       n/a       https://uri.etsi.org/ngsi-Id/errors/BadRequestData			<b>s</b> a valid Response <b>contai</b>	ning			
ProblemDetails element containing       SUT → Client         type element set to \${problem_type} and       title element containing         more information about the error       more information about the error         }       Permutation on TP Id       \${EndityId} \${InstanceId} \${problem_type}         017_02_01       Non Existing       n/a         017_02_02       Invalid uri       n/a		Respons	e Status Code <b>set to</b> 400 (	Bad Request) and			
Permutation on TP Id       \${EndityId}       \${InstanceId}       \${problem_type}         017_02_01       Non Existing       n/a       https://uri.etsi.org/ngsi-Id/errors/BadRequestData         017_02_02       Invalid uri       n/a       https://uri.etsi.org/ngsi-Id/errors/BadRequestData		Response Body containing					
title element containing more information about the error         }       Permutation on TP Id       \${EndityId}       \${InstanceId}       \${problem_type}         017_02_01       Non Existing       n/a       https://uri.etsi.org/ngsi-Id/errors/BadRequestData         017_02_02       Invalid uri       n/a       https://uri.etsi.org/ngsi-Id/errors/BadRequestData		Probl	emDetails element <b>contair</b>	ning	SUT $\rightarrow$ Client		
Permutation on TP Id       \${EndityId}       \${InstanceId}       \${problem_type}         017_02_01       Non Existing       n/a       https://uri.etsi.org/ngsi-Id/errors/BadRequestData         017_02_02       Invalid uri       n/a       https://uri.etsi.org/ngsi-Id/errors/BadRequestData		ty	pe element set to \${probl	em_type} and			
Permutation on TP Id       \${EndityId}       \${InstanceId}       \${problem_type}         017_02_01       Non Existing       n/a       https://uri.etsi.org/ngsi-Id/errors/BadRequestData         017_02_02       Invalid uri       n/a       https://uri.etsi.org/ngsi-Id/errors/BadRequestData		tit	tle element <b>containing</b>				
017_02_01         Non Existing         n/a         https://uri.etsi.org/ngsi-ld/errors/BadRequestData           017_02_02         Invalid uri         n/a         https://uri.etsi.org/ngsi-ld/errors/BadRequestData							
017_02_01         Non Existing         n/a         https://uri.etsi.org/ngsi-ld/errors/BadRequestData           017_02_02         Invalid uri         n/a         https://uri.etsi.org/ngsi-ld/errors/BadRequestData		}					
017_02_02 Invalid uri n/a https://uri.etsi.org/ngsi-ld/errors/BadRequestData							
017_02_03 Invalid Name n/a https://uri.etsi.org/ngsi-Id/errors/BadRequestData	017_02_02 017_02_03						

TP ld	TP/NGSI-LD/CI/PROV/TEA/017_03				
Test objective	Check that an error <b>BadRequestData</b> is raised if you delete an attribute instance by its instanceld of a temporal Entity with an instance name that is not present				
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.15				
Config Id	CF_01				
Parent Release	V1.3.1				
PICS Selection	PICS_5_6_15				
Initial conditions	<pre>with {     the SUT being in the "initial state" containing an initial Entity \${entity} with an id set to \${entityld} an temporal attribute with an id set to \${atrrld} and non-existing \${instanceID }</pre>				
Expected behaviour					

}	Respons Respons Prob ty ti	s a valid Response contain se Status Code set to 400 ( se Body containing lemDetails element contain ype element set to \${probl tle element containing more information abou	Bad Request) and hing em_type} and t the error	SUT → Client		
Permutation on TP Id	Id \${EndityId} \${InstanceId} \${problem_type}					
017_03_01	Valid Instance name not https://uri.etsi.org/ngsi-ld/errors/BadRequestData					
017_03_02	Valid	Invalid uri	https://uri.etsi.org/ngsi-ld/errors/B	adRequestData		
017_03_03	Not Valid	Not existing	https://uri.etsi.org/ngsi-ld/errors/B	adRequestData		

TP ld	TP/NGSI-LD/CI/PROV/TEA/017_05	
Test objective	Check that the term expansion is applied when obtaining the target attribute to de instance by its instanceld of a temporal Entity	lete an attribute
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.15	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_6_15	
Initial conditions	<pre>with {     the SUT being in the "initial state" containing an initial Entity \${entity} with an     \${entityId} an temporal attribute with an id set to \${atrrId} and an existing \${inst     } }</pre>	
Expected	Test events	Direction
Expected behaviour	Test events           when {           the SUT receives a valid Delete Temporal Attribute Instance Request from the client containing	Direction
	when { the SUT receives a valid Delete Temporal Attribute Instance Request from	
	when { the SUT receives a valid Delete Temporal Attribute Instance Request from the client containing	Direction SUT ← Client
	when { the SUT receives a valid Delete Temporal Attribute Instance Request from the client containing URL set to /ngsi-ld/v1/ entities/\${entityId}/attrs/\${attrId}/\${instanceId} and	
	when {     the SUT receives a valid Delete Temporal Attribute Instance Request from     the client containing         URL set to /ngsi-ld/v1/ entities/\${entityld}/attrs/\${attrld}/\${instanceId} and         method set to DEL and	
	when {     the SUT receives a valid Delete Temporal Attribute Instance Request from     the client containing         URL set to /ngsi-ld/v1/ entities/\${entityld}/attrs/\${attrld}/\${instanceId} and         method set to DEL and	
	<pre>when {     the SUT receives a valid Delete Temporal Attribute Instance Request from     the client containing         URL set to /ngsi-ld/v1/ entities/\${entityld}/attrs/\${attrld}/\${instanceId} and         method set to DEL and         Header: Content-Type set to \${contentType} } then {</pre>	
	<pre>when {     the SUT receives a valid Delete Temporal Attribute Instance Request from     the client containing         URL set to /ngsi-ld/v1/ entities/\${entityld}/attrs/\${attrld}/\${instanceId} and         method set to DEL and         Header: Content-Type set to \${contentType} } then {     the SUT sends a valid Response containing </pre>	SUT ← Client

TP ld	TP/NGSI-LD/CI/PROV/TE/017_04			
Test objective	Check that an error <b>ResourceNotFound</b> is raised if you delete an attribute instance by its instanceld of a temporal Entity with an endpoint that has no existing temporal representation of an Entity with the passed id			
Reference	ETSI GS CIM 009	V1.3.1 [1], clause 5.6.15		
Config Id	CF_01			
Parent Release	V1.3.1			
PICS Selection	PICS_5_6_15			
Initial conditions		n the "initial state" <b>containi</b> temporal attribute with an	ng an initial Entity <b>\${entity}</b> with an id <b>set to \${atrrId}</b>	id set to
Expected	,	Test events	S	Direction
	the client containin URL set to /r method set to Header: Cont } then {	ng ngsi-ld/v1/ entities/\${entitylo		SUT ← Client
	Respon			
	Response Body containing			
	Pro	SUT $\rightarrow$ Client		
	title element containing			
		more information abo	out the error	
	}			
Permutation on TP Id	\${attrsId}	\${InstanceId}	\${problem_type}	
017_04_01	No temporal representation	n/a	https://uri.etsi.org/ngsi- ld/errors/ResourceNotFound	
017_04_02	Non existing id	n/a	https://uri.etsi.org/ngsi- Id/errors/ResourceNotFound	
017_04_03	Valid	Non existing id	https://uri.etsi.org/ngsi- ld/errors/ResourceNotFound	

TP ld	TP/NGSI-LD/CI/PROV/TE/	009_01		
Test objective			entation of an entity with simple tem s represented by JSON-LD objects)	
Reference	ETSI GS CIM 009 V1.3.1 [	1], clause 5.6.16		
Config Id	CF_01			
Parent Release	V1.3.1			
PICS Selection	PICS_5_6_16			
Initial conditions	with { the SUT being in the "in \${entityId} }	itial state" <b>contain</b>	ing an initial Entity <b>\${entity}</b> with an	id <b>set to</b>
Expected		Test even	e	Direction
behaviour		Test even	.5	Direction
	client <b>containing</b> URL <b>set to</b> /ngsi-ld/v method <b>set to</b> DEL <b>a</b> Header: Content-Typ }	1/ entities/\${entityl		SUT ← Client
then { the SUT sends a valid Response containing Response Status Code set to 204 and }			SUT → Client	
Permuta	tion on TP Id	\${InstanceId}	\${contentType}	
009_01_01		Existing Id	Application/json	
009_01_02		Existing Id	Application/json+ld	

## 4.1.1.3.7 Delete temporal representation of Entity

TP Id	TP/NGSI-LD/CI/PROV/TE/009_02
Test objective	Check that you an error <b>BadRequestData</b> is raised if you delete a temporal entity with a non- existing EntityId (id not present)
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.16
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_6_16
Initial conditions	<pre>with {     the SUT being in the "initial state" not containing an initial Entity \${entity} with an id set to \${entityId} }</pre>

Expected behaviour		Test events	Direction	
	the client <b>containing</b> URL <b>set to</b> /ng method <b>set to</b>	<b>3</b> si-ld/v1/ entities/\${entityId}		SUT ← Client
		<b>s</b> a valid Response <b>contain</b> e Status Code <b>set to</b> 400 (B	-	
	Respons	e Body <b>containing</b>		
	Probl	SUT $\rightarrow$ Client		
	ty	pe element set to \${proble	em_type} and	
	tit	le element containing		
	}	more information about	the error	
Permutation on TP I	d \${EndityId}	\${InstanceId}	\${problem_type	}
009_02_01	Non Existing	n/a	https://uri.etsi.org/ngsi- Id/errors/BadRequestData	
009_02_02	Invalid uri	n/a	https://uri.etsi.org/ngsi- ld/errors/BadRequestData	
009_02_03	Invalid Name	n/a	https://uri.etsi.org/ngsi- ld/errors/BadRequestData	

TP Id	TP/NGSI-LD/CI/PROV/TE/009_03		
Test objective	check that an error <b>ResourceNotFound</b> is raised if you delete a temporal Entity with an endpoint that has no existing temporal representation of an Entity with the passed id		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.16		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_6_16		
Initial conditions	<pre>with {     the SUT being in the "initial state" not containing an initial Entity \${entity} with \${entityId} }</pre>	n an id <b>set to</b>	
Expected behaviour	Test events	Direction	
	<pre>when {     the SUT receives a valid Delete Temporal Attribute Instance Request from the client containing     URL set to /ngsi-ld/v1/ entities/\${entityId} and</pre>	SUT ← Client	

	lod <b>set to</b> DEL <b>and</b> der: Content-Type <b>set to</b> \${	contentType} <b>and</b>	
}			
then { the s	SUT sends a valid Respons	e containing	
	Response Status Code se	t to 404 (Not Found) and	
	Response Body containin	g	
	ProblemDetails elemer	nt <b>containing</b>	SUT → Client
	type element set to	o \${problem_type} and	
	title element conta	ining	
	more informa	tion about the error	
}			
Permutation on TP Id	\${entityID}	\${problem_type}	·
009_03	No entity	https://uri.etsi.org/ngsi-Id/errors/ResourceN	lotFound

## 4.1.1.4 Entity Attributes

## 4.1.1.4.1 Append Entity Attributes

TP ld	TP/NGSI-LD/CI/Prov/EA/010_01		
Test objective	Check that you can append entity attributes		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.3		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_6_3		
Initial conditions	<pre>with {     the SUT containing an initial Entity \${entity} with an id set to \${entityId}</pre>		
	}		
Expected behaviour	Test events	Direction	
	when {     the SUT receives a valid Append Attribute request from the client containing		
	URL set to /ngsi-ld/v1/entities/\${entityId}/attrs/ and		
	method set to POST and		
	Header: Content-Type set to application/ld+json and	SUT ← Client	
	Query Parameter: options <b>set to</b> \${overwrite}		
	request body <b>set to</b> a valid JSON-LD representing an NGSI-LD Entity Fragment <b>containing</b>		
	an attribute (Attribute A) with \${datasetId} and		

an attribute (Attribute B) with no <b>datasetId</b> }	
then { the SUT sends a valid Response containing	
Response Status Code <b>set to</b> \${status_code}	
Response Body containing	SUT $\rightarrow$ Client
\${appended_attrs_list}	
and contains \${entity} with \${appended_attrs_list}	
}	

Permutation on TP Id	\${overwrite}	\${datasetId}	\${status_code}	\${appended_attrs_list}
TP/NGSI-LD/CI/	empty	equal	204	Empty
Prov/EA/010_01_01				(Attribute A is overwritten
				Attribute B is added)
TP/NGSI-LD/CI/	noOverwrite	equal	207	Attribute B
Prov/EA/010_01_02				(Attribute A fails to overwrite
				Attribute B is added)
TP/NGSI-LD/CI/	empty	different	204	Empty
Prov/EA/010_01_03				(Attribute A is added
				Attribute B is added)
TP/NGSI-LD/CI/	noOverwrite	different	204	Empty
Prov/EA/010_01_04				(Attribute A is added
				Attribute B is added)

TP ld	TP/NGSI-LD/CI/Prov/EA/010_02		
Test objective	Check that you cannot append entity attributes with invalid/missing id or invalid request body		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.3		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_6_3		
Initial conditions	<pre>with {     the SUT containing an initial Entity \${entity} with an id set to \${entity</pre>	ld}	
	}	-	
Expected behaviour	Test events	Direction	
	when {     the SUT receives a valid Append Attribute request from the client     containing		
	URL set to /ngsi-ld/v1/entities/\${entityId}/attrs/ and		
	method set to POST and	SUT ← Client	
	Header: Content-Type <b>set to</b> application/ld+json <b>and</b>		
	Query Parameter: options <b>set to</b> \${overwrite}		
	request body <b>set to</b> \${entity_fragment} }		
	then { the SUT sends a valid Response containing	SUT → Client	

Response Status Code set to 400 (Bad Request) and	
Response Body containing	
ProblemDetails element containing	
type element set to \${problem_type} and	
title element containing	
more information about the error}	

Permutation on TP Id	\${entityId}	\${entity_fragment}	\${problem_type}
TP/NGSI-	empty	valid	https://uri.etsi.org/ngsi-
LD/CI/Prov/EA/010_02_01			Id/errors/BadRequestData
TP/NGSI-	invalid URI	valid	https://uri.etsi.org/ngsi-
LD/CI/Prov/EA/010_02_02			Id/errors/BadRequestData
TP/NGSI-	valid	invalid	https://uri.etsi.org/ngsi-
LD/CI/Prov/EA/010_02_03			Id/errors/BadRequestData

TP ld	TP/NGSI-LD/CI/Prov/EA/010_03	
Test objective	Check that you cannot append entity attributes if the entity id or attributes are not known to the system	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.3	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_6_3	
Initial conditions	with { the SUT in the initial conditions	
	}	
Expected behaviour	Test events	Direction
	when {     the SUT receives a valid Append Attribute request from the client     containing	
	URL set to /ngsi-ld/v1/entities/\${entityId_notFound}/attrs/ and	
	method set to POST and	SUT $\leftarrow$ Client
	Header: Content-Type <b>set to</b> application/ld+json <b>and</b>	
	Query Parameter: options <b>set to</b> \${overwrite}	
	request body <b>set to</b> \${entity_fragment} }	

then {         the SUT sends a valid Response containing         Response Status Code set to 404 (Not Found) and         Response Body containing         ProblemDetails element containing         type element set to https://uri.etsi.org/ngsi-         Id/errors/ResourceNotFound and         title element containing         more information about the error	SUT → Client
---	--------------

## 4.1.1.4.2 Update Entity Attributes

		11
TP Id	TP/NGSI-LD/CI/Prov/EA/011_01	
Test objective	Check that you can update entity attributes	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.2	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_6_2	
Initial conditions	<pre>with {     the SUT containing an initial Entity \${entity} with an id set to \${entityId}</pre>	
	}	
Expected behaviour	Test events	Direction
	when {     the SUT receives a valid Append Attribute request from the client     containing	
	URL set to /ngsi-ld/v1/entities/\${entityId}/attrs/ and	
	method set to PATCH and	
	Header: Content-Type set to application/ld+json and	SUT ← Client
	request body <b>set to</b> a valid JSON-LD representing an NGSI-LD Entity Fragment <b>containing</b>	
	an attribute (Attribute A) with <b>\${datasetId_A}</b> and <b>\${type_A</b> }	
	an attribute (Attribute B) with <b>\${datasetId_B}</b> and <b>\${type_B</b> }	

		then { the SU	<b>IT sends</b> a v	alid Response <b>co</b>	ntaining			
Response Status Code set to \${status_code}								
Response Body containing					SUT → Client			
	\${updated_attrs_list}							
	and contains \${entity} with \${updated_attrs_list}							
		}						
Permutation on TP Id	\${da	atasetId_A}	\${type_A}	\${datasetId_B}	\${type_B}	\${status_co de}	\${upda	ated_attrs_list}
TP/NGSI- LD/CI/ Prov/EA/011_0 1_01	emp	ty	equal	empty	equal	204		A is updated B is updated
TP/NGSI- LD/CI/ Prov/EA/011_0 1_02	equa	al	equal	equal	equal	204		A is updated B is updated
TP/NGSI- LD/CI/ Prov/EA/011_0 1_03	equa	al	not equal	equal	equal	207		A is not updated B is updated
TP/NGSI- LD/CI/ Prov/EA/011_0 1_04	equa	al	not equal	equal	not equal	204		A is not updated B is not updated

TP Id	TP/NGSI-LD/CI/Prov/EA/011_02					
Test objective	Check that you cannot update entity attributes with invalid/missing id or inva	alid request body				
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.2					
Config Id	CF_01					
Parent Release	V1.3.1					
PICS Selection	PICS_5_6_2					
Initial conditions	with { the SUT containing an initial Entity \${entity} with an id set to \${entityId}					
	}					
Expected behaviour	Test events Direction					
bonaviour	when {     the SUT receives a valid Append Attribute request from the client     containing					
	URL set to /ngsi-ld/v1/entities/\${entityId}/attrs/ and					
	method set to PATCH and SUT					
	Header: Content-Type <b>set to</b> application/ld+json <b>and</b>					
	request body <b>set to</b> \${entity_fragment} }					

then the	SUT 🗆 Client				
Permutation on TP Id	\${entityId}	\${entity_fragment}		roblem_type}	
TP/NGSI-	empty	valid	https://uri.etsi.org/ngsi-		
				ors/BadRequestData	
TP/NGSI-	invalid URI	valid	https://uri.etsi.org/ngsi-		
LD/CI/Prov/EA/011_02_02			Id/errors/BadRequestData		
TP/NGSI-	valid	invalid	https://uri.etsi.org/ngsi-		
LD/CI/Prov/EA/011_02_03			Id/errors/Bac	dRequestData	

TP ld	TP/NGSI-LD/CI/Prov/EA/011_03				
Test objective	Check that you cannot update entity attributes if the entity id or attributes are not known to the system				
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.2				
Config Id	CF_01				
Parent Release	V1.3.1				
PICS Selection	PICS_5_6_2				
Initial conditions	with { the SUT in the initial conditions				
	}				
Expected behaviour	Test events	Direction			
	<pre>when {     the SUT receives a valid Append Attribute request from the client     containing     URL set to /ngsi-ld/v1/entities/\${entityld_notFound}/attrs/ and     method set to PATCH and     Header: Content-Type set to application/ld+json and     request body set to \${entity_fragment}</pre>	SUT ← Client			
	<pre> } then {     the SUT sends a valid Response containing         Response Status Code set to 404 (Not Found) and         Response Body containing         ProblemDetails element containing         type element set to https://uri.etsi.org/ngsi- Id/errors/ResourceNotFound and</pre>	SUT → Client			

title element containing	
more information about the error	
}	

## 4.1.1.4.3 Partial Update Entity Attributes

TP ld	TP/NGSI-LD/CI/Prov/EA/012_01			
Test objective	Check that you can perform a partial update on an entity attribute			
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.4			
Config Id	CF_01			
Parent Release	V1.3.1			
PICS Selection	PICS_5_6_4			
Initial conditions	<pre>with {     the SUT containing an initial Entity \${entity} with an id set to \${entityId} an an id set to \${atrrId}</pre>	<b>d</b> an attribute with		
	}			
Expected behaviour	Test events	Direction		
	when {     the SUT receives a valid Append Attribute request from the client containing			
	URL set to /ngsi-ld/v1/entities/\${entityId}/attrs/\${attrId} and			
	method <b>set to</b> PATCH <b>and</b>			
	Header: Content-Type <b>set to</b> application/ld+json <b>and</b>			
	request body <b>set to</b> a valid JSON-LD representing an NGSI-LD Entity Fragment <b>containing</b>	SUT ← Client		
	\${elements_of_attr} and			
	\${datasetId} and			
	\${type}			
	}			
	then { the SUT sends a valid Response containing			
	Response Status Code set to \${status_code}			
	Response Body containing	SUT $\rightarrow$ Client		
	\${message}			
	and contains \${entity} with \${attrld} with \${elements_of_attr}			
	}			

Permutation on TP Id	\${elements_of_ attr}	\${datasetId}	\${type}	\${status_code}	\${message}
TP/NGSI-LD/CI/ Prov/EA/012_01_01	valid	empty	equal	204	empty
TP/NGSI-LD/CI/ Prov/EA/012_01_02	valid	equal	equal	204	empty

TP Id	TP/NGSI-LD/CI/Prov/EA/012_02				
Test objective	Check that you cannot perform a partial update on an entity attribute with invalid/missing ids or invalid request body				
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.4				
Config Id	CF_01				
Parent Release	V1.3.1				
PICS Selection	PICS_5_6_4				
Initial conditions	<pre>with {     the SUT containing an initial Entity \${entity} with an id set to \${entityId} an     an id set to \${atrrId} }</pre>	<b>d</b> an attribute with			
Expected behaviour	Test events	Direction			
	<pre>when {     the SUT receives a valid Append Attribute request from the client     containing         URL set to /ngsi-ld/v1/entities/\${entityld}/attrs/\${attrld} and         method set to PATCH and         Header: Content-Type set to application/ld+json and         request body set to a valid JSON-LD representing an NGSI-LD \${entity_fragment} containing         \${elements_of_attr} and         \${datasetId} and         \${type} } then {</pre>	SUT ← Client			
	<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 400 (Bad Request) and         Response Body containing         ProblemDetails element containing         type element set to \${problem_type} and         title element containing         more information about the error }</pre>	SUT → Client			

Permutation on TP Id	\${entityId}	\${attrld}	\${entity_fragment}	\${problem_type}
TP/NGSI- LD/CI/Prov/EA/012_02_ 01	invalid	valid	valid	https://uri.etsi.org/ngsi- Id/errors/BadRequestData
TP/NGSI- LD/CI/Prov/EA/012_02_ 02	empty	valid	valid	https://uri.etsi.org/ngsi- ld/errors/BadRequestData
TP/NGSI- LD/CI/Prov/EA/012_02_ 03	valid	valid	Attribute name missing	https://uri.etsi.org/ngsi- Id/errors/BadRequestData
TP/NGSI- LD/CI/Prov/EA/012_02_ 04	valid	invalid	valid	https://uri.etsi.org/ngsi- Id/errors/BadRequestData
TP/NGSI- LD/CI/Prov/EA/012_02_ 05	valid	valid	\${type} different	https://uri.etsi.org/ngsi- Id/errors/BadRequestData
TP/NGSI- LD/CI/Prov/EA/012_02_ 06	valid	valid	empty	https://uri.etsi.org/ngsi- Id/errors/BadRequestData

TP Id	TP/NGSI-LD/CI/Prov/EA/012_03			
Test objective	Check that you cannot perform a partial update on an entity attribute if the entity id or attribute is not known to the system			
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.4			
Config Id	CF_01			
Parent Release	V1.3.1			
PICS Selection	PICS_5_6_4			
Initial conditions	with {     the SUT containing an initial Entity \${entity} with an id set to \${entityId} an     id set to \${atrrId} }	<b>d</b> an attribute with an		
Expected behaviour	Test events	Direction		
	when {     the SUT receives a valid Append Attribute request from the client     containing     URL set to /ngsi-ld/v1/entities/\${entityId}/attrs/\${attrId} and     method set to PATCH and			
	Header: Content-Type set to application/ld+json and	SUT ← Client		
	request body <b>set to</b> a valid JSON-LD representing an NGSI-LD Entity Fragment <b>containing</b>			
	\${elements_of_attr} and			
	\${datasetId} and			
	\${type} }			
	then { the SUT sends a valid Response containing			
	Response Status Code <b>set to</b> 404 (Not Found) <b>and</b>	SUT → Client		
	Response Body containing			

Problet ty Id/errors/ResourceNo					
tit	le element <b>contai</b> l	ning			
more information about the error					
}					
Permutation on TP Id	\${entityId}	\${attrld}	\${datasetId}		
TP/NGSI-LD/CI/Prov/EA/012_03_01	P/NGSI-LD/CI/Prov/EA/012_03_01 Not found Found Found Found				
TP/NGSI-LD/CI/Prov/EA/012_03_02					
P/NGSI-LD/CI/Prov/EA/012_03_03 Found Found Not Found					
TP/NGSI-LD/CI/Prov/EA/012_03_04	Found	Not Found	Found		

#### **Delete Entity Attributes** 4.1.1.4.4

TP ld	TP/NGSI-LD/CI/Prov/EA/013_01			
Test objective	Check that you can delete an attribute from an entity			
Reference	ETSI GS CIM 009	V1.3.1 [1], clause 5.6.5		
Config Id	CF_01			
Parent Release	V1.3.1			
PICS Selection	PICS_5_6_5			
Initial conditions	with { the SUT contain an id set to \${atrr }	ning an initial Entity <b>\${entity}</b> with a Id}	an id <b>set to \${entityld} a</b> ı	nd an attribute with
Expected behaviour		Test events		Direction
	when {         the SUT receives a valid Append Attribute request from the client containing         URL set to /ngsi-ld/v1/entities/\${entityId}/attrs/\${attrId} and         method set to DEL and         Header: Content-Type set to application/ld+json and         Query Parameter: datasetId set to \${datasetId} and         Query Parameter: deleteAll set to \${deleteAll}			
	then {       the SUT sends a valid Response containing         Response Status Code set to 204       SUT → Client         and \${entity} does not contain \${attrld}       \$			SUT → Client
Permutation	on TP Id	\${datasetId}	\${dele	teAll}
TP/NGSI-LD/CI/Prov/		empty	false	
TP/INGSI-LD/CI/PIOV/				
TP/NGSI-LD/CI/Prov/		valid	false	

TP ld	TP/NGSI-LD/CI/Prov/EA/013_02			
Test objective	Check that you cannot delete an attribute from an entity with invalid/missing ids			
Reference	ETSI GS CIM 009 V1.3.1 [	1], clause 5.6.5		
Config Id	CF_01			
Parent Release	V1.3.1			
PICS Selection	PICS_5_6_5			
Initial conditions	with { the SUT containing an i an id set to \${atrrId} }	initial Entity <b>\${entity}</b> with an id <b>set t</b>	o \${entityld} an	<b>d</b> an attribute with
Expected behaviour		Test events		Direction
	when {         the SUT receives a valid Append Attribute request from the client         containing         URL set to /ngsi-ld/v1/entities/\${entityld}/attrs/\${attrld} and         method set to DEL and         Header: Content-Type set to application/ld+json and         Query Parameter: datasetId set to empty and         Query Parameter: deleteAll set to false			
	then {     the SUT sends a valid Response containing       Response Status Code set to 400     SUT □ Client			
	ation on TP Id	\${entityId}	\${a	attrid}
TP/NGSI-LD/CI/Prov/		empty	valid	
	TP/NGSI-LD/CI/Prov/EA/013_02_02 invalid valid			
P/NGSI-LD/CI/Prov/EA/013_02_03 valid empty				

TP Id	TP/NGSI-LD/CI/Prov/EA/013_03
Test objective	Check that you cannot delete an attribute from an entity if the entity id or attribute is not known to the system
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.5
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_6_5
Initial conditions	<pre>with {     the SUT containing an initial Entity \${entity} with an id set to \${entityId} and an attribute with an id set to \${atrrId} }</pre>

Expected behaviour		Test events		Direction	
Denaviour	when { the SUT receives a valid Append Attribute request from the client containing				
	URL set to /ngsi-ld/v1/entities/\${entityId}/attrs/\${attrld} and				
	method set to D	DEL and		SUT ← Client	
	Header: Conten	t-Type set to application	/ld+json <b>and</b>		
	Query Paramete	er: datasetId <b>set to</b> empty	∕ and		
	Query Paramete	er: deleteAll <b>set to</b> false			
	then { the SUT sends				
	Response	Response Status Code set to 404 (Not Found) and			
	Response				
	Proble				
		type element <b>set to</b> https://uri.etsi.org/ngsi- Id/errors/ResourceNotFound <b>and</b>			
	title				
	}				
Permuta	Permutation on TP Id \${entityId} \${attrId} \$				
TP/NGSI-LD/CI/Pro		Not found	Found	\${datasetId} Specified	
TP/NGSI-LD/CI/Pro		Found	Not found	Not specified	
TP/NGSI-LD/CI/Pro	ov/EA/013_03_03	Found	Found	Not Found	

# 4.1.2 Consumption

## 4.1.2.1 Entity

## 4.1.2.1.1 Retrieve Entity

TP Id	TP/NGSI-LD/CI/Cons/E/018_01
Test objective	Check that you can get an entity by id
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.1
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS 5_7_1
Initial conditions	<pre>with {    the SUT containing an initial Entity \${entity} with an id set to \${entityId} }</pre>

Expected behaviour	Test events				Direction
	when {				
	the SUT receives a valid	taining			
	URL <b>set to</b> /ngsi-ld/v1	l/entities/ <b>\${entityId} ar</b>	d		
	method <b>set to</b> GET <b>a</b>	nd			SUT ← Client
	Query Parameter attr	s set to \${attrs} and			
	Query Parameter geo	metryProperty set to \$	{geometryProp	erty}	
	}				
	then { the SUT sends a vali				
	Response Statu				
	Response Body		SUT → Client		
	\${entity_rep				
	}				
Permutation on TP	\${entity}	\${attrs}	\${geometryPr	\${entity_re	epresentation}
TP/NGSI- LD/CI/Cons/E/018_0	Simple properties	empty	operty} empty	All entity pr returned	operties are

IM			operty	
TP/NGSI-	Simple properties	empty	empty	All entity properties are
LD/CI/Cons/E/018_0				returned
1_01				
TP/NGSI-	Simple properties	"PropertyA",	empty	Entity representation
LD/CI/Cons/E/018_0		"PropertyB"		contains the selected
1_02				attributes
TP/NGSI-	With a location attribute	empty	"location"	GeoJSON Feature is
LD/CI/Cons/E/018_0				returned
1_03				

TP Id	TP/NGSI-LD/CI/Cons/E/018_02	
Test objective	Check that you cannot get an entity with invalid/missing id	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.1	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_7_1	
Initial conditions	<pre>with {    the SUT being in the "initial state" }</pre>	
Expected behaviour	Test events	Direction
	<pre>when {     the SUT receives an invalid Get Entity Request from the client     containing     URL set to /ngsi-ld/v1/entities/{entityId_invalid} and     method set to GET }</pre>	SUT ← Client

Re	<b>F sends</b> a valid Response <b>containing</b> esponse Status Code <b>set to</b> 400 (Bad Response Body <b>containing</b> ProblemDetails element <b>containing</b> type element <b>set to \${problem_ty</b> title element <b>containing</b> more information about the e	SUT → Client	
Permutation on TP Id	\${problem_type}		
TP/NGSI-	empty https://uri.etsi.org/ng		
LD/CI/Cons/E/018_02_01	Id/errors/BadRequestData		
TP/NGSI- invalid URI https://uri.etsi.org/n		https://uri.etsi.org/ngsi-	
LD/CI/Cons/E/018_02_02		Id/errors/BadRequestData	

TP/NGSI-LD/CI/Cons/E/018_03		
Check that you cannot get an entity if the entity id or attributes are not known to the system		
ETSI GS CIM 009 V1.3.1 [1], clause 5.6.6	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.6	
CF_01		
V1.3.1		
PICS_5_6_6		
<pre>with {     the SUT containing an initial Entity \${entity} with an id set to \${entityId} }</pre>		
Test events	Direction	
<pre>the SUT receives a valid Delete Entity Request from the client containing URL set to /ngsi-ld/v1/entities/\${entityld_notFound} and method set to GET Query Parameter attrs set to {attrs} }</pre>	SUT ← Client	
the SUT sends a valid Response containing Response Status Code set to 404 (Not Found) and Response Body containing ProblemDetails element containing type element set to \${problem_type} and title element containing	SUT → Client	
	ETSI GS CIM 009 V1.3.1 [1], clause 5.6.6 CF_01 V1.3.1 PICS_5_6_6 with { the SUT containing an initial Entity \${entity} with an id set to \${entityld} } Test events when { the SUT receives a valid Delete Entity Request from the client containing URL set to /ngsi-ld/v1/entities/\${entityld_notFound} and method set to GET Query Parameter attrs set to {attrs} } then { the SUT sends a valid Response containing Response Status Code set to 404 (Not Found) and Response Body containing ProblemDetails element containing type element set to \${problem_type} and	

TP ld	TP/NGSI-LD/CI/Cons/E/018_04	
Test objective	Check that the queried entity by Id can be returned in a simplified representation	on
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.7	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_	
Initial conditions	<pre>with {    the SUT containing an initial Entity \${entity} with an id set to \${entityId} }</pre>	
Expected behaviour	Test events	Direction
	when {	
	the SUT receives a valid Get Entity Request from the client containing	
	URL set to /ngsi-ld/v1/entities/\${entityId} and	$SUT \leftarrow Client$
	method <b>set to</b> GET <b>and</b>	
	options <b>set to</b> "keyValues"	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 200 (OK) and	
	Response Body containing	SUT → Client
	\${entity_simplified}	
	}	

TP ld	TP/NGSI-LD/CI/Cons/E/018_05
Test objective	Check that the queried entity by id can be returned in a geoJSON format
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.7
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_6_3_7
Initial conditions	<pre>with {    the SUT containing an initial Entity \${entity} with an id set to \${entityId} }</pre>

Expected behaviour	Test events
benaviour	when {
	the SUT receives a valid Get Entity Request from the client containing
	URL set to /ngsi-ld/v1/entities/\${entityId} and
	method set to GET and
	options: "keyValues" <b>and</b>
	Accept-Header set to "application/geo+json"
	}
	then { the SUT sends a valid Response containing
	Response Status Code set to 200 (OK) and
	Response Body containing
	\${entity_simplified_geojson}
	}

		1
TP ld	TP/NGSI-LD/CI/Cons/E/018_06	
Test objective	Check that the JSON-LD @context is obtained from a Link header if present a default JSON-LD @context is used if not present	nd that the
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.5	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_6_3_5	
Initial conditions	<pre>with {    the SUT containing an initial Entity \${entity} with an id set to \${entityId} }</pre>	
Expected	Test events	Direction
behaviour	Test events	Direction
	when {	
	the SUT receives a valid Get Entity Request from the client containing	
	URL set to /ngsi-ld/v1/entities/\${entityId} and	SUT ← Client
	method set to GET and	
	Header: Link <b>set to</b> \${jsonId_context}	
	}	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 200 (OK) and	
	Response Body containing	SUT → Client
	\${entity_representation}	
	}	

#### 4.1.2.1.2 Query Entities

TP ld		/010_01	
	TP/NGSI-LD/CI/Cons/E	013_01	
Test objective	Check that you can query several entities based on query parameters		
Reference	ETSI GS CIM 009 V1.3	.1 [1], clause 5.7.2	
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_7_2		
Initial conditions	with { the SUT containing a	an initial group of Entitie	25
	}		
Expected		Т	est events
behaviour	when {		
	the SUI receives a v	alid Get Entities Reque	st <b>from</b> the client <b>containing</b>
	URL set to /ngsi-l	d/v1/entities and	
	method set to GE	⊤ and	
	Query Parameter	\${parameter} set to \${	value}
	}		
	then { the SUT sends a valid Response containing		
	Response S	tatus Code <b>set to</b> 200 (	OK) and
	Response Body containing a list containing		
	Entity elements containing		
	\${\	value} provided	
	}		
Bormu	tation on TP Id	¢ (noromotor)	¢ (valua)
	I/Cons/E/019_01_01	<b>\${parameter}</b> id	{value} List of entity ids to be retrieved
	I/Cons/E/019_01_02	type	List of entity types to be retrieved
	I/Cons/E/019_01_03	idPattern	Regular expression that shall be matched by entity ids
	I/Cons/E/019_01_04	attrs	List of Attributes to be matched by the Entities and included in the response
TP/NGSI-LD/C	I/Cons/E/019_01_05	geometryProperty	Which GeoProperty to use for the geoquery

TP ld	TP/NGSI-LD/CI/Cons/E/019_02		
Test objective	Check that you can query several entities via POST Interaction		
Reference	ETSI GS CIM (	009 V1.3.1 [1], clause	5.7.2
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_7_2		
Initial conditions	with { the SUT con	taining an initial grou	up of Entities
	}		
Expected behaviour			Test events
	when {		
	the SUT rece	<b>vives</b> a valid Get Enti	ities Request <b>from</b> the client <b>containing</b>
	URL set	to /ngsi-ld/v1/entityO	perations/query and
	method set to POST and		
	request body <b>set to</b> \${query} <b>containing \${parameter}</b> set to <b>\${value}</b>		
	}		
	then { the SUT sends a valid Response containing		
	Response Status Code set to 200 (OK) and		set to 200 (OK) and
	Response Body <b>containing</b> a list <b>containing</b>		
	Entity elements containing		
	\${value} provided		
	}		
			1
Permutation o		\${parameter}	\${value}
TP/NGSI-LD/CI/Cons/		id	List of entity ids to be retrieved
TP/NGSI-LD/CI/Cons/		type	List of entity types to be retrieved
TP/NGSI-LD/CI/Cons/ TP/NGSI-LD/CI/Cons/		idPattern	Regular expression that shall be matched by entity ids List of Attributes to be matched by the Entities and
		attrs	included in the response
TP/NGSI-LD/CI/Cons/	E/019_02_05	geometryProperty	Which GeoProperty to use for the geoquery

TP ld	TP/NGSI-LD/CI/Cons/E/019_03
Test objective	Check that you cannot query entities if the request is incorrect
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.2
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_7_2
Initial conditions	with {     the SUT containing an initial group of Entities }

Expected behaviour	Test events		Direction	
when	SUT receives an invalid Get Entities F	SUT  Client		
l	JRL set to /ngsi-ld/v1/entities and			
r	method set to GET and			
}	Query Parameter <b>\${parameter}</b> set to	\${value}		
then {	he SUT sends a valid Response con	taining	SUT  Client	
	Response Status Code set to 40	Response Status Code set to 400 (Bad Request) and		
	Response Body containing			
	ProblemDetails element containing			
	type element set to \${pro	oblem_type} and		
	title element containing			
	more information at	pout the error		
}				
Permutation on TP Id	\${parameter}	\${val	ue}	
TP/NGSI- LD/CI/Cons/E/019_03_01	id	Invalid URI		
TP/NGSI- LD/CI/Cons/E/019_03_02	type	Invalid type		
TP/NGSI- LD/CI/Cons/E/019_03_03	idPattern	Invalid regex		
TP/NGSI- LD/CI/Cons/E/019_03_04	attrs	Invalid list of attributes	8	
TP/NGSI- LD/CI/Cons/E/019_03_05	geometryProperty	Invalid property		

TDL		
TP ld	TP/NGSI-LD/CI/Cons/E/019_04	
Test objective	Check that the queried entities can be returned in a simplified representation	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.7	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_6_3_7	
Initial conditions	<pre>with {    the SUT containing at least 3 Entities \${entities} with an attribute \${attribute} }</pre>	<b>\</b> }
Expected behaviour	Test events	Direction
Sonariou	when {	
	the SUT receives a valid Get Entities Request from the client containing	SUT ← Client
	URL set to /ngsi-Id/v1/entities and	
	method <b>set to</b> GET <b>and</b>	

Query Parameter attr <b>set to</b> \${attributeA} <b>and</b> options <b>set to</b> "keyValues" }	
then {     the SUT sends a valid Response containing     Response Status Code set to 200 (OK) and     Response Body containing	SUT → Client

TP Id	TP/NGSI-LD/CI/Cons/E/019_05
Test objective	Check that the queried entities can be returned in a geoJSON format
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.7
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_6_3_7
Initial conditions	<pre>with {     the SUT containing at least 3 Entities \${entities} with an attribute \${attributeA}</pre>
	}
Expected	Test events
behaviour	Test events
	when {
	the SUT receives a valid Get Entities Request from the client containing
	URL set to /ngsi-ld/v1/entities and
	method set to GET and
	Query Parameter attr set to \${attributeA} and
	Accept-Header set to "application/geo+json"
	}
	then { the SUT sends a valid Response containing
	Response Status Code set to 200 (OK) and
	Response Body containing
	\${entities_simplified_geojson}

TP ld	TP/NGSI-LD/CI/Cons/E/019_06
Test objective	Check that you can query entities specifying a maximum number of results
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.10

Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_6_3_10	
Initial conditions	<pre>with {     the SUT containing at least 3 Entities \${entities} with an attribute \${attribute</pre>	A}
		, ()
Expected behaviour	Test events	Direction
	when {	
	the SUT receives a valid Get Entities Request from the client containing	
	URL set to /ngsi-ld/v1/entities and	
	method set to GET and	$SUT \leftarrow Client$
	Query Parameter attr <b>set to</b> \${attributeA} and	
	Query Parameter limit <b>set to</b> 2	
	}	
	then { the SUT sends a valid Response containing	
	Response Status Code <b>set to</b> 200 (OK) <b>and</b>	
	Response Body containing	SUT → Client
	Two entities with \${attributeA}	
	}	

# 4.1.2.2 Temporal Entity

#### 4.1.2.2.1 Retrieve temporal evolution of Entity

TP ld	TP/NGSI-LD/CI/Cons/TE/020_01
Test objective	Check that you can retrieve the temporal evolution of an entity
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_7_3
Initial conditions	<pre>with {     the SUT containing an initial temporal Entity with an id set to \${entityId} and temporal evolution of that Entity. }</pre>

Expected behaviour	Test events	Direction
bondtroui	when {	
	the SUT receives a valid Retrieve temporal evolution of an Entity Request from the client containing	SUT ← Client
	URL set to /ngsi-ld/v1/temporal/entities/\${entityId}	
	}	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 200 (OK) and	
	Response Body containing	SUT → Client
	EntityTemporal element	
	}	

	TP/NGSI-LD/CI/Cons/TE/020_02	
Test objective		
	Check that you can retrieve the temporal evolution of an entity using a context	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_7_3	
	<pre>with {     the SUT containing an initial temporal Entity with an id set to \${entityId} an evolution of that Entity. }</pre>	d temporal
Expected behaviour	Test events	Direction
	when {	
	the SUT receives a valid Retrieve temporal evolution of an Entity Request from the client containing	
	URL set to /ngsi-ld/v1/temporal/entities/\${entityId} and	SUT $\leftarrow$ Client
	Header: Link <b>set to</b> the context to be used for term to URI expansion/reduction and following the naming convention	
	}	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 200 (OK) and	
	Response Body containing	SUT $\rightarrow$ Client
	EntityTemporal element containing	
	attribute names compacted with the context provided	
	}	
TP ld	TP/NGSI-LD/CI/Cons/TE/020_03	1

Test shis stire	Oberely the transmission of the transmission building of exertain ettails the effect of	
Test objective	Check that you can retrieve the temporal evolution of certain attributes of an er	ntity
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_7_3	
Initial conditions	<pre>with {     the SUT containing an initial temporal Entity with an id set to \${entityId} ar evolution of that Entity. }</pre>	nd temporal
Expected behaviour	Test events	Direction
	<pre>when {     the SUT receives a valid Retrieve temporal evolution of an Entity Request from the client containing     URL set to /ngsi-ld/v1/temporal/entities/\${entityId} and     Query Parameter: attrs set to the list of attributes to be retrieved }</pre>	SUT ← Client
	<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 200 (OK) and         Response Body containing         EntityTemporal element containing         attributes in the list of attributes provided }</pre>	SUT → Client

TP ld	TP/NGSI-LD/CI/Cons/TE/020_04
Test objective	Check that you can retrieve the temporal evolution of an entity matching the given NGSI-LD temporal query
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_7_3
Initial conditions	<pre>with {     the SUT containing an initial temporal Entity with an id set to \${entityId} and temporal     evolution of that Entity containing temporal attributes containing attribute instances     between 2020-06-01 and 2020-10-01. }</pre>

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Expected behaviour		Test e	vents		Direction
benaviour	when {				
	the SUT receives a va from the client containi		mporal evolution of an Entit	y Request	
	URL set to /ngsi-lo	l/v1/temporal/e	ntities/\${entityId} and		
	Query Parameter:	timerel set to \$	{timerel} and		SUT ← Client
	Query Parameter:	timeAt set to \$	{timeAt} and		
	Query Parameter:	endTimeAt <b>set</b>	to \${endTimeAt}		
	}				
	then { the SUT sends a	valid Response	containing		
	Response St	atus Code <b>set</b>	to 200 (OK) and		
	Response Bo	ody <b>containing</b>	I		
	EntityTe	mporal elemen	t containing		SUT → Client
	attrib	oute instances i NGSI-LD terr	n the time range specified poral query	d by the	
	}				
Permu	Itation on TP Id	\${timerel}	\${timeAt}	\${en	dTimeAt}
	ons/TE/020_04_01	after	2020-08-01T13:03:00Z	Not prese	
	ons/TE/020_04_02	between	2020-08-01T12:00:00Z		1T13:00:00Z
	ons/TE/020_04_03	before	2020-08-01T12:05:00Z	Not prese	nt

TP ld	TP/NGSI-LD/CI/Cons/TE/020_05	
Test objective	Check that you can retrieve the temporal evolution of the last N instances of en	ntity attributes
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_7_3	
Initial conditions	<pre>with {     the SUT containing an initial temporal Entity with an id set to \${entityId} an     evolution of that Entity containing temporal attributes containing each 15 inst }</pre>	
Expected behaviour	Test events	Direction
	when { the SUT receives a valid Retrieve temporal evolution of an Entity Request from the client containing	

	then { the SUT sends a valid Response containing Response Status Code set to 200 (OK) and Response Body containing EntityTemporal element containing attributes containing each at most \${lastN} in }	stances	SUT → Client
Permutation on TP Id \${		lastN}	
TP/NGSI-LD/CI/Cons/TE/020_05_01 10			
TP/NGSI-LD/CI/Cons/	TE/020_05_02	20	

TP ld	TP/NGSI-LD/CI/Cons/TE/020_06		
Test objective	Check that you cannot retrieve the temporal evolution of an entity with an inval URI)	id id (invalid	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_7_3		
Initial conditions	with { the SUT being in the "initial state" }		
Expected behaviour	Test events	Direction	
	<pre>when {     the SUT receives a valid Retrieve temporal evolution of an Entity Request from the client containing     URL set to /ngsi-ld/v1/temporal/entities/\${invalid_entityld} }</pre>	SUT ← Client	
	<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 400 (Bad Request) and         Response Body containing         ProblemDetails element containing         type element set to         https://uri.etsi.org/ngsi-Id/errors/BadRequestData and         title element containing         more information about the error }</pre>	SUT → Client	

TP Id	TP/NGSI-LD/CI/Cons/TE/020_07	
Test objective	Check that you cannot retrieve the temporal evolution of a non-existing entity	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_7_3	
Initial conditions	with { the SUT being in the "initial state"	
	3	
Expected behaviour	Test events	Direction
benaviour	when {	
	the SUT receives a valid Retrieve temporal evolution of an Entity Request from the client containing	
		$SUT \leftarrow Client$
	URL <b>set to</b> /ngsi-ld/v1/temporal/entities/urn:ngsi- ld:Vehicle:unknowEntity	
	}	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 404 (Not Found) and	
	Response Body containing	
	ProblemDetails element containing	
	type element <b>set to</b>	SUT → Client
	https://uri.etsi.org/ngsild/errors/ResourceNotFound and	
	title element containing	
	more information about the error	
	>	

TP ld	TP/NGSI-LD/CI/Cons/TE/020_08
Test objective	Check that you cannot retrieve the temporal evolution of non-existing entity attributes
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_7_3
Initial conditions	<pre>with {     the SUT containing an initial temporal Entity with an id set to \${entityId} and temporal evolution of that Entity. }</pre>

Expected behaviour	Test events	Direction
bonariou	when {	
	the SUT receives a valid Retrieve temporal evolution of an Entity Request from the client containing	
	URL set to /ngsi-ld/v1/temporal/entities/\${entityId} and	SUT ← Client
	Query Parameter: attrs set to a list of unknown attributes	
	}	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 404 (Not Found) and	
	Response Body containing	
	ProblemDetails element containing	
	type element <b>set to</b>	SUT → Client
	https://uri.etsi.org/ngsild/errors/ResourceNotFound and	
	title element <b>containing</b>	
	more information about the error	
	}	

TP Id	TP/NGSI-LD/CI/Cons/TE/020_09		
Test objective	Check that you cannot retrieve the temporal evolution of an entity with an invalid request content		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_7_3		
Initial conditions	<pre>with {     the SUT containing an initial temporal Entity with an id set to \${entityId} an evolution of that Entity. }</pre>	d temporal	
Expected behaviour	Test events	Direction	
Denaviour	when {		
	the SUT receives a valid Retrieve temporal evolution of an Entity Request from the client containing		
	URL set to /ngsi-ld/v1/temporal/entities/\${entityId} and		
	Query Parameter: timerel set to \${timerel} and	SUT ← Client	
	Query Parameter: timeAt set to \${timeAt} and		
	Query Parameter: endTimeAt set to \${endTimeAt}		
	}		

Response Bo ProblemD type e https title ele	atus Code set t dy containing etails element lement set to ://uri.etsi.org/ng ement contain	o 400 (Bad Request) and containing gsi-ld/errors/BadRequestDat	a <b>and</b>	SUT → Client	
Permutation on TP Id	\${timerel}	\${timeAt}	\${en	dTimeAt}	
TP/NGSI-LD/CI/Cons/TE/020_09_01	after	Not present	Not preser		
TP/NGSI-LD/CI/Cons/TE/020_09_02	between	2020-08-01T12:00:00Z	Not preser		
TP/NGSI-LD/CI/Cons/TE/020_09_03	SI-LD/CI/Cons/TE/020_09_03 before Not present Not present				

TP ld	TP/NGSI-LD/CI/Cons/TE/020_10		
Test objective	Check that you can retrieve the temporal evolution of an entity with the simplified temporal representation		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_7_3		
Initial conditions	<pre>with {     the SUT containing an initial temporal Entity with an id set to \${entityId} an     evolution of that Entity. }</pre>	nd temporal	
Expected behaviour	Test events	Direction	
	<pre>when {     the SUT receives a valid Retrieve temporal evolution of an Entity Request from the client containing     URL set to /ngsi-ld/v1/temporal/entities/\${entityld}     Query Parameter: attrs set to temporalValues }</pre>	SUT ← Client	
	then {     the SUT sends a valid Response containing     Response Status Code set to 200 (OK) and     Response Body containing     EntityTemporal element containing     simplified temporal representation of attributes	SUT → Client	

TP ld	TP/NGSI-LD/CI/C	Cons/TE/021	_01		
Test objective	Check that you can query the temporal evolution of entities				
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3				
Config Id	CF_01				
Parent Release	V1.3.1				
PICS Selection	PICS_5_7_4				
Initial conditions	<pre>with {     the SUT containing an initial three temporal Entities and temporal evolution of those entities. }</pre>				
Expected behaviour			Test events		Direction
	<pre>the SUT receives a valid Query temporal evolution of Entities Request from the client containing     URL set to /ngsi-ld/v1/temporal/entities and     Query Parameter: timerel set to \${timerel} and     Query Parameter: timeAt set to \${timeAt} and     Query Parameter: type set to \${entity_types} }</pre>				SUT ← Client
	Respo Respo Ent e	onse Status ( onse Body <b>co</b> ityTemporal entity type <b>in</b>	Response containing Code set to 200 (OK) and ontaining a list containing elements containing \${entity_types} and nces \${timerel} \${timeAt}		SUT → Client
Permutation	on TP Id	\${timerel}	\${timeAt}		entity_types}
TP/NGSI-LD/CI/Cons	s/TE/021_01_01	after	2020-08-01T12:00:00Z	List c entity retrie	of expanded / types to be eved
TP/NGSI-LD/CI/Cons	s/TE/021_01_02	before	2020-09-01T13:05:00Z		of expanded / types to be eved

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TP ld	TP/NGSI-LD/CI/Cons/TE/021_02
Test objective	Check that you can query the temporal evolution of certain attributes of entities
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3
Config Id	CF_01
Parent Release	V1.3.1

PICS Selection	PICS_5_7_4	
Initial conditions	<pre>with {    the SUT containing an initial two temporal Entities and temporal evolution }</pre>	of those entities.
Expected behaviour	Test events	Direction
bonariou	when {	
	the SUT receives a valid Query temporal evolution of Entities Request from the client containing	
	URL set to /ngsi-ld/v1/temporal/entities and	SUT ← Client
	Query Parameter: timerel set to after and	
	Query Parameter: timeAt set to 2020-07-01T12:05:00Z and	
	Query Parameter: attrs set to List of attributes to be retrieved	
	}	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 200 (OK) and	
	Response Body containing a list containing	
	EntityTemporal elements containing	SUT → Client
	attributes in the list of attributes provided and	
	attribute instances after 2020-07-01T12:05:00Z	
	}	

TP ld	TP/NGSI-LD/CI/Cons/TE/021_03	
Test objective	Check that you can query the temporal evolution of the last N instances of enti	ties attributes
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_7_4	
Initial conditions	<pre>with {    the SUT containing an initial two temporal Entities and temporal evolution o }</pre>	f those entities.
Expected behaviour	Test events	Direction
	when { the SUT receives a valid Query temporal evolution of Entities Request from the client containing URL set to /ngsi-ld/v1/temporal/entities and Query Parameter: timerel set to after and	SUT ← Client

Query Parameter: timeAt set to 2020-07-01T12:05:00Z and Query Parameter: type set to List of entity types to be retrieved and Query Parameter: lastN set to 14	
then { the SUT sends a valid Response containing Response Status Code set to 200 (OK) and	
Response Body <b>containing</b> a list <b>containing</b> EntityTemporal elements <b>containing</b> entity type <b>in</b> the list of entity types provided <b>and</b>	SUT → Client
attributes <b>containing</b> each last 14 instances <b>after</b> 2020-07- 01T12:05:00Z }	

TP ld	TP/NGSI-LD/CI/Cons/TE/021_04	
Test objective	Check that you can query the temporal evolution of entities using a context	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_7_4	
Initial conditions	<pre>with {    the SUT containing an initial two temporal Entities and temporal evolution o }</pre>	of those entities.
Expected behaviour	Test events	Direction
	<pre>the SUT receives a valid Query temporal evolution of Entities Request from the client containing     URL set to /ngsi-ld/v1/temporal/entities and     Header: Link set to the context to be used for term to URI     expansion/reduction and following the naming convention and     Query Parameter: timerel set to after and     Query Parameter: timeAt set to 2020-07-01T12:05:00Z and     Query Parameter: type set to List of entity types to be retrieved }</pre>	SUT ← Client
	then { the SUT sends a valid Response containing Response Status Code set to 200 (OK) and Response Body containing a list containing	SUT → Client

TP Id	TP/NGSI-LD/CI/Cons/TE/021_05		
Test objective	Check that you can query the temporal evolution of entities matching the given type(s)		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_7_4		
Initial conditions	<pre>with {     the SUT containing an initial two temporal Entities and temporal evolution o }</pre>	f those entities.	
Expected behaviour	Test events	Direction	
	the SUT receives a valid Query temporal evolution of Entities Request from the client containing URL set to /ngsi-ld/v1/temporal/entities and Query Parameter: timerel set to after and Query Parameter: timeAt set to 2020-07-01T12:05:00Z and Query Parameter: type set to List of entity types to be retrieved }	SUT ← Client	
	<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 200 (OK) and         Response Body containing a list containing         EntityTemporal elements containing         entity type in the list of entity types provided and         attribute instances after 2020-07-01T12:05:00Z }</pre>	SUT → Client	

TP ld	TP/NGSI-LD/CI/Cons/TE/021_06
Test objective	Check that you can query the temporal evolution of entities matching the given identifier(s)
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3

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Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_7_4	
Initial conditions	<pre>with {     the SUT containing an initial two temporal Entities and temporal evolution o }</pre>	f those entities.
Expected behaviour	Test events	Direction
benaviour	when { the SUT receives a valid Query temporal evolution of Entities Request from the client containing	
	URL set to /ngsi-ld/v1/temporal/entities and	
	Query Parameter: timerel <b>set to</b> after <b>and</b>	$SUT \leftarrow Client$
	Query Parameter: timeAt set to 2020-07-01T12:05:00Z and	
	Query Parameter: type <b>set to</b> List of entity types to be retrieved <b>and</b>	
	Query Parameter: id set to List of entity ids to be retrieved	
	}	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 200 (OK) and	
	Response Body containing a list containing	
	EntityTemporal elements containing	SUT $\rightarrow$ Client
	entity type in the list of entity types provided and	
	entity id <b>in</b> the list of entity ids provided <b>and</b>	
	attribute instances after 2020-07-01T12:05:00Z	
	}	

TP ld	TP/NGSI-LD/CI/Cons/TE/021_07	
Test objective	Check that you can query the temporal evolution of entities matching the given	id pattern
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_7_4	
Initial conditions	<pre>with {    the SUT containing an initial two temporal Entities and temporal evolution o }</pre>	f those entities.
Expected behaviour	Test events	Direction
	when {	SUT ← Client

the SUT receives a valid Query temporal evolution of Entities Request from the client containing	
URL set to /ngsi-ld/v1/temporal/entities and	
Query Parameter: timerel set to after and	
Query Parameter: timeAt set to 2020-07-01T12:05:00Z and	
Query Parameter: type set to List of entity types to be retrieved and	
Query Parameter: idPattern <b>set to</b> a regular expression that shall be matched by entity ids	
}	
then { the SUT sends a valid Response containing	
Response Status Code set to 200 (OK) and	
Response Body containing a list containing	
EntityTemporal elements containing	SUT $\rightarrow$ Client
entity type in the list of entity types provided and	
entity id matching id pattern provided and	
attribute instances after 2020-07-01T12:05:00Z	
}	

TP Id	TP/NGSI-LD/CI/Cons/TE/021_08	
Test objective	Check that you can query the temporal evolution of entities matching the given query	NGSI-LD
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_7_4	
Initial conditions	with { the SUT containing an initial two temporal Entities and temporal evolution o	f those entities.
	}	
Expected behaviour	Test events	Direction
	when {	
	the SUT receives a valid Query temporal evolution of Entities Request from the client containing	
	URL set to /ngsi-Id/v1/temporal/entities and	
	Query Parameter: timerel set to after and	SUT ← Client
	Query Parameter: timeAt set to 2020-07-01T12:05:00Z and	
	Query Parameter: type <b>set to</b> List of entity types to be retrieved <b>and</b>	

}	
then { the SUT sends a valid Response containing	
Response Status Code set to 200 (OK) and	
Response Body containing a list containing	
EntityTemporal elements containing	
entity type in the list of entity types provided and	SUT → Client
attribute instances	
after 2020-07-01T12:05:00Z and	
meet the matching conditions specified by the query	
}	

TP ld	TP/NGSI-LD/CI/Cons/TE/021_09	
Test objective	Check that you can query the temporal evolution of entities matching the given query	NGSI-LD geo-
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_7_4	
Initial conditions	with { the SUT containing an initial two temporal Entities and temporal evolution o	f those entities.
	}	
Expected	Test events	Direction
behaviour		Direction
	when {	
	the SUT receives a valid Query temporal evolution of Entities Request from the client containing	
	URL set to /ngsi-ld/v1/temporal/entities and	
	Query Parameter: timerel set to after and	
	Query Parameter: timeAt set to 2020-07-01T12:05:00Z and	
	Query Parameter: type set to List of entity types to be retrieved and	SUT ← Client
	Query Parameter: georel set to \${georel} and	
	Query Parameter: geometry set to \${geometry} and	
	Query Parameter: coordinates set to \${coordinates} and	
	Query Parameter: geoproperty set to \${geoproperty} and	
	}	
	then { the SUT sends a valid Response containing	SUT $\rightarrow$ Client
	Response Status Code set to 200 (OK) and	

	Response Body containing a	a list <b>containin</b>	g	
EntityTemporal elements containing				
	entity type <b>in</b> the li	st of entity type	s provided <b>and</b>	
	attribute instances aft	ter 2020-07-01	12:05:00Z and	
	GeoProperty instance	es that meet the	geospatial	
	restrictions imposed b	by the geo-quer	y	
}				
Permutation on TP Id	\${georel}	\${geometry	\${coordinates}	\${geoproperty}
	¢(geelel)	}	(coordinatoo)	¢(geepi epeity)
TP/NGSI- LD/CI/Cons/TE/021_09_01	near;maxDistance==2000	Point	[-8.503,41.202]	Not present
TP/NGSI- LD/CI/Cons/TE/021_09_02	within	Polygon	[ [-13.503,47.202], [6.541, 52.961], [20.37,44.653], [9.46,32.57], [- 15.23,21.37] ]	location

TP ld	TP/NGSI-LD/CI/Cons/TE/021_10	
i Più	TP/NGSI-ED/CI/COIIS/TE/021_10	
	Check that you can query the temporal evolution of entities matching the given NGS Source filter	SI-LD Context
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_7_4	
conditions i	with { the SUT containing a context source registration of a context source (CS1) prov information of two entities of type Building between 2020-08-01T22:07:00Z and 20 01T21:07:00Z and CS1 containing two temporal entities of type Building and temporal evolution entities in the mentioned interval.	21-08-
e	endies in the mendoned interval.	
)	}	
Expected behaviour	Test events	Direction
	when {	
t	the SUT receives a valid Query temporal evolution of Entities Request from the client containing	
	URL set to /ngsi-ld/v1/temporal/entities and	
	Query Parameter: timerel set to after and	$SUT \leftarrow Client$
	Query Parameter: timeAt set to 2020-07-01T12:05:00Z and	
	Query Parameter: type set to Building and	
	Query Parameter: csf set to a context Source filter matching CS1	
3	}	

then { the S	UT sends a valid Response containing	
	Response Status Code set to 200 (OK) and	
	Response Body containing a list containing	SUT → Client
with the c	two EntityTemporal elements <b>from</b> the context sources discovered sf provided	
}		

TP ld	TP/NGSI-LD/CI/Cons/TE/021_11			
Test objective	Check that you can query the temporal evolution of entities with a limit to the number of entities to be retrieved			
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5	5.7.3		
Config Id	CF_01			
Parent Release	V1.3.1			
PICS Selection	PICS_5_7_4			
Initial conditions	with { the SUT containing an initial three entities.	temporal Entities and temporal evolution	of those	
	}			
Expected behaviour	Test	events	Direction	
	when {			
	the SUT receives a valid Query terr from the client containing	nporal evolution of Entities Request		
	URL set to /ngsi-ld/v1/temporal/	entities and		
	Query Parameter: timerel set to after and SUT			
	Query Parameter: timeAt set to 2020-07-01T12:05:00Z and			
	Query Parameter: type set to Lis	st of entity types to be retrieved <b>and</b>		
	Query Parameter: limit set to \${	limit}		
	}			
	then { the SUT sends a valid Response	containing		
	Response Status Code set t	o 200 (OK) and		
	Response Body containing a list containing			
	at most <b>\${limit}</b> EntityTemporal elements <b>containing</b> SUT → Clier			
	entity type <b>in</b> the list of entity types provided <b>and</b>			
	attribute instances after 2020-07-01T12:05:00Z			
	}			
	rmutation on TP Id	\${limit}		
TP/NGSI-LD/CI/Cons	s/TE/021_11_01	2		
TP/NGSI-LD/CI/Cons	s/TE/021_11_02	20		

TP Id	TP/NGSI-LD/CI/Cons/TE/021_12	
Test objective	Check that you cannot query the temporal evolution of entities with an invalid request or invalid request content	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_7_4	
Initial conditions	<pre>with {    the SUT containing an initial two temporal Entities and temporal evolution c }</pre>	of those entities.
Expected behaviour	Test events	Direction
Denaviour	when {	
	the SUT receives a valid Query temporal evolution of Entities Request from the client containing	
	URL set to /ngsi-ld/v1/temporal/entities and	SUT ← Client
	Query Parameter: timerel set to after and	
	Query Parameter: timeAt set to 2020-07-01T12:05:00Z	
	}	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 400 (Bad Request) and	
	Response Body <b>containing</b>	
	ProblemDetails element containing	
	type element <b>set to</b>	SUT → Client
	https://uri.etsi.org/ngsi-ld/errors/BadRequestData and	
	title element <b>containing</b>	
	more information about the error	
	}	

TP Id	TP/NGSI-LD/CI/Cons/TE/021_13
Test objective	Check that you can query the temporal evolution of entities using the entityOperations method
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.3
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_7_4
Initial conditions	<pre>with {    the SUT containing an initial two temporal Entities and temporal evolution of those entities. }</pre>

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Expected behaviour	Test events			Direction	
Denaviour	when {				
	the SUT receives a valid Entity Operations Request to Query temporal evolution of Entities from the client containing				
	URL set to	/ngsi-ld/v1/temporal/e	ntityOperations/query <b>and</b>		
	Body conta	ining			SUT ← Client
	a NGSI-L attributes <b>and</b>	D temporal query <b>cor</b>	ntaining \${timerel} and \${timeAt	}	
	an entity	type <b>set to \${entity_t</b>	ypes}		
	}				
	then { the SUT sends a valid Response containing				
	Response Status Code set to 200 (OK) and				
	Respo	onse Body <b>containing</b>	a list <b>containing</b>		
	EntityTemporal elements containing				SUT → Client
	entity type in \${entity_types} and				
	attribute instances \${timerel} \${timeAt}				
	}				
Permutation	on TP Id	\${timerel}	\${timeAt}	\$	entity_types}
TP/NGSI-LD/CI/Con	s/TE/021_13_01	after	2020-08-02T12:05:00Z	ent	of expanded ty types to be ieved
TP/NGSI-LD/CI/Con	s/TE/021_13_02	before	2020-08-02T12:05:00Z	ent	of expanded ity types to be ieved

### 4.1.2.3 Discovery

### 4.1.2.3.1 Retrieve Available Entity Types

TP ld	TP/NGSI-LD/CI/CONS/DISC/022_01		
Test objective	Check that you can retrieve a list of NGSI-LD entity types	Check that you can retrieve a list of NGSI-LD entity types	
Reference	TSI GS CIM 009 V1.3.1 [1], clause 5.7.5		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_7_5		
Initial conditions	with {     the SUT containing an initial state }		
Expected behaviour	Test events	Direction	
	when {	SUT ← Client	

	<pre>the SUT receives a valid Entity type query from the client containing URL set to /ngsi-Id/v1/entityTypeList and \${context}</pre>			
	then { the SUT sends a valid Response Status Code	C		
	Response Body containing \${EntityTypeList}		SUT → Client	
Perm	utation on TP Id	\${context}	\${EntityT	ypeList}
TP/NGSI-LD/CI/CONS/DISC/022_01_01			Json object with types	list of entity
TP/NGSI-LD/CI/CONS/DISC/022_01_02		Json-Id context	Json object with types	list of entity

### 4.1.2.3.2 Retrieve Details of Available Entity Types

TP ld	TP/NGSI-LD/CI/CONS/DISC/023_01		
Test objective	Check that you can retrieve a list with a detailed representation of NGSI-LD entity types		tity types
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7	.6	
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_7_6		
Initial conditions	with { the SUT containing an initial state		
	}		
	1		
Expected behaviour	Test events Direction		
	when {		
	the SUT receives a valid Entity type of	the SUT receives a valid Entity type query from the client containing	
	URL <b>set to</b> /ngsi-ld/v1/entityType and SUT ← Client		
	URL set to /ngsi-id/v1/entity i ype and		
	\${context}		
	then { the SUT sends a valid Response containing		
	Response Status Code set to 200 (OK) and		
	Response Body containing a list containingSUT $\rightarrow$ Client		
	All available entity types		
	}		
P	ermutation on TP Id	\${context}	
23_01_01		No context	
23_01_02		Json-Id context	

TP Id	TP/NGSI-LD/CI/CONS/DISC/024_01		
Test objective	Check that you can retrieve a detailed representation of a specified NGSI-LD entity type		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.7		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_7_7		
Initial conditions	with { the SUT containing an initial state		
	}		
Expected Test events		events	Direction
Denaviour	when {		
	the SUT receives a valid Entity type query from the client containing		
	URL <b>set to</b> /ngsi-ld/v1/entityType?type=\${typeName} and SUT ← Clier		
	\${context}		
	then { the SUT sends a valid Response containing		
	Response Status Code <b>set to</b> 200 (OK) <b>and</b> SUT → Client		
	Response Body containing EntityTypeInfo		
	}		
Pe	rmutation on TP Id	\${context}	
24_01_01		No Context	
24_01_02		Json-Id context	

### 4.1.2.3.3 Retrieve Available Entity Type Information

### 4.1.2.3.4 Retrieve Available Entity Type Information

TP ld	TP/NGSI-LD/CI/CONS/DISC/025_0
Test objective	Check that you can retrieve a list of NGSI-LD attributes
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.8
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_7_8
Initial conditions	with {     the SUT containing an initial state }

Expected behaviour	Test	events	Direction
	when {		
	the SUT receives a valid Entity type	query from the client containing	
	URL set to /ngsi-ld/v1/AttributeL	ist and	SUT ← Client
	\${context}		
	}		
	then { the SUT sends a valid Response	containing	
	Response Status Code set to 200 (OK) and		SUT $\rightarrow$ Client
	Response Body containing	attributeList	
	}		
Pe	rmutation on TP Id	\${context}	
25_01_01		No context	
25_01_02		Json-Id context	

#### 4.1.2.3.5 Retrieve Details of Available Attributes

TP Id	TP/NGSI-LD/CI/CONS/DISC/026_01		
Test objective	Check that you can retrieve a list with a detailed representation of NGSI-LD attributes		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.9		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_7_9		
Initial conditions	with { the SUT containing an initial state		
	}		
Expected	Test events	Direction	
behaviour	when {		
	the SUT receives a valid Entity type query from the client containing		
	URL set to /ngsi-ld/v1/Attribute and	$SUT \leftarrow Client$	
	\${context}		
	}		
	then { the SUT sends a valid Response containing		
	Response Status Code set to 200 (OK) and	SUT → Client	
	Response Body containing an array of Attributes		
	}		

Permutation on TP Id	\${context}
26_01_01	No Context
26_01_02	Json-Id context

#### 4.1.2.3.6 Retrieve Details of Available Attributes

TP ld	TP/NGSI-LD/CI/CONS/DISC/027_01		
Test objective	Check that you can retrieve a list with a detailed representation of NGSI-LD attributes		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.7.10		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_7_10		
Initial conditions	with {		
	the SUT containing an initial state		
	}		
Expected behaviour	Test eve	nts	Direction
benaviour	when {		
	the SUT receives a valid Entity type query from the client containing		
	URL <b>set to</b> /ngsi-Id/v1/Attribute?attributeName=\${attributeName} and SUT ← Client		
	\${context}		
	}		
	then {		
	the SUT sends a valid Response containing		
	Response Status Code <b>set to</b> 200 (OK) <b>and</b> SUT → Client		
	Response Body <b>containing</b> an attribute		
	}		
F	Permutation on TP Id	\${context}	
27_01_01			
27_01_02		Json-Id context	

# 4.1.3 Subscription

### 4.1.3.1 Create Subscription

TP Id	TP/NGSI-LD/CI/SUB/028_01
Test objective	Check that you cannot create a subscription: if data types, cardinalities and restrictions are not met, then an error of type BadRequestData is be raised.
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.1
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_8_1

Initial conditions	with {     the SUT being in the "initial state" }			
Expected behaviour	-	Test events		
	when { the SUT receives a valid Cre containing URL set to /ngsi-ld/v1/sul method set to POST and		SUT ← Client	
	Header: Content-Type <b>se</b> body <b>set to {invalid_sub</b> }	t to Application/Id+json and scription}		
	then { the SUT sends a valid Re			
	Response Status Code set to 400 (Bad Request) and			
	Response Body containing			
	ProblemDetails element containing		SUT $\rightarrow$ Client	
	type elemen	type element set to \${problem_type} and		
	title element	containing		
	more i	nformation about the error		
	}			
Permutation on TP	Id \${invalid_subscription}	\${problem_type}		
28_01_01	Subscription containing invalid data type	https://uri.etsi.org/ngsi-ld/errors/BadRequestD	Data	
28_01_02	Subscription containing invalid cardinality	https://uri.etsi.org/ngsi-ld/errors/BadRequestD	Data	
28_01_03	Subscription containing invalid restriction	https://uri.etsi.org/ngsi-ld/errors/BadRequestD	Data	

TP Id	TP/NGSI-LD/CI/SUB/028_02	
Test objective	Check that you cannot create a subscription: if the NGSI-LD endpoint already this Subscription, as there is an existing Subscription whose id (URI) is equival error of type AlreadyExists is be raised.	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.1	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_8_1	
Initial conditions	<pre>with {     the SUT being in the "initial state",     the SUT has a Subscription \${subscription) created with the id set to \${subscriptionId} }</pre>	
	Test events	Direction

	<pre>when {     the SUT receives a valid Create Subscription Request from the client     containing     URL set to /ngsi-ld/v1/subscriptions and     method set to POST and     Header: Content-Type set to Application/ld+json and     body set to \${subscription} and the id set to \${subscriptionId} }</pre>	SUT ← Client
Expected behaviour	<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 409 (Already Exists) and         Response Body containing         ProblemDetails element containing         type element set to https://uri.etsi.org/ngsi- Id/errors/AlreadyExists and         title element containing         more information about the error }</pre>	SUT → Client

TP ld	TP/NGSI-LD/CI/SUB/028_03	
Test objective	Check that you can create a subscription: if the subscription document does not include a Subscription identifier, then a new identifier (URI) is be automatically generated by the implementation.	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.1	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_8_1	
Initial conditions	with { the SUT being in the "initial state" }	
Expected behaviour	Test events	Direction
Schaviour	when {     the SUT receives a valid Create Subscription Request from the client     containing	
	URL set to /ngsi-ld/v1/subscriptions and	
	method <b>set to</b> POST <b>and</b>	SUT ← Client
	Header: Content-Type set to Application/Id+json and	
	body <b>containing</b> the subscription to be created <b>not containing</b> an id	
	then { the SUT sends a valid Response containing	SUT → Client
	Response Status Code set to 201 (Created) and	

Location Header containing	
the URI of the created {subscription}	
}	

TP Id	TP/NGSI-LD/CI/SUB/028_04	
Test objective	Check that you can create a subscription: the subscription expiration date is equal to the value of the expiresAt member.	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.1	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_8_1	
Initial conditions	<pre>with {    the SUT being in the "initial state" }</pre>	
Expected behaviour	Test events	Direction
Denavioui	<pre>when {     the SUT receives a valid Create Subscription Request from the client     containing     URL set to /ngsi-ld/v1/subscriptions and     method set to POST and     Header: Content-Type set to Application/ld+json and     body set to subscription to be created and     expiration date set to expiresAt } then {</pre>	SUT ← Client
	the SUT sends a valid Response containing Status Code set to 201 (CREATED) and Body set to set to Subscription containing expiration date set to the value of expiresAt }	SUT → Client

TP ld	TP/NGSI-LD/CI/SUB/028_05
Test objective	Check that you cannot create a subscription: if the expiration timestamp provided represents a moment before the current date and time, then an error of type BadRequestData is raised
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.1
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_8_1

Initial conditions	with {     the SUT being in the "initial state" }	
Expected behaviour	Test events	Direction
benaviour	when {     the SUT receives a valid Create Subscription Request from the client     containing	
	URL set to /ngsi-ld/v1/subscriptions and	
	method set to POST and	
	Header: Content-Type set to Application/ld+json and	SUT ← Client
	body set to subscription to be created containing	
	expiration timestamp <b>set to</b> a moment before the current date and time }	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 400 (Bad Request) and	
	Response Body containing	
	ProblemDetails element containing	SUT → Client
	type element <b>set to</b> https://uri.etsi.org/ngsi- ld/errors/BadRequestData <b>and</b>	SOT - Client
	title element <b>containing</b>	
	more information about the error	
	}	

TP ld	TP/NGSI-LD/CI/SUB/028_06	
Test objective	Check that you can create a subscription: If there is no expiresAt member, the Subscription is considered as perpetual.	n the
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.1	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_8_1	
Initial conditions	<pre>with {    the SUT being in the "initial state" }</pre>	
Expected behaviour	Test events	Direction
	when {     the SUT receives a valid Create Subscription Request from the client     containing	
	URL set to /ngsi-ld/v1/subscriptions and	SUT $\leftarrow$ Client
	method set to POST and	
	Header: Content-Type set to Application/ld+json and	

	dy <b>containing</b> the subscription to be created <b>not containing</b> At member	
}		
then {	e SUT sends a valid Response containing	
	Response Status Code set to 201 (CREATED) and	
created	Location header set to the resource URI of the subscription	SUT $\rightarrow$ Client
and	d the subscription created not containing expiresAt member	
}		

TP Id			
	TP/NGSI-LD/CI/SUB/028_07		
Test objective	Check that you can create a subscription: If the value of the isActive field is not included or is true then the initial status of the Subscription is set to "active"		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.1		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_8_1		
Initial conditions	with {     the SUT being in the "initial state" }		
Expected behaviour	Test events		Direction
	<pre>when {     the SUT receives a valid Create Subscription Request from containing     URL set to /ngsi-ld/v1/subscriptions and     method set to POST and     Header: Content-Type set to Application/ld+json and     body set to Subscription to be created containing         isActive set to {value} } then { </pre>	the client	SUT ← Client
	the SUT sends a valid Response containing Status Code set to 201 (CREATED) and Body set to Subscription containing Status set to active		SUT → Client
	Permutation on TP Id		lue}
TP/NGSI-LD/CI/SUB/0		not included	
TP/NGSI-LD/CI/SUB/0	07_02	true	

TΡ	ld

TP/NGSI-LD/CI/SUB/028\_08

Test objective	Check that you can create a subscription: If the value of the isActive field is fals initial status of the Subscription is set to "paused".	se, then the
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.1	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_8_1	
Initial conditions	with {     the SUT being in the "initial state" }	
Expected behaviour	Test events	Direction
	<pre>when {     the SUT receives a valid Create Subscription Request from the client     containing     URL set to /ngsi-ld/v1/subscriptions and     method set to POST and     Header: Content-Type set to Application/ld+json and     body set to Subscription to be created containing     isActive set to false }</pre>	SUT ← Client
	<pre>then {     the SUT sends a valid Response containing     Status Code set to 201 (CREATED) and     Body set to Subscription containing     Status set to paused }</pre>	SUT → Client

# 4.1.3.2 Update Subscription

TP ld	TP/NGSI-LD/CI/SUB/029_01	
Test objective	Check that you cannot update a subscription: if the Subscription id is not present or it is not a valid URI, then an error of type BadRequestData shall be raised.	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.2	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_8_2	
Initial conditions	with {     the SUT being in the "initial state" }	

Expected behaviour	Test events		Direction
Jonaviou	when {     the SUT receives an Update Subscription Request from the c     containing	client	
	URL set to /ngsi-ld/v1/subscriptions/\${subscriptionId} and		
	method set to PATCH and		SUT $\leftarrow$ Client
	Header: Content-Type set to application/ld+json and		
	body set to a subscription update fragment		
	}		
	then { the SUT sends a valid Response containing		
	Response Status Code set to 400 (Bad Request) an	d	
	Response Body containing		
	ProblemDetails element containing		SUT $\rightarrow$ Client
	type element set to \${problem_type} and		
	title element <b>containing</b>		
	more information about the error		
	}		
	Permutation on TP Id	\${subsci	riptionId}
TP/NGSI-LD/CI/SU		null	
TP/NGSI-LD/CI/SU	JB/029_01_02	Not a valid UR	

TP ld			
IP Id	TP/NGSI-LD/CI/SUB/029_02		
Test objective	Check that you cannot update a subscription: If the NGSI-LD System does not know about the target Subscription, because there is no existing Subscription whose id (URI) is equivalent, an error of type ResourceNotFound shall be raised.		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.2		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_8_2		
Initial conditions	with {     the SUT not containing a subscription with id set to \${subscriptionId} }		
Expected behaviour	Test events	Direction	
	<pre>when {     the SUT receives an Update Subscription Request from the client     containing     URL set to /ngsi-ld/v1/subscriptions/\${subscriptionId} and     method set to PATCH and     Header: Content-Type set to application/ld+json and</pre>	SUT ← Client	

}	
then { the SUT sends a valid Response containing	
Response Status Code set to 404 (ResourceNotFound) and	
Response Body containing	
ProblemDetails element containing	SUT $\rightarrow$ Client
type element <b>set to \${problem_type} and</b>	
title element containing	
more information about the error	
}	

	-	
TP ld	TP/NGSI-LD/CI/SUB/029_03	
Test objective	Check that you cannot update a subscription: If the data types and restriction are not met by the Subscription Fragment, then an error of type BadRequestData shall be raised	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.2	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_8_2	
Initial conditions	with {     the SUT containing a subscription with id set to \${subscriptionId} }	
Expected behaviour	Test events	Direction
	when {     the SUT receives an Update Subscription Request from the client containing	
	URL set to /ngsi-ld/v1/subscriptions/\${subscriptionId} and	
	method set to PATCH and	SUT ← Client
	Header: Content-Type set to application/ld+json and	
	body <b>set to</b> a subscription update fragment <b>containing</b> invalid data types and restrictions	

then {         the SUT sends a valid Response containing         Response Status Code set to 400 (Bad Request) and         Response Body containing         ProblemDetails element containing         type element set to \${problem_type} and         title element containing	SUT → Client
title element <b>containing</b> more information about the error	

TP ld	TP/NGSI-LD/CI/SUB/029_04		
Test objective	Check that you cannot update a subscription: Any attempt to remove (by setting them to null in the Fragment) mandatory properties of a Subscription (clause 5.2.12) shall result in an error of type BadRequestData		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.2		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_8_2		
Initial conditions	with {     the SUT containing a subscription with id set to \${subscriptionId} }		
Expected behaviour	Test events	Direction	
	when {     the SUT receives an Update Subscription Request from the client containing		
	URL set to /ngsi-ld/v1/subscriptions/\${subscriptionId} and		
	method set to PATCH and	$SUT \leftarrow Client$	
	Header: Content-Type <b>set to</b> application/ld+json <b>and</b>		
	body set to a subscription update fragment containing		
	mandatory property <b>set to</b> null		
	}		

then { the SUT sends a valid Response containing	
Response Status Code set to 400 (Bad Request) and	
Response Body containing	
ProblemDetails element containing	SUT $\rightarrow$ Client
type element set to \${problem_type} and	
title element containing	
more information about the error	
}	

TP ld	TP/NGSI-LD/CI/SUB/029_05	
Test objective	Check that you can update a subscription: Term to URI expansion of Attribute names shall be observed.	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.2	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_8_2	
Initial conditions	<pre>with {     the SUT containing a subscription with id set to \${subscriptionId} and matching entities     of type T }</pre>	
Expected behaviour	Test events	Direction
	when {     the SUT receives an Update Subscription Request from the client     containing	
	URL set to /ngsi-ld/v1/subscriptions/\${subscriptionId} and	
	method set to PATCH and	SUT ← Client
	Header: Content-Type <b>set to</b> application/ld+json <b>and</b>	
	body <b>set to \${update_fragment} containing</b> entities member <b>and</b> @context member providing new expanded format for the entity type T	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 204 (No Content)	SUT → Client
	and updated resource set to the subscription updated with \${update_fragment} when retrieved with the new provided @context	
	}	

TP ld	TP/NGSI-LD/CI/SUB/029_06
	Check that you can update a subscription: The implementation shall modify the target Subscription.
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.2

Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_8_2	
Initial conditions	<pre>with {     the SUT containing a subscription with id set to \${subscriptionId} }</pre>	
Expected behaviour	Test events	Direction
	when {     the SUT receives an Update Subscription Request from the client containing	
	URL set to /ngsi-ld/v1/subscriptions/\${subscriptionId} and	
	method set to PATCH and	$SUT \leftarrow Client$
	Header: Content-Type set to application/ld+json and	
	body set to subscription update fragment	
	}	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 204 (No Content)	
	and updated resource set to the subscription updated with \${update_fragment}	SUT → Client
	}	

70.11		
TP ld	TP/NGSI-LD/CI/SUB/029_07	
Test objective	Check that you can update a subscription: If isActive is equal to true or null and expiresAt is not present, then status shall be updated to "active", if and only if, the previous value of status was different than "expired".	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.2	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_8_2	
Initial conditions	<pre>with {     the SUT containing a subscription with id set to \${subscriptionId} and     status member different than "expired". }</pre>	
Expected behaviour	Test events	Direction
Denaviou	<pre>when {     the SUT receives an Update Subscription Request from the client     containing     URL set to /ngsi-ld/v1/subscriptions/\${subscriptionId} and     method set to PATCH and     Header: Content-Type set to application/ld+json and</pre>	SUT ← Client

body set to subscription update fragment containing isActive set to \${isActive} and not containing expiresAt member }		
then { the SUT sends a valid Response containing		
Response Status Code set to 204 (No Content)		SUT $\rightarrow$ Client
and the status of \${subscriptionId} is set to "active"		
}		
Permutation on TP Id		sActive}
TP/NGSI-LD/CI/SUB/029_07_01 t		
TP/NGSI-LD/CI/SUB/029_07_02	null	

TP ld	TP/NGSI-LD/CI/SUB/029_08	
Test objective	Check that you can update a subscription: If isActive is equal to true or null and expiresAt is null or corresponds to a DateTime in the future, then status shall be updated to "active".	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.2	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_8_2	
Initial conditions	<pre>with {     the SUT containing a subscription with id set to \${subscriptionId} }</pre>	
Expected behaviour	Test events	Direction
	<pre>when {     the SUT receives an Update Subscription Request from the client     containing         URL set to /ngsi-ld/v1/subscriptions/\${subscriptionId} and         method set to PATCH and         Header: Content-Type set to application/ld+json and         body set to subscription update fragment containing         isActive set to \${isActive} and         expiresAt set to \${expiresAt} }</pre>	SUT ← Client
	<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 204 (No Content)     and the status of \${subscriptionId} is set to "active" }</pre>	SUT → Client

TP ld	TP/NGSI-LD/CI/SUB/029_09

Test objective	Check that you can update a subscription: If isActive is equal to false and expiresAt is not present, then status shall be updated to "paused", if and only if, the previous value of status was different than "expired".	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.2	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_8_2	
Initial conditions	<pre>with {     the SUT containing a subscription with id set to \${subscriptionId} and     status member different than "expired" }</pre>	
Expected behaviour	Test events	Direction
	<pre>when {     the SUT receives an Update Subscription Request from the client     containing         URL set to /ngsi-ld/v1/subscriptions/\${subscriptionId} and         method set to PATCH and         Header: Content-Type set to application/ld+json and         body set to subscription update fragment containing         isActive member set to false and         not containing expiresAt member }</pre>	SUT ← Client
	<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 204 (No Content)     and the status of \${subscriptionId} is set to "paused" }</pre>	SUT → Client

TP ld	TP/NGSI-LD/CI/SUB/029_10		
Test objective	Check that you can update a subscription: If only expiresAt is included and refers to a DateTime in the future or is null, then status shall be updated to "active", if and only if the previous value of status was "expired".		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.2		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_8_2		
Initial conditions	<pre>with {     the SUT containing a subscription with id set to \${subscriptionId} and     status member set to "expired". }</pre>		
Expected behaviour	Test events	Direction	
	when {     the SUT receives an Update Subscription Request from the client     containing	SUT ← Client	

		URL set to /ngsi-ld/v1/subscriptions/\${subscription method set to PATCH and Header: Content-Type set to application/ld+json a body set to subscription update fragment contain expiresAt member set to \${expiresAt}	nd	
	}			
	then	{ the SUT sends a valid Response containing		
		Response Status Code set to 204 (No Cont	ent)	SUT $\rightarrow$ Client
		and the status of \${subscriptionId} is set to "acti	ve"	
	}			
		Permutation on TP Id	\${expires	At}
TP/NGSI-LD/CI/SUB/	/029_	10_01	refers to a DateTime i	n the future
TP/NGSI-LD/CI/SUB/	/020_	10_02	null	

TP ld	TP/NGSI-LD/CI/SUB/029_11	
Test objective	Check that you cannot update a subscription: If expiresAt is included but referr	ing to a
	DateTime in the past, then a BadRequestData error shall be raised	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.2	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_8_2	
Initial conditions	with { the SUT containing a subscription with id set to \${subscriptionId} }	
Expected behaviour	Test events	Direction
	when {     the SUT receives an Update Subscription Request from the client     containing	
	URL set to /ngsi-ld/v1/subscriptions/\${subscriptionId} and	
	method set to PATCH and	SUT ← Client
	Header: Content-Type <b>set to</b> application/ld+json <b>and</b>	
	body <b>set to</b> subscription update fragment <b>containing</b> expiresAt member <b>set to</b> a date referring to a DateTime in the past	
	}	
	then { the SUT sends a Response containing	
	Response Status Code set to 400 (Bad Request) and	
	Response Body <b>containing</b>	SUT → Client
	ProblemDetails element containing	
	type element set to \${problem_type} and	

### 4.1.3.3 Retrieve Subscription

TP Id	TP/NGSI-LD/CI/SUB/030_01		
Test objective	Check that you cannot retrieve a subscription: If the sub- valid URI, then an error of type BadRequestData shall b	scription ld is not prese e raised.	ent or it is not a
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.3		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_8_3		
Initial conditions	with {     the SUT being in the "initial state" }		
Expected behaviour	Test events		Direction
benavioui	<pre>when {     the SUT receives an Subscription Retrieve a Request containing     URL set to /ngsi-ld/v1/subscriptions/\${subscription     method set to GET }</pre>		SUT ← Client
	<pre>then {     the SUT sends a Response containing         Response Status Code set to 400 (Bad Requ         Response Body containing         ProblemDetails element containing         type element set to \${problem_type         title element containing         more information about the error }</pre>	} and	SUT → Client
	Permutation on TP Id	\${subscript	ionId}
TP/NGSI-LD/CI/SUB		Not present	
TP/NGSI-LD/CI/SUB	/030_01_02	Not a valid URI	

TP ld	TP/NGSI-LD/CI/SUB/030_02
-	Check that you cannot retrieve a subscription: If the identifier provided does not correspond to any existing subscription in the system then an error of type ResourceNotFound shall be raised.
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.3

Config Id	CF_01		
-			
Parent Release	V1.3.1		
PICS Selection	PICS_5_8_3		
Initial conditions	with { the SUT not containing a subscription with id set to \${subscriptionId}		
	}		
Expected behaviour	Test events	Direction	
	when {     the SUT receives an Subscription Retrieve a Request from the client     containing		
	URL set to /ngsi-ld/v1/subscriptions/\${subscriptionId} and	SUT ← Client	
	method <b>set to</b> GET		
	}		
	then { the SUT sends a valid Response containing		
	Response Status Code set to 404 (ResourceNotFound) and		
	Response Body containing		
	ProblemDetails element containing	SUT $\rightarrow$ Client	
	type element set to \${problem_type} and		
	title element <b>containing</b>		
	more information about the error		
	}		

TP Id	TP/NGSI-LD/CI/SUB/030_03	
Test objective	Check that you can retrieve a subscription	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.3	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_8_3	
Initial conditions	<pre>with {     the SUT containing a subscription with id set to \${subscriptionId} }</pre>	
Expected behaviour	Test events	Direction
	when {     the SUT receives an Subscription Retrieve a Request from the client     containing	
	URL set to /ngsi-ld/v1/subscriptions/\${subscriptionId} and	$SUT \leftarrow Client$
	method <b>set to</b> GET	
	>	

then { the SUT sends a valid Response containing	
Response Status Code <b>set to</b> 200 (Ok) <b>and</b> Response body <b>set to</b> Subscription	SUT $\rightarrow$ Client
}	

### 4.1.3.4 Query Subscriptions

TP Id	TP/NGSI-LD/CI/SUB/031_01		
Test objective	Check that you can query a list of subscriptions		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.4		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_8_4		
Initial conditions	with {     the SUT containing three Subscriptions }		
Expected behaviour	Ir Test events Dire		
	when { the SUT receives a valid Query Subscriptions Request from the client containing URL set to /ngsi-ld/v1/subscriptions and	SUT ← Client	
	method <b>set to</b> GET		
	then { the SUT sends a valid Response containing		
	Response Status Code <b>set to</b> Ok <b>and</b> <b>body set to</b> list <b>containing</b> three subscriptions }	SUT → Client	

TP ld	TP/NGSI-LD/CI/SUB/031_02
Test objective	Check that you can query a list of subscriptions: Pagination logic shall be in place
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.4
Config Id	CF_05
Parent Release	V1.3.1
PICS Selection	PICS_5_8_4
Initial conditions	with {
	the SUT containing three Subscriptions
	}

Expected behaviour		Test events		Direction
	when { the SUT receives a val containing	id Query Subscriptions Reque	st <b>from</b> the client	
	URL set to /ngsi-ld/			
	method set to GET	and		$SUT \leftarrow Client$
	Query Parameter lin	nit set to \${limit} and		
	Query Parameter pa	age set to \${page}		
	}			
	then { the SUT sends a va	alid Response containing		
	Response Sta	tus Code set to 200 (Ok) and		SUT $\rightarrow$ Client
	Response Boo pagination logic	dy <b>containing</b> a list <b>of</b> subscrip	ptions respecting the	
	}			
Permuta	tion on TP Id	\${limit}	\${page	}
TP/NGSI-LD/CS/RE	GSUB/031_02_01	1	2	
TP/NGSI-LD/CS/RE	GSUB/031_02_02	2	2	
TP/NGSI-LD/CS/RE	GSUB/031_02_03	15	1	

### 4.1.3.5 Delete Subscription

TP ld	TP/NGSI-LD/CI/SUB/032_01		
Test objective	Check that you cannot delete a subscription: If the subscription Id is not present or it is not a valid URI, then an error of type BadRequestData shall be raised.		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.5		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_8_5		
Initial conditions	with { the SUT being in the "initial state"		
	}		
Expected behaviour	Test events	Direction	
	when f		
	when {     the SUT receives an Delete Subscription Request from the client     containing		
	the SUT receives an Delete Subscription Request from the client	SUT ← Client	
	the SUT receives an Delete Subscription Request from the client containing	SUT ← Client	
	the SUT receives an Delete Subscription Request from the client containing URL set to /ngsi-ld/v1/subscriptions/\${subscriptionId} and	SUT ← Client	
	the SUT receives an Delete Subscription Request from the client containing URL set to /ngsi-ld/v1/subscriptions/\${subscriptionId} and	SUT $\leftarrow$ Client SUT $\rightarrow$ Client	

Response Body containing	
ProblemDetails element containing	
type element set to \${problem_type} and	
title element containing	
more information about the error	
}	

Permutation on TP Id	\${subscriptionId}
TP/NGSI-LD/CI/SUB/032_01_01	Not present
TP/NGSI-LD/CI/SUB/032_01_02	Not a valid URI

TP ld	TP/NGSI-LD/CI/SUB/032_02	
Test objective	Check that you cannot delete a subscription: If the subscription id provided does not correspond to any existing subscription in the system then an error of type ResourceNotFound shall be raised.	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.5	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_8_5	
Initial conditions	<pre>with {    the SUT not containing a subscription with id set to \${subscriptionId} }</pre>	
Expected behaviour	Test events	Direction
	<pre>when {     the SUT receives an Delete Subscription Request from the client     containing     URL set to /ngsi-ld/v1/subscriptions/\${subscriptionId} and     method set to Delete }</pre>	SUT ← Client
	<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 404 (ResourceNotFound) and         Response Body containing         ProblemDetails element containing         type element set to \${problem_type} and         title element containing         more information about the error }</pre>	SUT → Client

TP ld	TP/NGSI-LD/CI/SUB/032_03
Test objective	Check that you can delete a subscription

Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.5	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_8_5	
Initial conditions	with { the SUT containing a subscription with id set to \${subscriptionId} }	
Expected behaviour	Test events	Direction
	<pre>when {     the SUT receives an Delete Subscription Request from the client     containing     URL set to /ngsi-ld/v1/subscriptions/\${subscriptionId} and     method set to Delete }</pre>	SUT ← Client
	<pre>then {     the SUT sends a Response containing         Response Status Code set to 204 (No Content)         and the SUT not containing resource with id set to \${subscriptionId} }</pre>	SUT → Client

#### 4.1.3.6 Notification Behaviour

TP ld	TP/NGSI-LD/CI/SUB/046_01
Test objective	Notifications shall only be sent if and only if the status of the corresponding subscription
	("subscription.status") is active, i.e. not paused nor expired.
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.6
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_8_6
Initial conditions	with {
	the SUT contains
	an entity equals \${entity}
	with a <b>property</b> equals <b>\${property}</b>
	and with value equals \${property.value1}
	and a subscription with id set to \${subscriptionId}
	and <b>status</b> equals " <b>active</b> "
	and <b>watchedAttributes</b> is <b>empty</b>

	and with <b>subscription.entity</b> including an <b>entityInfo</b> object with the <b>id</b> equal to <b>\${entity.id}</b>	
	}	
Expected behaviour	Test events	Direction
	When{	
	an update of the value of \${entity} happens	
	and updates value to \${property.value2}	SUT → Client
	the SUT needs to send out a notification to the client	
	sends a notification to the client	
	then { the client at \${endpoint} receives a valid Notification containing	
	a subscriptionId equals to \${subscriptionId}	
	and a data containing \${entity}	SUT → Client
	with the entity.property equal to \${property}	
	and property.value equal to \${property.value2}	
	}	

TP Id	TP/NGSI-LD/CI/SUB/046_02
Test objective	If a Subscription defines a timeInterval member, a Notification shall be sent periodically, when the time interval (in seconds) specified in such value field is reached, regardless of Attribute changes.
	The notification message shall include all the subscribed Entities that match the query and geoquery conditions.
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.6
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_8_6
Initial conditions	with {
	an entity equals \${entity}
	with a <b>property</b> equals <b>\${property}</b>
	and with <b>value</b> equals <b>\${property.value1}</b>
	and the entity fulfills the <b>\${query}</b> conditions defined in <b>q</b>
	and a subscription with id set to \${subscriptionId}
	and status equals "active"
	and timeInterval is set to \${timeInterval}
	and watchedAttributes is empty
	and <b>q</b> equals <b>\${query}</b>

	and geoQ equals \${geoQuery}	
	and with subscription.entity including an entityInfo object	
	with the id equal to \${entity.id}	
	}	
Expected behaviour	Test events	Direction
bonavioui	<pre>when {     When the timeinterval is reached at \${timeInterval} seconds     the SUT needs to send out a notification to the client     sends a notification to the client every \${timeInterval} seconds</pre>	SUT → Client
	<pre>then {     the client at \${endpoint} receives a valid Notification containing     a subscriptionId equals to \${subscriptionId}     and a data containing \${entity}     with the entity.property equal to \${property}     and property.value equal to \${property.value1}     and all \${Entity} that matches \${query} and \${geoQ} }</pre>	SUT → Client

TP ld	TP/NGSI-LD/CI/SUB/046_03
Test objective	If a Subscription defines a timeInterval member, a Notification shall be sent periodically, when the time interval (in seconds) specified in such value field is reached, regardless of Attribute changes. The notification message shall include all the subscribed Entities if no query or geoquery are not defined
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.6
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_8_6
Initial conditions	with {
	an entity equals \${entity}
	with a <b>property</b> equals <b>\${property}</b>
	and with <b>value</b> equals <b>\${property.value1}</b>
	and a subscription with id set to \${subscriptionId}
	and <b>status</b> equals " <b>active</b> "
	and timeInterval is set to \${timeInterval}
	and watchedAttributes is empty
	and <b>q not defined</b>

	and <b>geoQ not defined</b> and with <b>subscription.entity</b> including an <b>entityInfo</b> object with the <b>id</b> equal to <b>\${entity.id}</b> }	
Expected behaviour	Test events	Direction
	<pre>when {     When the timeinterval is reached at \${timeInterval} seconds     the SUT needs to send out a notification to the client     sends a notification to the client every \${timeInterval} seconds</pre>	SUT → Client
	<pre>then {     the client at \${endpoint} receives a valid Notification containing     a subscriptionId equals to \${subscriptionId}     and a data containing \${entity}     with the entity.property equal to \${property}     and property.value equal to \${property.value1} }</pre>	SUT → Client

TP ld	TP/NGSI-LD/CI/SUB/046_04
Test objective	If a Subscription does not define a timeInterval term, the notification shall be sent whenever there is a change in the watched Attributes.
	The notification message shall include all the subscribed Entities that changed and that match (as mandated by clauses 4.9 and 4.10) the query and geoquery conditions."
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.6
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_8_6
Initial conditions	with { the SUT contains
	an entity equals \${entity}
	with a <b>property</b> equals <b>\${property}</b>
	and with value equals \${property.value1}
	and the entity fulfills the <b>\${query}</b> conditions defined in <b>q and geoQ</b>
	and a subscription with id set to \${subscriptionId}
	and <b>status</b> equals " <b>active</b> "
	and watchedAttributes is set to \${property.name}
	and <b>timeInterval</b> not defined
	and <b>q</b> equals <b>\${query}</b>

	and geoQ equals \${geoQuery}	
	and with subscription.entity including an entityInfo object	
	with the id equal to \${entity.id}	
	}	
Expected behaviour	Test events	Direction
Denaviour	when {	
	an update of the value of \${entity} happens	
	and updates value to \${property.value2}	SUT → Client
	the SUT needs to send out a notification to the client	
	sends a notification to the client	
	<pre>then {     the client at \${endpoint} receives a valid Notification containing</pre>	
	a subscriptionId equals to \${subscriptionId}	
	and a <b>data</b> containing <b>\${entity}</b>	
	with the <b>entity.property</b> equal to <b>\${property}</b>	SUT → Client
	and property.value equal to \${property.value2}	
	and all <b>\${Entity}</b> that <b>matches \${query} and \${geoQ}</b>	
	}	

TP ld	TP/NGSI-LD/CI/SUB/046_05	
Test objective	If a Subscription does not define a timeInterval term, the notification shall be sent whenever there is a change in the watched Attributes. The notification message shall include all the subscribed Entities that changed and query or	
	geoquery are not defined	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.6	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_8_6	
Initial conditions	with { the SUT contains	
	an entity equals \${entity}	
	with a <b>property</b> equals <b>\${property}</b>	
	and with value equals \${property.value1}	
	and a subscription with id set to \${subscriptionId}	
	and <b>status</b> equals " <b>active</b> "	
	and <b>timeInterval</b> not defined	
	and watchedAttributes is set to \${property.name}	
	and <b>q</b> not defined	

	and <b>geoQ</b> not defined	
	and with subscription.entity including an entityInfo object	
	with the id equal to \${entity.id}	
	}	
Expected behaviour	Test events	Direction
	when {	
	an update of the value of \${entity} happens	
	and updates value to \${property.value2}	SUT $\rightarrow$ Client
	the SUT needs to send out a notification to the client	
	sends a notification to the client	
	<pre>then {     the client at \${endpoint} receives a valid Notification containing</pre>	
	a subscriptionId equals to \${subscriptionId}	
	and a data containing \${entity}	SUT $\rightarrow$ Client
	with the <b>entity.property</b> equal to <b>\${property}</b>	
	and property.value equal to \${property.value2}	
	}	

TP ld	TP/NGSI-LD/CI/SUB/046_06
Test objective	If a Subscription does not define a timeInterval term, the notification shall be sent whenever there is a change in the watched Attributes.
	If a Context Source filter is defined, then only the subscribed Entities whose origin Context Source matches the referred filter shall be included.
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.6
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_8_6
Initial conditions	with { the SUT contains
	an entity equals \${entity}
	with a <b>property</b> equals <b>\${property}</b>
	and with value equals \${property.value1}
	and en <b>tity</b> is located at <b>\${contextSource}</b>
	and a subscription with id set to \${subscriptionId}
	and <b>status</b> equals " <b>active</b> "
	and <b>timeInterval</b> not defined
	and watchedAttributes is set to \${property.name}
	and <b>q</b> not defined

	and <b>geoQ</b> not defined	
	and csf is \${csfList} containing only \${contextSource}	
	and with subscription.entity including an entityInfo object	
	with the <b>id</b> equal to <b>\${entity.id}</b>	
	}	
Expected	Test events	Direction
Expected behaviour		Direction
	when {	
	an update of the value of \${entity} happens	
	and updates value to \${property.value2}	SUT → Client
	the SUT needs to send out a notification to the client	
	sends a notification to the client	
	then { the client at \${endpoint} receives a valid Notification containing	
	a subscriptionId equals to \${subscriptionId}	
	and a <b>data</b> containing <b>\${entity}</b>	
	with the entity.property equal to \${property}	SUT → Client
	and property.value equal to \${property.value2}	
	and all entities in data are located in <b>\${contextSource}</b>	
	}	

TP ld	TP/NGSI-LD/CI/SUB/046_07
Test objective	The structure of the notification message shall be as mandated by clause 5.3.1.
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.6
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_8_6
Initial conditions	with { the SUT contains an entity equals \${entity} and a subscription with id set to \${subscriptionId} and status equals "active"
	and with <b>subscription.entity</b> including an <b>entityInfo</b> object with the <b>id</b> equal to <b>\${entity.id}</b> }

Expected behaviour		Fest events	Direction
bonaviour	when {		
	an creation of the property	of \${entity} happens	
	and creates value to \${prop	SUT → Client	
	the SUT needs to send out		
	sends a notification to the client	at <b>\${timestamp}</b>	
	then { the client at \${endpoint} receives a valid Notification containing		
	id generated	id generated	
	and type equals "notificati	on"	
	and subscriptionId equals	\${subscriptionId}	SUT → Client
	and notifiedAt contains a t	imestamp ISO-8601 compliant	
	and data contains \${entity}	•	
	}		
Permutation on TP Id Behaviour			
046_07_01		Valid notification with attributes as stated abo	ove.
046_07_02		The Entity Attributes included (Properties or	
		shall be those specified by the notification.at	
		member in the Subscription data type (clause	
046_07_03		URI expansion shall be observed (clause 5.5	5.7).

TP ld	TP/NGSI-LD/CI/SUB/046_08
Test objective	The structure of the notification message shall be as mandated by clause 5.3.1.
	The absence of the notification.attributes member of a Subscription means that all Entity
	Attributes shall be included
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.6
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_8_6
Initial conditions	with { the SUT contains
	the SUT contains
	an entity equals \${entity}
	with a <b>property</b> equal to <b>\${property1}</b>
	and with a <b>property</b> equal to <b>\${property2}</b>
	and a subscription with id set to \${subscriptionId}
	and <b>status</b> equals " <b>active</b> "
	and notification.attributes is not defined
	and with subscription.entity including an entityInfo object
	with the <b>id</b> equal to <b>\${entity.id}</b>
	}

Expected behaviour	1	Test events	Direction
	when {		
	an update of the property1 of \${entity} happens		
	and creates value to \${property1.value1}		
	the SUT needs to send out a	a notification to the client	
	sends a notification to the client a	at \${timestamp}	
	then { the client at \${endpoint} receives a valid Notification containing the entities containing all attributes \${property1}		SUT $\rightarrow$ Client
	and <b>\${property2}</b> }		
Per	mutation on TP Id	behaviour	
46_08_01		All attributes are included	
46_08_02		If the notification.format member value is "ke a simplified representation of the entities (as clause 4.5.3) shall be provided.	

TP Id	TP/NGSI-LD/CI/SUB/046_09	
Test objective	A Notification shall be sent (as mandated by each concrete binding and including any optional endpoint.info defined by clause 5.2.22) to the endpoint specified by the endpoint.uri member of the notification structure defined by clause 5.2.14.	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.6	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_8_6	
Initial conditions	with { the SUT contains	
	an antity aquala Cantity)	
	an entity equals \${entity}	
	and a subscription with id set to \${subscriptionId}	
	and <b>status</b> equals " <b>active"</b>	
	and an <b>endpoint</b> defined as <b>\${endpoint}</b>	
	and notification.attributes is not defined	
	and with <b>subscription.entity</b> including an <b>entityInfo</b> object	
	with the id equal to \${entity.id}	
	}	
Expected	Test events	Direction
behaviour	when {	
	an creates of the property1 of \${entity} happens	SUT → Client
	and creates value to \${property1.value1}	

the SUT needs to send out a notification to the client sends a notification to the client at \${timestamp}	
<pre>then {     the client at \${endpoint} receives a valid Notification at     the endpoint specified at \${endpoint.uri} }</pre>	SUT → Client

TP ld	TP/NGSI-LD/CI/SUB/046_10		
Test objective	The Notification content shall be JSON by default.		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.6		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_8_6		
Initial conditions	with { the SUT contains		
	an entity equals \${entity}		
	and a subscription with id set to \${subscriptionId}		
	and status equals "active"		
	and an <b>endpoint</b> defined as <b>\${endpoint}</b>		
	and notification.attributes is not defined		
	and with subscription.entity including an entityInfo object		
	with the <b>id</b> equal to <b>\${entity.id}</b>		
	}		
Expected behaviour	Test events	Direction	
	when {		
	an creates of the property1 of \${entity} happens		
	and creates value to \${property1.value1}	SUT → Client	
	the SUT needs to send out a notification to the client		
	sends a notification to the client at \${timestamp}		
	then { the client at \${endpoint} receives a valid Notification which is		
	in <b>json</b>	SUT → Client	
	}		
	1		

TP ld	TP/NGSI-LD/CI/SUB/046_11		
Test objective	The notification.timesSent member shall be incremented by one.		
	I ne notification.timesSent member shall be incremented by one.		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.6		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_8_6		
Initial conditions	with { the SUT contains an entity equals \${entity}		
	and a subscription with id set to \${subscriptionId}		
	and status equals "active"		
	and an endpoint defined as \${endpoint}		
	and notification.attributes is not defined		
	and notification.timeSent equals \${timeSent}		
	and with subscription.entity including an entityInfo object		
	with the id equal to \${entity.id}		
	}		
Expected behaviour	Test events	Direction	
benaviour	when {		
	an creates of the property1 of \${entity} happens		
	and creates value to \${property1.value1}	SUT → Client	
	the SUT needs to send out a notification to the client		
	sends a notification to the client at \${timestamp}		
	then {     the client at \${endpoint} receives a valid Notification and     and notification.timesSent equals \${timeSent} + 1	SUT → Client	

TP ld	TP/NGSI-LD/CI/SUB/046_12
Test objective	The notification.lastNotification member shall be updated with a timestamp representing the current date and time. This test will check the format.
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.6
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_5_8_6

Initial conditions	with { the SUT contains	
	an entity equals \${entity}	
	and a subscription with id set to \${subscriptionId}	
	and <b>status</b> equals " <b>active</b> "	
	and an <b>endpoint</b> defined as <b>\${endpoint}</b>	
	and notification.attributes is not defined	
	and notification.timeSent equals \${timeSent}	
	and with subscription.entity including an entityInfo object	
	with the <b>id</b> equal to <b>\${entity.id}</b>	
	}	
Expected behaviour	Test events	Direction
	when {	
	an creates of the property1 of \${entity} happens	
	and creates value to \${property1.value1}	SUT → Client
	the SUT needs to send out a notification to the client	
	sends a notification to the client at \${timestamp}	
	then { the client at \${endpoint} receives a valid Notification	
	and notification.lastnotification contains a timestamp compliant to the ISO 8601 [3] format	SUT → Client
	}	

TP ld	TP/NGSI-LD/CI/SUB/046_13	
Test objective	If the response to the notification request is 200 OK then implementations shal - Update notification.lastSuccess with a timestamp representing the current dat - Update notification.status to "ok".	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.6	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_8_6	
Initial conditions	with { the SUT containing a subscription with id set to \${subscriptionId} }	
Expected behaviour	Test events	Direction
	when { the client receives a notification The clients sends an 200 response to the SUT	SUT← Client

and notification.status equals OK

}

ains a <b>timestamp compliant to the</b>	SUT← Client

TP ld	TP/NGSI-LD/CI/SUB/046_14	
Test objective	If the response to the notification request is different than 200 OK then implem - Update notification.lastFailure with a timestamp representing the current date - Update notification.status to "failed".	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.8.6	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_8_6	
Initial conditions	with { the SUT containing a subscription with id set to \${subscriptionId}	
	3	
Expected	Test events	Direction
behaviour	when {     the client receives a notification with {     the SUT containing a subscription with id set to \${subscriptionId}     and notification is not ok } The clients sends another than 200 response to the SUT	SUT← Client
	then {     the SUT receives the 200 notification     and notification.lastFailure contains a timestamp compliant to the ISO-8601 format     and notification.status equals to failed }	SUT← Client

## 4.2 Context Source

### 4.2.1 Registration

### 4.2.1.1 Register Context Source

TP ld	TP/NGSI-LD/CS/REG/033_01
Test objective	Check that you can create a context source registration

Reference	ETSI GS CIM 009	V1.3.1 [1], clause 5.9.2			
Config Id	CF_05				
Parent Release	V1.3.1				
PICS Selection	PICS_5_9_2				
Initial conditions	with {				
	the SUT being in	n the "initial state"			
	,				
	2				
Expected behaviour		Test events	Direction		
	when { the SUT receive from the client co	es a valid Create Context Source Registration Request ntaining			
	URL set to /	URL set to /ngsi-ld/v1/csourceRegistrations and			
	Header: Content-Type set to application/ld+json and SUT ← Client				
	method set to POST and				
	body <b>containing</b> the \${csourceRegistration} to be created				
	3				
	, then (				
	then { the SUT ser	nds a valid Response containing			
	Respons	e Status Code set to 201 (CREATED) and			
	Location source registratior	header <b>set to</b> the resource URI of the created context n resource	SUT → Client		
	and contains the \${csourceRegistration}				
	3	-			
	í				
Permutation		\${csourceRegistration}			
TP/NGSI-LD/CS/REC		Specific id with expiration date			
TP/NGSI-LD/CS/REG/033_01_02 Never expires (expires At not defined)					
TP/NGSI-LD/CS/REC	G/033_01_03	Invalid specified id (a valid one is assigned)			

TP ld	TP/NGSI-LD/CS/REG/033_02
Test objective	Check that you cannot create a context source with invalid content
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.9.2
Config Id	CF_05
Parent Release	V1.3.1
PICS Selection	PICS_5_9_2
Initial conditions	with {
	the SUT being in the "initial state"
	}

Expected behaviour		Test events		Direction
	when { the SUT rec from the client	eives a valid Create Context Source	e Registration Request	
	URL set	to /ngsi-ld/v1/csourceRegistrations	and	
	Header:	Content-Type set to application/ld+j	son <b>and</b>	$SUT \leftarrow Client$
	method s	set to POST and		
	body <b>co</b> r	ntaining the \${invalid_body} to be ci	reated	
	}			
	then {		_	
		sends a valid Response containin	-	
	Re	sponse Status Code <b>set to</b> 400 (Bad	d Request) <b>and</b>	
	Re	sponse Body <b>containing</b>		
		ProblemDetails element containing	g	SUT → Client
		type element set to \${problem	_type} and	
		title element containing		
		more information about th	e error	
	}			
Permutation o	n TP Id	\${invalid_body}	\${problem_ty	nel
TP/NGSI-LD/CS/REG		invalid JSON document	https://uri.etsi.org/ngsi- Id/errors/InvalidRequest	
TP/NGSI-LD/CS/REG	6/033_02_02	Different data structure than CsourceRegistration	https://uri.etsi.org/ngsi- ld/errors/BadRequestData	
TP/NGSI-LD/CS/REG	6/033_02_03	Date in the past	https://uri.etsi.org/ngsi- Id/errors/BadRequestData	

TP ld	TP/NGSI-LD/CS/REG/033_03	
Test objective	Check that you cannot create a context source registration that already exists	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.9.2	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_9_2	
Initial conditions	<pre>with {     the SUT being in the "initial state" and containing an initial Context Source with an id set to \${registrationId} }</pre>	Registration
Expected behaviour	Test events	Direction
	when { the SUT receives a valid Create Context Source Registration Request from the client containing URL set to /ngsi-ld/v1/csourceRegistrations and Header: Content-Type set to application/ld+json and	SUT ← Client

method set to POST and body containing \${csourceRegistration} with the id set to \${registrationId} }	
<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 409 (Already Exists) and         Response Body containing         ProblemDetails element containing         type element set to https://uri.etsi.org/ngsi- Id/errors/AlreadyExists and         title element containing         more information about the error }</pre>	SUT → Client

TP Id	TP/NGSI-LD/CS/REG/033_04	
Test objective	Check that the @context is obtained from a Link Header if the Content-Type he "application/json"	eader is
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.5	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_6_3_5	
Initial conditions	with {     the SUT being in the "initial state" }	
Expected behaviour	Test events	Direction
benavioui	<pre>when {     the SUT receives a valid Create Context Source Registration Request     from the client containing         URL set to /ngsi-ld/v1/cSourceRegistrations and         Header: Content-Type set to application/json and         Header: Link set to a @context containing terms used by the context         source registration to create         body set to context source registration to be created     }     then {</pre>	SUT ← Client
	the SUT sends a valid Response containing Response Status Code set to 201 (Created) and Persisted Context Source Registration contains attributes expanded as per the supplied @context }	SUT → Client

TP ld	TP/NGSI-LD/CS/REG/033_05	
Test objective	Check that the default @context is used if the Content-Type header is "applica the Link header does not contain a JSON-LD @context	tion/json" and
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.5	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_6_3_5	
Initial conditions	<pre>with {    the SUT being in the "initial state" }</pre>	
Expected behaviour	Test events	Direction
	when {     the SUT receives a valid Create Context Source Registration Request from the client containing	
	URL set to /ngsi-ld/v1/cSourceRegistrations and	SUT ← Client
	Header: Content-Type set to application/json and	
	body <b>set to</b> context source registration to be created }	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 201 (Created) and	
	Persisted Context Source Registration contains attributes expanded as per the default @context	SUT → Client

TP ld	TP/NGSI-LD/CS/REG/033_06	
Test objective	Check that an HTTP error response of type BadRequestData is raised if the Content-Type header is "application/json" and the request payload body (as JSON) contains a "@context" term	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.5	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_6_3_5	
Initial conditions	with {     the SUT being in the "initial state" }	
Expected behaviour	Test events	Direction
	when { the SUT receives a valid Create Context Source Registration Request from the client containing	SUT ← Client

}

URL set to /ngsi-ld/v1/cSourceRegistrations and Header: Content-Type set to application/json and body set to context source registration containing a @context term }	
<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 400 (Bad Request) and         Response Body containing         ProblemDetails element containing         type element set to https://uri.etsi.org/ngsi- Id/errors/BadRequestData and         title element containing         more information about the error }</pre>	SUT → Client

TP ld	TP/NGSI-LD/CS/REG/033_07		
Test objective	Check that the @context is obtained from the request payload body itself if the Content-Type header is "application/Id+json"		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.5		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_6_3_5		
Initial conditions	with { the SUT being in the "initial state"		
	}		
Expected behaviour	Test events	Direction	
	when {     the SUT receives a valid Create Context Source Registration Request from the client containing		
	URL set to /ngsi-ld/v1/cSourceRegistrations and	SUT ← Client	
	Header: Content-Type set to application/ld+json and		
	body <b>set to</b> context source registration <b>containing</b> a @context term }		
	then { the SUT sends a valid Response containing		
	Response Status Code set to 201 (Created) and	SUT → Client	
	Persisted Context Source Registration contains attributes expanded as per the supplied @context		
	}		

TP ld	TP/NGSI-LD/CS/REG/033_08	
Test objective	Check that an HTTP error response of type BadRequestData is raised if the C header is "application/ld+json" and the request payload body does not contain term	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.5	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_6_3_5	
Initial conditions	with {     the SUT being in the "initial state" }	
Expected behaviour	Test events	Direction
	<pre>when {     the SUT receives a valid Create Context Source Registration Request     from the client containing         URL set to /ngsi-ld/v1/cSourceRegistrations and         Header: Content-Type set to application/ld+json and         body set to context source registration not containing a @context     term     } </pre>	SUT ← Client
	<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 400 (Bad Request) and         Response Body containing         ProblemDetails element containing         type element set to https://uri.etsi.org/ngsi- Id/errors/BadRequestData and         title element containing         more information about the error }</pre>	SUT → Client

TP ld	TP/NGSI-LD/CS/REG/033_09
Test objective	Check that an HTTP error response of type BadRequestData is raised if the Content-Type header is "application/Id+json" and a JSON-LD Link header is present in the incoming HTTP request
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.5
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_6_3_5

Initial conditions	with { the SUT being in the "initial state"	
	}	
Expected behaviour	Test events	Direction
	when {     the SUT receives a valid Create Context Source Registration Request from the client containing	
	URL set to /ngsi-ld/v1/cSourceRegistrations and	
	Header: Content-Type set to application/ld+json and	SUT $\leftarrow$ Client
	Header: Link <b>set to</b> a @context <b>containing</b> terms used by the context source registration to create	
	body set to entity to be created }	
	then (	

3	
then { the SUT sends a valid Response containing	
Response Status Code set to 400 (Bad Request) and	
Response Body containing	
ProblemDetails element containing	
type element <b>set to</b> https://uri.etsi.org/ngsi- Id/errors/BadRequestData <b>and</b>	SUT → Client
title element containing	
more information about the error	
}	

### 4.2.1.2 Update Context Source Registration

TP ld	TP/NGSI-LD/CS/REG/034_01	
Test objective	Check that you can update a context source registration by id	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.9.3	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_9_3	
Initial conditions	<pre>with {     the SUT being in the "initial state" and containing an initial Context Source Registration with an id set to \${registrationId} }</pre>	
Expected behaviour	Test events	Direction
	when { the SUT receives a valid Create Context Source Registration Request from the client containing URL set to /ngsi-ld/v1/csourceRegistrations/\${registrationId} and	SUT ← Client

Header: Content-Type <b>set to</b> application/ld+json <b>and</b> method <b>set to</b> PATCH <b>and</b> body <b>containing</b> \${csourceRegistration} }		
<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 204 (No Content)         and contains the updated \${csourceRegistration} }</pre>		SUT → Client
Permutation on TP Id	\${csourceRegistration}	
TP/NGSI-LD/CS/REG/034_01_01 TP/NGSI-LD/CS/REG/034_01_02	Expiration date Never expires (expiresAt not defined)	

TP ld	TP/NGSI-LD/CS/REG/034_02		
Test objective	Check that you cannot update a context source registration under some conditions		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.9.3		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_5_9_3		
Initial conditions	<pre>with {     the SUT being in the "initial state" and containing an initial Context Source with an id set to \${registrationId} }</pre>	Registration	
Expected behaviour	Test events	Direction	
	<pre>when {     the SUT receives a valid Create Context Source Registration Request from the client containing     URL set to /ngsi-ld/v1/csourceRegistrations/\${registrationId} and     Header: Content-Type set to application/ld+json and     method set to PATCH and     body containing \${csourceRegistration} }</pre>	SUT ← Client	
	then {     the SUT sends a valid Response containing     Response Status Code set to 400 (Bad Request) and     Response Body containing     ProblemDetails element containing     type element set to \${problem_type} and     title element containing     more information about the error	SUT → Client	

}			
Permutation on TP Id	\${csourceRegistration}	\${registrationId}	\${problem_type}
TP/NGSI-	valid	empty	https://uri.etsi.org/ngsi-
LD/CS/REG/034_02_01			Id/errors/BadRequestData
TP/NGSI-	valid	invalid URI	https://uri.etsi.org/ngsi-
LD/CS/REG/034_02_02			Id/errors/BadRequestData
TP/NGSI-	different data type	valid	https://uri.etsi.org/ngsi-
LD/CS/REG/034_02_03			Id/errors/BadRequestData
TP/NGSI-	without mandatory	valid	https://uri.etsi.org/ngsi-
LD/CS/REG/034_02_04	property		Id/errors/BadRequestData
TP/NGSI-	invalid json	valid	https://uri.etsi.org/ngsi-
LD/CS/REG/034_02_05			ld/errors/InvalidRequest

TP Id	TP/NGSI-LD/CS/REG/034_03	
Test objective	Check that you cannot update a context source registration by id if the id is no system	t known to the
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.9.3	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_9_3	
Initial conditions	<pre>with {    the SUT being in the "initial state" }</pre>	
Expected behaviour	Test events	Direction
	<pre>when {     the SUT receives a valid Create Context Source Registration Request     from the client containing         URL set to /ngsi-ld/v1/csourceRegistrations/\${registrationId} and         Header: Content-Type set to application/Id+json and         method set to PATCH and         body containing \${csourceRegistration} }</pre>	SUT ← Client
	<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 404 (Not Found) and         Response Body containing         ProblemDetails element containing         type element set to https://uri.etsi.org/ngsi- Id/errors/ResourceNotFound and         title element containing         more information about the error }</pre>	SUT → Client

TP ld	TP/NGSI-LD/CS/REG/035_01	
Test objective	Check that you can delete a context source registration by id	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.9.4	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_9_4	
Initial conditions	<pre>with {     the SUT being in the "initial state" and containing an initial Context Source with an id set to \${registrationId}</pre>	Registration
	}	
Expected behaviour	Test events	Direction
	when {     the SUT receives a valid Create Context Source Registration Request from the client containing	
	URL set to /ngsi-ld/v1/csourceRegistrations/\${registrationId} and	
	Header: Content-Type <b>set to</b> application/ld+json <b>and</b>	SUT ← Client
	method set to DEL and	
	body <b>containing</b> \${csourceRegistration}	
	}	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 204 (No Content)	SUT → Client
	}	

### 4.2.1.3 Delete Context Source Registration

TP ld	TP/NGSI-LD/CS/REG/035_02	
11 10	11/NGSI-ED/CS/NEG/035_02	
Test objective	Check that you cannot delete a context source registration under some condition	ons
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.9.3	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_9_4	
Initial conditions	<pre>with {     the SUT being in the "initial state" and containing an initial Context Source with an id set to \${registrationId} }</pre>	Registration
Expected behaviour	Test events	Direction
	when {     the SUT receives a valid Create Context Source Registration Request from the client containing     URL set to /ngsi-Id/v1/csourceRegistrations/\${registrationId} and	SUT ← Client

method body <b>co</b> }	Content-Type <b>set to</b> application/ld+json <b>and</b> <b>set to</b> DEL <b>and</b> <b>ntaining</b> \${csourceRegistration}	
then { the SUT	sends a valid Response containing	
Re	esponse Status Code <b>set to</b> 400 (Bad Request) <b>and</b>	
Re	esponse Body <b>containing</b>	
	ProblemDetails element containing	
ld/errors/BadF	type element <b>set to</b> https://uri.etsi.org/ngsi- RequestData <b>and</b>	SUT → Client
	title element containing	
	more information about the error	
}		
Permutation on TP Id	\${registrationId}	1 
TP/NGSI-LD/CS/REG/035_02_01		
TP/NGSI-LD/CS/REG/035_02_02	invalid URI	

TP ld	TP/NGSI-LD/CS/REG/035_03	
Test objective	Check that you cannot delete a context source registration by id if the id is not system	known to the
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.9.3	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_5_9_3	
Initial conditions	with {     the SUT being in the "initial state"	
	}	
Expected behaviour	Test events	Direction
	when {     the SUT receives a valid Create Context Source Registration Request from the client containing	
	URL set to /ngsi-ld/v1/csourceRegistrations/\${registrationId} and	
	Header: Content-Type set to application/ld+json and	$SUT \leftarrow Client$
	method <b>set to</b> DEL <b>and</b>	
	body <b>containing</b> \${csourceRegistration}	
	}	

then { the SUT sends a valid Response containing Response Status Code set to 404 (Not Found) and Response Body containing ProblemDetails element containing type element set to https://uri.etsi.org/ngsi-	SUT → Client
title element <b>containing</b> more information about the error }	

# 4.2.2 Registration Subscription

### 4.2.2.1 Create Context Source Registration Subscription

		1
TP ld	TP/NGSI-LD/CS/REGSUB/038_01	
Test objective	Check that you can create a minimal context source registration subscription	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.2	
Config Id	CF_05	
Parent Release	V1.3.1	
PICS Selection	PICS_5_11_2	
Initial conditions	<pre>with {   the SUT being in the "initial state" }</pre>	
Expected behaviour	Test events	Direction
	<pre>when {     the SUT receives a valid Create Context Source Registration Subscription     Request from the client containing         URL set to /ngsi-ld/v1/csourceSubscriptions and         Header: Content-Type set to application/ld+json and         body containing \${subscription} }</pre>	SUT ← Client
	<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 201 (CREATED) and         Location header set to the resource URI of the subscription created         and created resource set to \${subscription} }</pre>	SUT → Client

TP ld	TP/NGSI-LD/CS/REGSUB/038_02	
Test objective	Check that you can create a context source registration subscription without providing an id and it will be automatically generated	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.2	
Config Id	CF_05	
Parent Release	V1.3.1	
PICS Selection	PICS_5_11_2	
Initial conditions	with { the SUT being in the "initial state"	
	}	
Expected behaviour	Test events	Direction
	when { the SUT receives a valid Create Context Source Registration Subscription Request from the client containing	
	URL set to /ngsi-ld/v1/csourceSubscriptions and	SUT ← Client
	Header: Content-Type <b>set to</b> application/ld+json <b>and</b>	
	body <b>containing \${subscription} not containing</b> an id	
	}	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 201 (CREATED) and	
	Location header set to the resource URI of the subscription created	SUT → Client
	and created resource set to \${subscription} with auto generated id }	

TP ld	TP/NGSI-LD/CS/REGSUB/038_03	
Test objective	Check that you can create a context source registration subscription without providing isActive member and will be active by default	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.2	
Config Id	CF_05	
Parent Release	V1.3.1	
PICS Selection	PICS_5_11_2	
Initial conditions	<pre>with {    the SUT being in the "initial state" }</pre>	
Expected behaviour	Test events	Direction
	when { the SUT receives a valid Create Context Source Registration Subscription Request from the client containing	SUT ← Client

URL set to /ngsi-ld/v1/csourceSubscriptions and	
Header: Content-Type set to application/ld+json and	
body <b>containing</b> the subscription to be created <b>not containing</b> isActive member	
}	
then { the SUT sends a valid Response containing	
Response Status Code set to 201 (CREATED) and	
Location header <b>set to</b> the resource URI of the subscription created	SUT → Client
and the subscription isActive member set to true	
}	

TP ld	TP/NGSI-LD/CS/REGSUB/038_04	
Test objective	Check that you can create a context source registration subscription with isAct to false and its initial status will be set to "paused"	ive member set
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.2	
Config Id	CF_05	
Parent Release	V1.3.1	
PICS Selection	PICS_5_11_2	
Initial conditions	with { the SUT being in the "initial state"	
	}	
Expected behaviour	Test events	Direction
benaviour	<pre>when {     the SUT receives a valid Create Context Source Registration Subscription     Request from the client containing         URL set to /ngsi-ld/v1/csourceSubscriptions and         Header: Content-Type set to application/ld+json and         body containing the subscription to be created containing isActive     member set to false }</pre>	SUT ← Client
	<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 201 (CREATED) and         Location header set to the resource URI of the subscription created     and the subscription isActive member is set to false }</pre>	SUT → Client

TP ld	TP/NGSI-LD/CS/REGSUB/038_05	
Test objective	Check that you can create a context source registration subscription with an exemption and when it is due the status of the subscription changes to expired	<pre>cpiresAt</pre>
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.2	
Config Id	CF_05	
Parent Release	V1.3.1	
PICS Selection	PICS_5_11_2	
Initial conditions	with {     the SUT being in the "initial state" }	
Expected behaviour	Test events	Direction
Denavioui	<pre>when {     the SUT receives a valid Create Context Source Registration Subscription     Request from the client containing     URL set to /ngsi-ld/v1/csourceSubscriptions and     Header: Content-Type set to application/ld+json and     body containing the subscription to be created containing expiresAt     member set to CurrentDateTime + 5 seconds }</pre>	SUT ← Client
	<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 201 (CREATED) and         Location header set to the resource URI of the subscription created     and after 10 seconds the subscription isActive member set to false }</pre>	SUT → Client

TP ld	TP/NGSI-LD/CS/REGSUB/038_06				
Test objective	Check that you can create a context source registration subscription without an expiresAt member and it will be considered as perpetual				
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.2				
Config Id	CF_05				
Parent Release	V1.3.1				
PICS Selection	PICS_5_11_2				
Initial conditions	with {     the SUT being in the "initial state" }				

Expected behaviour	Test events	Direction
	when { the SUT receives a valid Create Context Source Registration Subscription Request from the client containing	
	URL set to /ngsi-ld/v1/csourceSubscriptions and	
	Header: Content-Type set to application/ld+json and	SUT $\leftarrow$ Client
	body <b>containing</b> the subscription to be created <b>not containing</b> expiresAt member	
	}	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 201 (CREATED) and	
	Location header <b>set to</b> the resource URI of the subscription created	SUT → Client
	and the subscription status is always set to active	
	}	

TP ld	TP/NGSI-LD/CS/REGSUB/038_07			
Test objective	Check that you cannot create a context source registration subscription where another context source registration subscription whose id is equivalent exists, an error of type AlreadyExists shall be raised			
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.2			
Config Id	CF_05			
Parent Release	V1.3.1			
PICS Selection	PICS_5_11_2			
Initial conditions	<pre>with {    the SUT containing a Context Source Registration Subscription (CSRS1) }</pre>			
Expected behaviour	Test events	Direction		
Denaviou	when { the SUT receives a valid Create Context Source Registration Subscription Request from the client containing			
	URL set to /ngsi-ld/v1/csourceSubscriptions and			
	Header: Content-Type <b>set to</b> application/ld+json <b>and</b>	SUT ← Client		
	body <b>containing</b> the subscription to be created <b>containing</b> the same id <b>of</b> CSRS1			
	}			
	then { the SUT sends a valid Response containing			
	Response Status Code set to 409 (Conflict) and	SUT → Client		
	Response Body <b>containing</b>			

ProblemDetails element containing			
type element <b>set to</b> https://uri.etsi.org/ngsi- ld/errors/AlreadyExists <b>and</b>			
title element containing			
more information about the error			
}			

TP ld	TP/NGSI-LD/CS/REGSUB/038_08					
Test objective	Check that you cannot create a context source registration subscription If the data types, cardinalities and restrictions expressed by clause 5.2.12 are not met, an error of type BadRequestData shall be raised					
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.2					
Config Id	CF_05					
Parent Release	V1.3.1					
PICS Selection	PICS_5_11_2					
Initial conditions	with {     the SUT being in the "initial state"					
	}					
Expected behaviour		Test events	Direction			
	when { the SUT receives a va Request from the client c	lid Create Context Source Registration Subscription containing				
	URL set to /ngsi-ld/	/v1/csourceSubscriptions and	SUT ← Client			
	Header: Content-Ty	/pe set to application/ld+json and				
	body set to \${subscription}					
	}					
	then { the SUT sends a v					
	Response Sta	atus Code set to 400 (Bad Request) and				
	Response Boo	dy containing				
	ProblemD	ProblemDetails element <b>containing</b>				
	type e Id/errors/BadRequestDat	lement <b>set to</b> https://uri.etsi.org/ngsi- a <b>and</b>	SUT → Client			
	title ele	title element containing				
	r	more information about the error				
	}					
Permutat	tion on TP Id	\${subscription}				
TP/NGSI-LD/CS/REC		subscription not containing notification member				
TP/NGSI-LD/CS/REC		subscription <b>containing</b> invalid type member				
TP/NGSI-LD/CS/REC		subscription containing invalid type member				
TP/NGSI-LD/CS/REC		subscription containing empty watchedAttributes me	ember			
		Isassen priori comaning on pry wateriou/ attibutes int				

TP ld	TP/NGSI-LD/CS/REGSUB/038_09		
Test objective	Check that you cannot create a context source registration subscription with an expiration timestamp representing a moment before the current date and time, an error of type BadRequestData shall be raised		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.2		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_5_11_2		
Initial conditions	with { the SUT being in the "initial state" }		
Expected	Test events	Direction	
	<pre>the SUT receives a valid Create Context Source Registration Subscription Request from the client containing     URL set to /ngsi-ld/v1/csourceSubscriptions and     Header: Content-Type set to application/ld+json and     body containing the subscription to be created containing expiresAt member before CurrentDateTime }</pre>	SUT ← Client	
	then {     the SUT sends a valid Response containing         Response Status Code set to 400 (Bad Request) and         Response Body containing         ProblemDetails element containing         type element set to https://uri.etsi.org/ngsi- Id/errors/BadRequestData and         title element containing         more information about the error	SUT → Client	

#### 4.2.2.2 Update Context Source Registration Subscription

TP Id	TP/NGSI-LD/CS/REGSUB/039_01
Test objective	Check that you can update a context source registration subscription
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.3
Config Id	CF_05
Parent Release	V1.3.1
PICS Selection	PICS_5_11_3

Initial conditions	with { the SUT containing a Context Source Registration Subscription (CSRS1) wi \${subscriptionId}	th an id set to
	}	
Expected behaviour	Test events	Direction
	when { the SUT receives a valid Update Context Source Registration Subscription Request from the client containing	
	URL set to /ngsi-ld/v1/csourceSubscriptions/\${subscriptionId} and	SUT ← Client
	Header: Content-Type set to application/json and	
	body containing \${update_fragment}	
	}	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 204 (No Content)	
		SUT → Client
	and updated resource set to the subscription updated with \${update_fragment}	
	}	

TP ld	TP/NGSI-LD/CS/REGSUB/039_02		
Test objective	Check that you cannot update a context source registration subscription with an invalid URI, an error of type BadRequestData shall be raised		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.3		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_5_11_3		
Initial conditions	with { the SUT being in the "initial state"		
	۶		
Expected	Test events	Direction	
Expected behaviour	Test events         when {         the SUT receives a valid Update Context Source Registration Subscription         Request from the client containing         URL set to /ngsi-Id/v1/csourceSubscriptions/\${invalidId} and         Header: Content-Type set to application/json and         body containing the subscription fragment to be updated	Direction SUT ← Client	

Response Body containing	
ProblemDetails element containing	
type element <b>set to</b> https://uri.etsi.org/ngsi- ld/errors/BadRequestData <b>and</b>	
title element containing	
more information about the error	
}	

TP ld	TP/NGSI-LD/CS/REGSUB/039_03			
Test objective	Check that you cannot update an unknown context source registration subscription, an error of type ResourceNotFound shall be raised			
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.3			
Config Id	CF_05	CF_05		
Parent Release	V1.3.1			
PICS Selection	PICS_5_11_3			
Initial conditions	with {     the SUT being in the "initial state"			
	}			
Expected behaviour	Test events	Direction		
	<pre>when {     the SUT receives a valid Update Context Source Registration Subscription     Request from the client containing     URL set to /ngsi-ld/v1/csourceSubscriptions/\${unknownUri} and     Header: Content-Type set to application/json and     body containing the subscription fragment to be updated }</pre>	SUT ← Client		
	then {     the SUT sends a valid Response containing         Response Status Code set to 404 (Not Found) and         Response Body containing         ProblemDetails element containing         type element set to https://uri.etsi.org/ngsi-ld/errors/ ResourceNotFound and         title element containing         more information about the error	SUT → Client		
	>			

TP Id TP/NGSI-LD/CS/REGSUB/039_04
-----------------------------------

Test objective Reference Config Id Parent Release PICS Selection Initial conditions	does not meet the data ty BadRequestData shall be ETSI GS CIM 009 V1.3.1 CF_05 V1.3.1 PICS_5_11_3 with {		error of type	
	}			
Expected behaviour		Test events	Direction	
	Request <b>from</b> the client <b>c</b> URL <b>set to</b> /ngsi-ld/ Header: Content-Ty body <b>set to \${subs</b> }	lid Update Context Source Registration Subscription containing /v1/csourceSubscriptions/\${subscriptionId} and /pe set to application/json and ccription_fragment}	SUT ← Client	
	then { the SUT sends a va	alid Response <b>containing</b>		
		atus Code <b>set to</b> 400 (Bad Request Data) <b>and</b>		
	Response Bod	ly containing		
	ProblemDetails element <b>containing</b>			
	type element set to https://uri.etsi.org/ngsi-ld/errors/ BadRequestData and		SUT → Client	
	title ele	ement containing		
	r	nore information about the error		
	}			
Permuta	ion on TP Id	\${subscription_fragment}		
TP/NGSI-LD/CS/REC		subscription fragment containing type member set t	<b>o</b> null	
TP/NGSI-LD/CS/REC	TP/NGSI-LD/CS/REGSUB/039_04_02 subscription fragment containing notification member not containing an endpoint			

TP ld	TP/NGSI-LD/CS/REGSUB/039_05
Test objective	Check that you cannot update a context source registration subscription with an invalid request body (invalid JSON document), an error of type InvalidRequest shall be raised
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.3
Config Id	CF_05
Parent Release	V1.3.1
PICS Selection	PICS_5_11_3

Initial conditions	with { the SUT containing a Context Source Registration Subscription (CSRS1) wi \${subscriptionId}	th an id set to
	}	
Expected behaviour	Test events	Direction
Schuviou	when { the SUT receives a valid Update Context Source Registration Subscription Request from the client containing	
	URL set to /ngsi-ld/v1/csourceSubscriptions/\${subscriptionId} and	SUT ← Client
	Header: Content-Type set to application/json and	
	body <b>set to</b> invalid json	
	}	
	then { the SUT sends a valid Response containing	
	Response Status Code set to 400 (Bad Request Data) and	
	Response Body containing	
	ProblemDetails element containing	
	type element <b>set to</b> https://uri.etsi.org/ngsi-ld/errors/ InvalidRequest <b>and</b>	SUT → Client
	title element containing	
	more information about the error	
	}	

#### 4.2.2.3 Retrieve Context Source Registration Subscription

TP ld	TP/NGSI-LD/CS/REGSUB/040_01	
Test objective	Check that you can retrieve a context source registration subscription	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.4	
Config Id	CF_05	
Parent Release	V1.3.1	
PICS Selection	PICS_5_11_4	
Initial conditions	<pre>with {   the SUT containing a Context Source Registration Subscription (CSRS1) wi \${subscriptionId} }</pre>	th an id set to
Expected behaviour	Test events	Direction
	<pre>when {     the SUT receives a valid Retrieve Context Source Registration     Subscription Request from the client containing     URL set to /ngsi-ld/v1/csourceSubscriptions/\${subscriptionId} }</pre>	SUT ← Client

TP Id	TP/NGSI-LD/CS/REGSUB/040_02		
Test objective	Check that you cannot retrieve a context source registration subscription with an invalid URI, an error of type BadRequestData shall be raised		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.4		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_5_11_4		
Initial conditions	with {     the SUT being in the "initial state" }		
Expected behaviour	Test events	Direction	
	<pre>when {     the SUT receives a valid Retrieve Context Source Registration     Subscription Request from the client containing     URL set to /ngsi-ld/v1/csourceSubscriptions /\${invalidId} }</pre>	SUT ← Client	
	then { the SUT sends a valid Response containing Response Status Code set to 400 (Bad Request Data) and Response Body containing		
	ProblemDetails element <b>containing</b>		
	type element <b>set to</b> https://uri.etsi.org/ngsi-ld/errors/ BadRequestData <b>and</b>	SUT → Client	
	title element <b>containing</b>		
	more information about the error		
	3		

TP Id	TP/NGSI-LD/CS/REGSUB/040_03
Test objective	Check that you cannot retrieve an unknown context source registration subscription, an error of type ResourceNotFound shall be raised
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.4
Config Id	CF_05
Parent Release	V1.3.1

	<pre>/ith { the SUT being in the "initial state"</pre>	
}		
-		
Expected behaviour	Test events	Direction
1	<pre>/hen {    the SUT receives a valid Retrieve Context Source Registration subscription Request from the client containing    URL set to /ngsi-ld/v1/csourceSubscriptions /\${unknownUri}</pre>	SUT ← Client
	nen { the SUT sends a valid Response containing Response Status Code set to 404 (Not Found) and Response Body containing ProblemDetails element containing type element set to https://uri.etsi.org/ngsi-ld/errors/ tesourceNotFound and title element containing more information about the error	SUT → Client

#### 4.2.2.4 Query Context Source Registration Subscriptions

TP Id	TP/NGSI-LD/CS/REGSUB/041_01
Test objective	Check that you can query context source registration subscriptions
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.5
Config Id	CF_05
Parent Release	V1.3.1
PICS Selection	PICS_5_11_5
Initial conditions	with { the SUT containing
	a Context Source Registration Subscription (CSRS1) with an id set to \${subscriptionId1}
	and
	a Context Source Registration Subscription (CSRS2) with an id set to \${subscriptionId2}
	}

Expected behaviour	Test events	Direction
	<pre>when {     the SUT receives a valid Query Context Source Registration Subscriptions     Request from the client containing         URL set to /ngsi-ld/v1/csourceSubscriptions }</pre>	SUT ← Client
	<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 200 (Ok) and         Response Body containing a list of two representations of         CSRS1 and CSRS2 }</pre>	SUT → Client

TP ld	TP/NGSI-LD/CS/REGSUB/041_02		
Test objective	Check that you can query context source registration subscriptions with a limit parameter and it will be the maximum number of subscriptions to be retrieved		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.5		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_5_11_5		
Initial conditions	<pre>with { the SUT containing a Context Source Registration Subscription (CSRS1) with an id set to \${subs and a Context Source Registration Subscription (CSRS2) with an id set to \${subs and a Context Source Registration Subscription (CSRS3) with an id set to \${subs} }</pre>	criptionId2} criptionId3}	
Expected	Test events	Direction	
behaviour	<pre>when {     the SUT receives a valid Query Context Source Registration Subscriptions     Request from the client containing         URL set to /ngsi-ld/v1/csourceSubscriptions and         Query Parameter limit set to \${limit} }</pre>	SUT ← Client	

Response Sta	valid Response <b>containing</b> atus Code <b>set to</b> 200 (Ok) <b>and</b> dy <b>containing</b> a list <b>of \${numb</b> s		SUT → Client
Permutation on TP Id	\${limit}	\${number}	
TP/NGSI-LD/CS/REGSUB/041_02_01	1	1	
TP/NGSI-LD/CS/REGSUB/041_02_02	2	2	
TP/NGSI-LD/CS/REGSUB/041_02_03	15	3	

TP ld	TP/NGSI-LD/CS/REGSUB/041_03	
Test objective	Check that you can query context source registration subscriptions with provide limit parameters for pagination, pagination logic shall be in place as mandated 5.5.9.	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.5	
Config Id	CF_05	
Parent Release	V1.3.1	
PICS Selection	PICS_5_11_5	
Initial conditions	with { the SUT containing a Context Source Registration Subscription (CSRS1) with an id set to \${subs and a Context Source Registration Subscription (CSRS2) with an id set to \${subs and a Context Source Registration Subscription (CSRS3) with an id set to \${subs }	criptionId2}
Expected	Test events	Direction
behaviour	<pre>when {     the SUT receives a valid Query Context Source Registration Subscriptions     Request from the client containing         URL set to /ngsi-ld/v1/csourceSubscriptions and         Query Parameter limit set to \${limit} and         Query Parameter page set to \${page} }</pre>	SUT ← Client
	then {     the SUT sends a valid Response containing         Response Status Code set to 200 (Ok) and         Response Body containing a list of context source registration     subscriptions respecting the pagination logic	SUT → Client

Permutation on TP Id	\${limit}	\${page}
TP/NGSI-LD/CS/REGSUB/041_03_01	1	2
TP/NGSI-LD/CS/REGSUB/041_03_02	2	2
TP/NGSI-LD/CS/REGSUB/041_03_03	15	1

TP ld		D/044_04			
I P Id	TP/NGSI-LD/CS/REGSUB/041_04				
Test objective	Check that you cannot query context source registration subscriptions with invalid page and limit parameters				
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.5				
Config Id	CF_05				
Parent Release	V1.3.1				
PICS Selection	PICS_5_11_5				
Initial conditions	with { the SUT being in the "ir	nitial state"			
	}				
Expected behaviour		Test events		Direction	
	when { the SUT receives a va Request from the client c	lid Query Context Source Regi containing	istration Subscriptions		
	URL set to /ngsi-ld/	/v1/csourceSubscriptions and		SUT ← Client	
	Query Parameter lir	mit set to \${limit} and			
	Query Parameter pa	age set to \${page}			
	}				
	then { the SUT sends a v	alid Response containing			
	Response Status Code set to 400 (Bad Request Data) and				
	Response Boo	dy containing			
	ProblemD	etails element containing			
	type e BadRequestData <b>and</b>	lement <b>set to</b> https://uri.etsi.org	/ngsi-ld/errors/		
	title ele	ement <b>containing</b>			
	more information about the error				
	}				
Permutat	Permutation on TP Id \${limit} \${page			}	
TP/NGSI-LD/CS/REGSUB/041_04_01 -5 2					
TP/NGSI-LD/CS/REGSUB/041_04_02 2 -3					
TP/NGSI-LD/CS/REC	TP/NGSI-LD/CS/REGSUB/041_04_03 0 0				

## 4.2.2.5 Delete Context Source Registration Subscription

TP ld	TP/NGSI-LD/CS/REGSUB/042_01
Test objective	Check that you can delete a context source registration subscription

Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.6	
Config Id	CF_05	
Parent Release	V1.3.1	
PICS Selection	PICS_5_11_6	
Initial conditions	<pre>with {     the SUT containing a Context Source Registration Subscription (CSRS1) wi \${subscriptionId} }</pre>	
Expected behaviour	Test events	Direction
	<pre>when {     the SUT receives a valid Delete Context Source Registration Subscription     Request from the client containing     URL set to /ngsi-ld/v1/csourceSubscriptions/\${subscriptionId} }</pre>	SUT ← Client
	then { the SUT sends a valid Response containing	
	Response Status Code set to 204 (No Content)	
	and the SUT not containing resource with id set to \${subscriptionId} }	SUT → Client

TP ld	TP/NGSI-LD/CS/REGSUB/042_02		
Test objective	Check that you cannot delete a context source registration subscription with an invalid URI, an error of type BadRequestData shall be raised		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.6		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_5_11_6		
Initial conditions	with {     the SUT being in the "initial state" }		
Expected behaviour	Test events	Direction	
	<pre>when {     the SUT receives a valid Delete Context Source Registration Subscription     Request from the client containing     URL set to /ngsi-ld/v1/csourceSubscriptions /\${invalidId} }</pre>	SUT ← Client	
	then { the SUT sends a valid Response containing Response Status Code set to 400 (Bad Request Data) and	SUT → Client	

Response Body containing	
ProblemDetails element containing	
type element <b>set to</b> https://uri.etsi.org/ngsi-ld/errors/ BadRequestData <b>and</b>	
title element containing	
more information about the error	
}	

TP ld	TP/NGSI-LD/CS/REGSUB/042_03	
Test objective	Check that you cannot delete an unknown context source registration subscription, an error of type ResourceNotFound shall be raised	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.6	
Config Id	CF_05	
Parent Release	V1.3.1	
PICS Selection	PICS_5_11_6	
Initial conditions	with { the SUT being in the "initial state"	
	}	
Expected behaviour	Test events	Direction
	<pre>when {     the SUT receives a valid Delete Context Source Registration Subscription     Request from the client containing         URL set to /ngsi-Id/v1/csourceSubscriptions /\${unknownUri} }</pre>	SUT ← Client
	then { the SUT sends a valid Response containing Response Status Code set to 404 (Not Found) and Response Body containing ProblemDetails element containing type element set to https://uri.etsi.org/ngsi-ld/errors/ ResourceNotFound and title element containing more information about the error	SUT → Client

#### 4.2.2.6 Context Source Registration Subscription Notification Behaviour

TP ld	TP/NGSI-LD/CS/REGSUB/047_01	
Test objective	Check that if the created context source registration subscription defines a timeInterval member, a cSourceNotification will be sent periodically, initially on subscription and when the time interval is reached, independent of any changes to the set of Context Source registrations	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.7	
Config Id	CF_05	
Parent Release	V1.3.1	
PICS Selection	PICS_5_11_7	
Initial conditions	with { the SUT containing a Context Source Registration (CSR1) providing latest information about some entities }	
Expected behaviour	Test events	Direction
	<pre>when {     the SUT receives a valid Create Context Source Registration Subscription     Request from the client with entities member matching CSR1 and     timeInterval member set to 10 }</pre>	SUT ← Client
	then { the SUT sends to the endpoint URI mentioned in CSRS1, a CsourceNotification at the subscription creation and every 10 seconds	SUT $\rightarrow$ Client

TP Id	TP/NGSI-LD/CS/REGSUB/047_02		
Test objective	Check that if the created context source registration subscription does not define a timeInterval member, a cSourceNotification, with the appropriate trigger reason in the "triggerReason" member, will be sent initially on subscription and whenever there is a change of a matching Context Source Registration		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.7		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_5_11_7		
Initial conditions	with { the SUT containing		
	a Context Source Registration (CSR1) providing latest information about s	some entities }	
Expected behaviour	Test events	Direction	
	<pre>when {     the SUT receives a valid Create Context Source Registration Subscription     (CSRS1) Request from the client with entities member matching CSR1 and     without timeInterval member }</pre>	SUT ← Client	

 then {     the SUT sends to the endpoint URI mentioned in CSRS1, a     CsourceNotification	
at subscription creation containing	
type set to "ContextSource Notification" and	
subscriptionId set to id of CSRS1 and	
notifiedAt <b>a</b> timestamp <b>and</b>	
data set to a list containing CSR1 and	
triggerReason <b>set to</b> "newlyMatching"	SUT → Client
and when CSR1 endpoint parameter is updated the SUT sends a	
CsourceNotification containing	
type set to "ContextSource Notification" and	
subscriptionId set to id of CSRS1 and	
notifiedAt <b>a</b> timestamp <b>and</b>	
data set to a list containing CSR1 and	
triggerReason element set to "updated"	
}	

TP ld	TP/NGSI-LD/CS/REGSUB/047_03		
Test objective	Check that instead of providing the original context source registration which may contain a lot of irrelevant information, implementations should return filtered context source registrations, which only contain context source registration information relevant for the subscription, in particular only matching RegistrationInfo elements		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.7		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_5_11_7		
Initial conditions	<pre>with {   the SUT containing   a Context Source Registration Subscription (CSRS1) with entities member matching entities   of type X }</pre>		
	of type X }		
Expected behaviour		tching entities Direction	

then { the SUT sends to the endpoint URI mentioned in CSRS1, a CsourceNotification containing	
type set to "ContextSource Notification" and	
subscriptionId set to id of CSRS1 and	
notifiedAt <b>a</b> timestamp <b>and</b>	SUT → Client
data <b>set to a</b> list <b>containing</b> CSR1 <b>containing</b> information about entities <b>of</b> type X <b>and</b>	
triggerReason set to "newlyMatching"	
}	

TP ld	TP/NGSI-LD/CS/REGSUB/047_04	
Test objective	The structure of the csource notification message shall be as mandated by clause 5.3.2	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.7	
Config Id	CF_05	
Parent Release	V1.3.1	
PICS Selection	PICS_5_11_7	
Initial conditions	with { the SUT containing	
	a Context Source Registration Subscription (CSRS1)	
	}	
Expected behaviour	Test events	Direction
Denaviour	<pre>when {     the SUT receives a valid Create Context Source Registration Request from the client matching CSRS1 }</pre>	SUT ← Client
	then {     the SUT sends to the endpoint URI mentioned in CSRS1, a     CsourceNotification containing     type set to "ContextSource Notification" and	
	subscriptionId set to id of CSRS1 and	SUT → Client
	notifiedAt <b>a</b> timestamp <b>and</b>	
	data set to a list containing CSR1 and	
	triggerReason <b>set to</b> "newlyMatching"	
	}	

TP ld	TP/NGSI-LD/CS/REGSUB/047_05
Test objective	Check that if a cSourceNotification is sent successfully to the "endpoint" member, the "notification.timesSent" member shall be incremented by one and the "notification.lastSuccess" and "notification.lastNotification" members shall be updated with the

		1
	current timestamp and the status of the context source registration subscription shall be updated to "ok"	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.7	
Config Id	CF_05	
Parent Release	V1.3.1	
PICS Selection	PICS_5_11_7	
Initial conditions	with { the SUT containing	
	a Context Source Registration Subscription (CSRS1)	
	}	
Expected behaviour	Test events	Direction
	when {     the SUT receives a valid Create Context Source Registration (CSR1)     Request from the client matching CSRS1	SUT ← Client
	}	
	then { the SUT sends to the endpoint URI mentioned in CSRS1, a CsourceNotification containing	
	type set to "ContextSource Notification" and	
	subscriptionId set to id of CSRS1 and	
	notifiedAt <b>a</b> timestamp <b>and</b>	
	data set to a list containing CSR1 and	SUT → Client
	triggerReason <b>set to</b> "newlyMatching"	
	<b>and</b> increments by one the notification.timesSent member <b>of</b> CSRS1 <b>and</b> updates the notification.lastNotification <b>of</b> CSRS1 <b>with</b> the current timestamps	
	}	

TP ld	TP/NGSI-LD/CS/REGSUB/047_06
Test objective	Check that if a cSourceNotification is not sent successfully, the "notification.timesSent" member shall be incremented by one and the notification.lastFailure" and "notification.lastNotification" members shall be updated with the current timestamp and the status of the context source registration subscription shall be updated to "failed"
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.7
Config Id	CF_05
Parent Release	V1.3.1
PICS Selection	PICS_5_11_7

Initial conditions	with {	
	<pre>the SUT containing     a Context Source Registration Subscription (CSRS1) with notification member containing an unreachable endpoint }</pre>	
Expected behaviour	Test events	Direction
	when {     the SUT receives a valid Create Context Source Registration Request from the client matching CSRS1	SUT ← Client
	}	
	then { the SUT fails in sending the CsourceNotification and updates the notification.lastFailure of CSRS1 with the current timestamps and updates the notification.status of CSRS1 with "failed"	SUT → Client
	}	

TP ld	TP/NGSI-LD/CS/REGSUB/047_07		
Test objective	Check that a cSourceNotification shall only be sent if and only if the status of the corresponding subscription ("subscription.status") is active not paused nor expired		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.7		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_5_11_7		
Initial conditions	with {		
	the SUT containing		
	<pre>\${state} Context Source Registration Subscription (CSRS1)</pre>		
	}		
Expected behaviour	Test events Direction		
	<pre>when {    the SUT receives a valid Create Context from the client matching CSRS1 }</pre>	Source Registration Request	SUT ← Client
	<pre>then {     the SUT will not send a CsourceNotif }</pre>	ication	SUT → Client
	Permutation on TP Id \${state}		
TP/NGSI-LD/CS/REC		paused	
TP/NGSI-LD/CS/REGSUB/047_07_02 expired			

TP ld	TP/NGSI-LD/CS/REGSUB/047_08		
Test objective	Check if a context source registration subscription does not define a temporalQ member, a CsourceNotification will be triggered from matching context source registrations for context sources providing latest information		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.7		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_5_11_7		
Initial conditions	with { the SUT containing		
	a Context Source Registration (CSR1) providing latest information about some entities and		
	a Context Source Registration Subscription (CSRS1) without temporalQ member <b>and with</b> entities member matching entities <b>of</b> CSR1		
	}		
Expected	Test events	Direction	
-			
behaviour	when { the SUT receives a valid Update Context Source Registration Request from the client to update the endpoint member of CSR1 and CSR1 still matches CSRS1	SUT ← Client	
-	the SUT receives a valid Update Context Source Registration Request from the client to update the endpoint member of CSR1 and CSR1 still	SUT ← Client	
-	the SUT receives a valid Update Context Source Registration Request from the client to update the endpoint member of CSR1 and CSR1 still	SUT ← Client	
-	<pre>the SUT receives a valid Update Context Source Registration Request from the client to update the endpoint member of CSR1 and CSR1 still matches CSRS1 } then {     the SUT sends to the endpoint URI mentioned in CSRS1, a</pre>	SUT ← Client	
-	<pre>the SUT receives a valid Update Context Source Registration Request from the client to update the endpoint member of CSR1 and CSR1 still matches CSRS1 } then {     the SUT sends to the endpoint URI mentioned in CSRS1, a CsourceNotification containing</pre>		
-	the SUT receives a valid Update Context Source Registration Request from the client to update the endpoint member of CSR1 and CSR1 still matches CSRS1 } then { the SUT sends to the endpoint URI mentioned in CSRS1, a CsourceNotification containing type set to "ContextSource Notification" and	SUT ← Client	
-	the SUT receives a valid Update Context Source Registration Request from the client to update the endpoint member of CSR1 and CSR1 still matches CSRS1 } then { the SUT sends to the endpoint URI mentioned in CSRS1, a CsourceNotification containing type set to "ContextSource Notification" and subscriptionId set to id of CSRS1 and		
-	the SUT receives a valid Update Context Source Registration Request from the client to update the endpoint member of CSR1 and CSR1 still matches CSRS1 } then { the SUT sends to the endpoint URI mentioned in CSRS1, a CsourceNotification containing type set to "ContextSource Notification" and subscriptionId set to id of CSRS1 and notifiedAt a timestamp and		
-	the SUT receives a valid Update Context Source Registration Request from the client to update the endpoint member of CSR1 and CSR1 still matches CSRS1 } then { the SUT sends to the endpoint URI mentioned in CSRS1, a CsourceNotification containing type set to "ContextSource Notification" and subscriptionId set to id of CSRS1 and notifiedAt a timestamp and data set to a list containing CSR1 and		

TP ld	TP/NGSI-LD/CS/REGSUB/047_09
Test objective	Check if a context source registration subscription defines an entities member, a CsourceNotification will be triggered from context source registrations with information member matching the described entities
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.7
Config Id	CF_05
Parent Release	V1.3.1
PICS Selection	PICS_5_11_7
Initial conditions	with { the SUT containing

	a Context Source Registration (CSR1) providing latest information abo and a Context Source Registration Subscription (CSRS1) with entities mer matching entities of CSR1 }	
Expected behaviour	Test events	Direction
benaviour	<pre>when {     the SUT receives a valid Update Context Source Registration Request from the client to update information member of CSR1 to no longer match CSRS1 }</pre>	SUT ← Client
	<pre>then {     the SUT sends to the endpoint URI mentioned in CSRS1, a     CsourceNotification containing     type set to "ContextSource Notification" and     subscriptionId set to id of CSRS1 and     notifiedAt a timestamp and     data set to a list containing CSR1 and     triggerReason set to "noLongerMatching" }</pre>	SUT → Client

TP ld	TP/NGSI-LD/CS/REGSUB/047_10
Test objective	Check if a context source registration subscription defines temporalQ member with timeproperty observedAt, the temporal query is matched against the observationInterval of matching context source registrations
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.7
Config Id	CF_05
Parent Release	V1.3.1
PICS Selection	PICS_5_11_7
Initial conditions	with { the SUT containing a Context Source Registration Subscription (CSRS1) with temporalQ member containing timeproperty set to observedAt }

Expected behaviour	Test events	Direction
	when { the SUT receives a valid Create Context Source Registration Request from the client with information and observationInterval members matching CSRS1	SUT ← Client
	}	
	then { the SUT sends to the endpoint URI mentioned in CSRS1, a CsourceNotification containing	
	type set to "ContextSource Notification" and	
	subscriptionId set to id of CSRS1 and	SUT → Client
	notifiedAt <b>a</b> timestamp <b>and</b>	
	data set to a list containing CSR1 and	
	triggerReason set to "newlyMatching"	
	}	

TP ld	TP/NGSI-LD/CS/REGSUB/047_11		
Test objective	Check if a context source registration subscription defines temporalQ member with timeproperty createdAt or modifiedAt, the temporal query is matched against the managementInterval of matching context source registrations		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.7		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_5_11_7		
Initial conditions	with {		
	the SUT containing		
	a Context Source Registration Subscription (CSRS1) <b>with</b> temporalQ member <b>containing</b> timeproperty <b>set to \${timeproperty}</b>		
	}		
Expected behaviour	Test events	Direction	
Denaviour	<pre>when {     the SUT receives a valid Create Context Source Registration Request from the client with information and managementInterval members matching CSRS1 }</pre>	SUT ← Client	
	then { the SUT sends to the endpoint URI mentioned in CSRS1, a CsourceNotification containing		
	type set to "ContextSource Notification" and	SUT → Client	
	subscriptionId set to id of CSRS1 and		
	notifiedAt <b>a</b> timestamp <b>and</b>		
	data set to a list containing CSR1 and		

TP Id	TP/NGSI-LD/CS/REGSUB/047_12		
Test objective	Check if a context source registrations subscription defines entities member and watchedAttributes member, a CsourceNotification will be triggered from context source registrations with information member matching the described entities and attributes		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.7		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_5_11_7		
Initial conditions	with {		
	the SUT containing		
	a Context Source Registration Subscription (CSRS1) <b>with</b> entities <b>and</b> watchedAttributes members		
	}		
Expected behaviour	Test events	Direction	
benaviour	<pre>when {     the SUT receives a valid Create Context Source Registration Request from the client with information member matching CSRS1 }</pre>	SUT ← Client	
	a		
	then { the SUT sends to the endpoint URI mentioned in CSRS1, a CsourceNotification containing		
	the SUT sends to the endpoint URI mentioned in CSRS1, a		
	the SUT sends to the endpoint URI mentioned in CSRS1, a CsourceNotification containing	SLIT → Client	
	the SUT sends to the endpoint URI mentioned in CSRS1, a CsourceNotification containing type set to "ContextSource Notification" and	SUT → Client	
	the SUT sends to the endpoint URI mentioned in CSRS1, a CsourceNotification containing type set to "ContextSource Notification" and subscriptionId set to id of CSRS1 and	SUT → Client	
	the SUT sends to the endpoint URI mentioned in CSRS1, a CsourceNotification containing type set to "ContextSource Notification" and subscriptionId set to id of CSRS1 and notifiedAt a timestamp and	SUT → Client	

TP Id	TP/NGSI-LD/CS/REGSUB/047_13
Test objective	Check if a context source registrations subscription does not define watchedAttributes member, a CsourceNotification will be triggered from context source registrations with information member matching all attributes of the described entities
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.7
Config Id	CF_05
Parent Release	V1.3.1

PICS Selection	PICS_5_11_7	
Initial conditions	with { the SUT containing a Context Source Registration Subscription (CSRS1) with entities member and without watchedAttributes member }	
Expected behaviour	Test events	Direction
	<pre>when {     the SUT receives a valid Create Context Source Registration Request from the client with information member containing entities member matching CSRS1 and propertyNames and relationshipNames members }</pre>	SUT ← Client
	<pre>then {     the SUT sends to the endpoint URI mentioned in CSRS1, a CsourceNotification containing     type set to "ContextSource Notification" and     subscriptionId set to id of CSRS1 and     notifiedAt a timestamp and     data set to a list containing CSR1 and     triggerReason set to "newlyMatching" }</pre>	SUT → Client

TP ld	TP/NGSI-LD/CS/REGSUB/047_14	
Test objective	Check if a context source registrations subscription defines a geoQ member, a CsourceNotification will be triggered from matching context source registrations with a matching location member	
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.7	
Config Id	CF_05	
Parent Release	V1.3.1	
PICS Selection	PICS_5_11_7	
Initial conditions	with {	
	the SUT containing	
	a Context Source Registration Subscription (CSRS1) <b>with</b> entities member <b>and</b> geoQ member <b>containing</b> geoproperty member <b>set to</b> location	
	}	
Expected behaviour	Test events	Direction
	<pre>when {     the SUT receives a valid Create Context Source Registration Request from the client with information and location members matching CSRS1 }</pre>	SUT ← Client

then { the SUT sends to the endpoint URI mentioned in CSRS1, a CsourceNotification containing	
type set to "ContextSource Notification" and	
subscriptionId set to id of CSRS1 and	
notifiedAt <b>a</b> timestamp <b>and</b>	SUT → Client
data set to a list containing CSR1 and	
triggerReason set to "newlyMatching"	
}	

TP ld	TP/NGSI-LD/CS/REGSUB/047_15			
Test objective	Check if a context source registrations subscription does not define a geoproperty in the geoQ member, a CsourceNotification will be triggered from matching context source registrations with a matching location member			
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.7			
Config Id	CF_05			
Parent Release	V1.3.1			
PICS Selection	PICS_5_11_7			
Initial conditions	with {			
	the SUT containing			
	a Context Source Registration Subscription (CSRS1) <b>with</b> entities member <b>and</b> geoQ member <b>not containing</b> geoproperty member			
	}			
Expected behaviour	Test events	Direction		
	<pre>when {     the SUT receives a valid Create Context Source Registration Request from the client with information and location members matching CSRS1 }</pre>	SUT ← Client		
	then { the SUT sends to the endpoint URI mentioned in CSRS1, a CsourceNotification containing			
	type set to "ContextSource Notification" and			
	subscriptionId set to id of CSRS1 and	SUT → Client		
	notifiedAt <b>a</b> timestamp <b>and</b>			
	data set to a list containing CSR1 and			
	triggerReason <b>set to "</b> newlyMatching"			
	}			

TP ld		S/REGSUB/047_16			
	TP/NGSI-LD/CS/REGSUB/047_16				
Test objective	Check if you update a context source registration subscription, a CsourceNotification will be sent with all currently matching context source registrations				
Reference	ETSI GS CIM 0	ETSI GS CIM 009 V1.3.1 [1], clause 5.11.7			
Config Id	CF_05				
Parent Release	V1.3.1				
PICS Selection	PICS_5_11_7				
Initial conditions	with {				
	the SUT conta	aining			
	Context Source about entities of		d (CSR2) providing respectively lat	est information	
	a Context Sourc <b>of</b> type Z	ce Registration Subscripti	on (CSRS1) <b>with</b> entities members	matching entities	
	}				
Expected behaviour		Test eve	ents	Direction	
	Request from the	<pre>sen {     source Registration Subscription     source Registration Subscription     quest from the client to update entities member of CSRS1 to match     titles of type \${type}</pre>			
		sends to the endpoint UR tion containing	I mentioned in CSRS1, a		
	type <b>set</b>	to "ContextSource Notif	cation" and		
	subscrip	tionId <b>set to</b> id <b>of</b> CSRS	and	SUT → Client	
	notifiedA	OUT 7 Ollerit			
	data set to a list containing \${CsourceRegistrations} and				
	triggerReason set to "newlyMatching"				
	}				
Permutation of	on TP Id	\${type}	\${CsourceRegistr	ations}	
TP/NGSI-		T	CSR1		
LD/CB/REGSUB/047_16_01 TP/NGSI- LD/CB/REGSUB/047_16_02		U	CSR2		
TP/NGSI-					

## 4.2.3 Discovery

#### 4.2.3.1 Retrieve Context Source Registration

TP ld	TP/NGSI-LD/CS/DISC/036_01
	Check that you cannot a retrieve Context Source Registration, if the context source registration id is not present or it is not a valid URI.

Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.10.1		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_5_10_1		
Initial conditions	with {     the SUT being in the "initial state" }		
Expected behaviour	Test events		Direction
	when {     the SUT receives a retrieve Context Source Registration request from the     client containing     URL set to /ngsi-ld/v1/csourceRegistration/\${id} and     method set to GET   }		
then {       the SUT sends a Response containing       SI         Response Status Code set to BadRequestData       SI			
	Permutation on TP Id		\${id}
TP/NGSI-LD/CS/DISC/036_01_01 Not pres			
TP/NGSI-LD/CS/DIS	C/036_01_02	ls not a	valid URI

TP ld	TP/NGSI-LD/CS/DISC/036_02		
Test objective	Check that you cannot retrieve a Context Source Registration, if the NGSI-LD endpoint does not know about the target context source registration, because there is no existing context source registration whose id (URI) is equivalent.		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.10.1		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_5_10_1		
Initial conditions	<pre>with {     the SUT being in the "initial state" and     the SUT does not contain a Context Source Registration with id equal to \${ic }</pre>	1}	
Expected behaviour	Test events	Direction	
	<pre>when {     the SUT receives a retrieve Context Source Registration request from the     client containing         URL set to /ngsi-ld/v1/csourceRegistration/\${id} and         method set to GET     }</pre>	SUT ← Client	

then { the SUT sends a Response containing	
Response Status Code set to ResourceNotFound	SUT → Client
}	

TP ld	TP/NGSI-LD/CS/DISC/036_03			
IF IG				
Test objective	Check that you can retrieve a Context Source Registration. Term to URI expansion of Attribute names shall be observed.			
D.(				
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.10.1			
Config Id	CF_05			
Parent Release	V1.3.1			
PICS Selection	PICS_5_10_1			
Initial conditions	<pre>with {     the SUT being in the "initial state" and     the SUT contain a Context Source Registration with id equal to \${id} }</pre>			
Expected behaviour	Test events Direction			
	when { the SUT receives a retrieve Context Source Registration request from the client containing			
	URL set to /ngsi-ld/v1/csourceRegistration/\${id} and	SUT ← Client		
	method set to GET }			
	then { the SUT sends a Response containing			
	Response Status Code <b>set to</b> 200 (OK) <b>and</b> <b>body set to</b> Context Source Registration	SUT → Client		
	<b>,</b>			

TP Id	TP/NGSI-LD/CS/DISC/036_04
Test objective	Check that you can retrieve a Context Source Registration
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.10.1
Config Id	CF_05
Parent Release	V1.3.1
PICS Selection	PICS_5_10_1
Initial conditions	<pre>with {     the SUT being in the "initial state" and     the SUT contains a Context Source Registration with id equald to \${id} }</pre>

Expected behaviour	Test events	Direction
	when {     the SUT receives a retrieve Context Source Registration request from the     client containing	
	URL set to /ngsi-ld/v1/csourceRegistration/\${id} and	SUT ← Client
	method <b>set to</b> GET }	
	then { the SUT sends a Response containing	
	body set to Context Source Registration	SUT → Client
	}	

TP ld	TP/NGSI-LD/CS/DISC/036_05		
Test objective	Check that the JSON-LD @context is obtained from a Link header if present and that the default JSON-LD @context is used if not present		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.5		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_6_3_5		
Initial conditions	<pre>with {     the SUT being in the "initial state" and     the SUT containing a Context Source Registration with id equal to \${csrld} }</pre>		
Expected behaviour	Test events	Direction	
	<pre>when {     the SUT receives a valid Retrieve Context Source Registration request from the client containing     URL set to /ngsi-ld/v1/cSourceRegistration/\${csrld} and     method set to GET and     Header: Link set to \${jsonId_context} }</pre>	SUT ← Client	
	<pre>then {     the SUT sends a valid Response containing         Response Status Code set to 200 (OK) and         Response Body containing         \${csr_representation} }</pre>	SUT → Client	

Permutation on TP Id	\${jsonId_context}	\${csr_representation}
TP/NGSI-LD/CS/DISC/036_05_01	empty	Context source registration with attributes from the context provided at creation time not compacted
TP/NGSI-LD/CS/DISC/036_05_02	Context containing the terms used at context source registration creation	Context source registration with attributes from the context provided at creation time compacted

## 4.2.3.2 Query context source registrations

TP ld	TP/NGSI-LD/CS/DISC/037_01		
11 10			
Test objective	Check that you can query context source registrations if at least one of list of Entity Types or list of Attribute names is present.		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.10.2		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_5_10_2		
Initial conditions	with {     the SUT being in the "initial state" }		
Expected	Test events		Direction
Denavioui	behaviour         when {         the SUT receives a query Context Source Registration request from the client containing         URL set to /ngsi-ld/v1/csourceRegistrations and         method set to Get and         query params set to Context Source Registration Query containing         at least one of \${list}		SUT ← Client
	<pre>then {     the SUT sends a Response containing         Response Status Code set to Ok and         body set to list of all matching Context Source Re }</pre>	egistrations	SUT → Client
	Permutation on TP Id \${li		
TP/NGSI-LD/CS/DISC/037_01_01 List of Entity Typ			
IP/NGSI-LD/CS/DISC/037_01_02   List of Attributes names			tes names

TP Id	TP/NGSI-LD/CS/DISC/037_02
Test objective	Check that you cannot query context source registrations, if neither Entity types nor Attribute names are provided, an error of type.
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.10.2
Config Id	CF_05
Parent Release	V1.3.1

PICS Selection	PICS_5_10_2	
Initial conditions	with {     the SUT being in the "initial state" }	
Expected behaviour	Test events	Direction
	when {     the SUT receives a query Context Source Registration request from the     client containing	
	URL set to /ngsi-ld/v1/csourceRegistrations and	
	method <b>set to</b> Get <b>and</b> query params <b>set to</b> Context Source Registration Query <b>not</b> <b>containing</b>	SUT ← Client
	neither Entity types nor Attribute	
	}	
	then { the SUT sends a Response containing	
	Response Status Code set to BadRequestData	SUT → Client
	}	

TP ld	TP/NGSI-LD/CS/DISC/037_03		
Test objective	Check that you cannot query context source registrations, if the list of Entity identifiers includes a URI which it is not valid, or the query, geo-query or temporal query are not syntactically valid.		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.10.2		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_5_10_2		
Initial conditions	with {     the SUT being in the "initial state" }		
Expected behaviour	Test events	Direction	
	when { the SUT receives a query Context Source Registration request from the client containing		
	URL set to /ngsi-ld/v1/csourceRegistrations and		
	method <b>set to</b> Get <b>and</b> query params <b>set to</b> Context Source Registration Query <b>not</b> <b>containing</b>	SUT ← Client	
	list of Entity identifiers <b>containing</b> \${value}		
	}		
	then { the SUT sends a Response containing	SUT $\rightarrow$ Client	
	Response Status Code set to BadRequestData		

}	
Permutation on TP Id	\${value}
TP/NGSI-LD/CS/DISC/037_03_01	Not valid URI
TP/NGSI-LD/CS/DISC/037_03_02	Not syntactically valid query
TP/NGSI-LD/CS/DISC/037_03_03	Not syntactically valid geo-query
TP/NGSI-LD/CS/DISC/037_03_04	Not syntactically valid temporal query

TP ld	TP/NGSI-LD/CS/DISC/037_04		
Test objective	Check that you can query context source registrations. If a JSON-LD context is not provided,		
	then all the query terms shall be resolved against the default JSON-LD @context.		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.10.2		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_5_10_2		
Initial conditions	with {		
	the SUT being in the "initial state"		
	7		
Expected behaviour	Test events	Direction	
bonarioui	when {		
	the SUT receives a query Context Source Registration request from the client containing		
	URL set to /ngsi-ld/v1/csourceRegistrations and		
		SUT ← Client	
	method <b>set to</b> Get <b>and</b> query params <b>set to</b> Context Source Registration Query <b>not</b>		
	containing		
	JSON-LD context		
	3		
	,		
	then { the SUT sends a Response containing		
	Response Status Code <b>set to</b> 200 (OK) <b>and</b> <b>body set to</b> list of all matching Context Source Registrations	SUT $\rightarrow$ Client	
	resolved against the default JSON-LD context		
	}		
	1		

TP Id	TP/NGSI-LD/CS/DISC/037_05
Test objective	Check that you can query context source registrations. If present, the entity specification in the query consisting of a combination of entity type and entity id/entity id pattern matches an EntityInfo specified in a RegistrationInfo of the information property in a context source registration. If there is no EntityInfo specified in the RegistrationInfo, the entity specification is considered matching. If there is no EntityInfo specified in the RegistrationInfo, the entity specification is specification is considered matching.
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.10.2
Config Id	CF_05
Parent Release	V1.3.1
PICS Selection	PICS_5_10_2

Initial conditions		state", text Source Registration \${csourceRegistration} <b>c</b> ntaining Registration Info containing EntityInfo	ontaining
Expected behaviour		Test events	Direction
bonavioai	client <b>containing</b> URL <b>set to</b> /ngsi-ld/v1/c method <b>set to</b> Get and query parameters <b>set to</b> entity specification <b>set</b> }	Context Source Registration request <b>from</b> the csourceRegistrations <b>and</b> Context Source Registration Query <b>containing</b> <b>to</b> \${entitySpec}	SUT ← Client
		onse <b>containing</b> tus Code <b>set to</b> 200 (OK) <b>and</b> st <b>containing</b> \${csourceRegistration}	SUT → Client
Permut	ation on TP Id	\${entityInfo}	1
		EntityInfo matching Entity Specification \${entityS	Spec}
TP/NGSI-LD/CS/DIS	C/037_05_02	empty	

TP ld	TP/NGSI-LD/CS/DISC/037_06		
Test objective	Check that you can query context source registrations. If present, at least one Attribute name specified in the query matches one Property or Relationship in the RegistrationInfo element of the information property in a context source registration. If no Properties or Relationships are specified in the RegistrationInfo, the Attribute names are considered matching.		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.10.2		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_5_10_2		
Initial conditions	with {		
	<pre>the SUT being in the "initial state", the SUT containing a Context Source Registration \${csourceRegistration} of RegistrationInfo \${regInfo} containing Properties or Relationships \${pro }</pre>		
Expected behaviour	the SUT containing a Context Source Registration \${csourceRegistration} of		

	sponse <b>containing</b> atus Code <b>set to</b> 200 (OK) <b>and</b> list <b>containing</b> \${csourceRegistration}
Permutation on TP Id	\${attName}
TP/NGSI-LD/CS/DISC/037_06_01	Properties or Relationships matching \${attName}
TP/NGSI-LD/CS/DISC/037_06_02	Empty

TP ld	TP/NGSI-LD/CS/DISC/037_07		
Test objective	Check that you can query context source registrations. If present, the geoquery is matched against the GeoProperty identified in the geoquery. The geoquery matches the GeoProperty specified in the Context Source Registration, if the location directly matches or if the location possibly contains locations that would match the geoquery		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.10.2		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_5_10_2		
Initial conditions	<pre>with {     the SUT being in the "initial state",     the SUT containing a Context Source Registration \${csourceRegistration} c     GeoProperty containing     georel set to \${georel} and     geometry set to \${geometry} and     coordinates set to \${coordinates} and     geoproperty set to \${geoproperty} and }</pre>	ontaining	
Expected behaviour	Test events	Direction	
	<pre>when {     the SUT receives a query Context Source Registration request from the     client containing     URL set to /ngsi-ld/v1/csourceRegistrations and     method set to Get and     query params set to Context Source Registration geoquery containing     Query Parameter: georel set to \${georel} and     Query Parameter: geometry set to \${geometry} and     Query Parameter: coordinates set to \${coordinates} and     Query Parameter: geoproperty set to \${geoproperty} }</pre>	SUT ← Client	
	then {		
	the SUT sends a Response containing Response Status Code set to 200 (OK) and body set to list containing \${csourceRegistration} }	SUT → Client	

Permutation on TP Id	\${georel}	\${geometry}	\${coordinates}	\${geoproperty}
TP/NGSI- LD/CS/DISC/037_07_ 01	near;maxDistance==20 00	Point	[-8.503,41.202]	Not present
TP/NGSI- LD/CS/DISC/037_07_ 02	within		[ [-13.503,47.202], [6.541, 52.961], [20.37,44.653], [9.46,32.57], [- 15.23,21.37] ]	location

TP ld	TP/NGSI-LD/CS/DISC/037_08		
Test objective	Check that you can query context source registrations. If no temporal query is present, only Context Source Registrations for Context Sources providing latest information are considered.		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.10.2		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_5_10_2		
Initial conditions	with {     the SUT being in the "initial state" }		
Expected	Test events	Direction	
behaviour	<pre>when {     the SUT receives a query Context Source Registration request from the     client containing         URL set to /ngsi-ld/v1/csourceRegistrations and         method set to Get and         query params set to Context Source Registration temporal query not     containing temporal Query }</pre>	SUT ← Client	
	<pre>then {     the SUT sends a Response containing         Response Status Code set to 200 (OK) and         body set to list containing matching Context Source Registrations for Context Sources providing latest information }</pre>	SUT → Client	

TP Id	TP/NGSI-LD/CS/DISC/037_09
Test objective	Check that you can query context source registrations. If a temporal query is present, only Context Source Registrations with specified time intervals, i.e. observationInterval or managementInterval are considered. If the timeproperty is observedAt or no timeproperty is specified in the temporal query (default: observedAt), the temporal query is matched against the observationInterval (if present). If the timeproperty is createdAt or modifiedAt, the temporal query is matched against the managementInterval (if present).If the relevant interval is not present, there is no match.

Reference	ETSI GS CIM	009 V1.3.1 [1], d	clause 5.10.2			
Config Id	CF_05					
Parent Release	V1.3.1					
PICS Selection	PICS_5_10_2					
Initial conditions	<pre>with {    the SUT being in the "initial state" and    the SUT containing a Context Source Registration having         \${timeprop} before \${time} }</pre>					
Expected behaviour			Test events	;		Direction
	client contain URL set method query pa containing Query Pa Query Pa	the SUT receives a query Context Source Registration request from the client containing       URL set to /ngsi-ld/v1/csourceRegistrations and         method set to Get and query parameter: to Context Source Registration temporal query       SUT ← Client         containing       Query Parameter: timeproperty set to \${timeprop}         Query Parameter: timerel set to \${timerel} and       Query Parameter: timeAt set to \${time}}         }       then {				
	Response Status Code <b>set to</b> 200 (OK) <b>and</b> <b>body set to</b> list <b>containing</b> Context Source Registrations matched against <b>\${matchingProp}</b>					
	}					
Permutation o	mutation on TP Id \${timeprop} \${timerel} \${time} \${matchi				hingprop}	
TP/NGSI-LD/CS/DIS	C/037_09_01	ObservedAt	before	2017-12- 13T14:20:00Z	observation	
TP/NGSI-LD/CS/DIC	I-LD/CS/DICS/037_09_02 Not present before 2017-12- 13T14:20:00Z observationInterval			Interval		
TP/NGSI-LD/CS/DIS	C/037_09_03	createdAt	before	2017-12- 13T14:20:00Z	managemer	ntInterval
TP/NGSI-LD/CS/DIS	C/037_09_04	modifiedAt	before	2017-12- 13T14:20:00Z	managementInterval	

TP ld	TP/NGSI-LD/CS/DISC/037_10
Test objective	Check that you can query context source registrations. If present, the conditions specified by the context source query match the respective Context Source Properties.
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.10.2
Config Id	CF_05
Parent Release	V1.3.1
PICS Selection	PICS_5_10_2
Initial conditions	with {     the SUT containing three Context Source Registrations }

Expected behaviour		Test events		Direction
	<pre>when {     the SUT receives a query Context Source Registration request from the     client containing     URL set to /ngsi-ld/v1/csourceRegistrations and     Method set to Get and     Query Parameter: \${param} set to \${value}</pre>			SUT ← Client
	}			
	then {       the SUT sends a Response containing         Response Status Code set to 200 (OK) and       SU         body set to list containing matching Context Source Registrations       SU			
Permutation on TP Id		\${param}		value}
TP/NGSI-LD/CS/DIS		id	List of Entity	
TP/NGSI-LD/CS/DIS		q	NGSI-LD Query	
TP/NGSI-LD/CS/DISC/037_10_03		csf	Context So	urce filter

TDII			
TP ld	TP/NGSI-LD/CS/DISC/037_11		
Test objective	Check that you can query context source registrations with providing page and	limit	
	parameters, pagination logic shall be in place as mandated by clause 5.5.9.		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 5.10.2		
Config Id	CF_05		
Parent Release	V1.3.1		
PICS Selection	PICS_5_10_2		
Initial conditions	with {		
	the SUT being in the "initial state" and containing		
	a Context Source Registration (CSR1) <b>with</b> an id <b>set to \${id1}</b>		
	and		
	a Context Source Registration (CSR2) with an id set to \${id2}		
	and		
	a Context Source Registration (CSR3) with an id set to \${id3}		
	}		
Expected	Test events	Direction	
behaviour		2	
	when {		
	the SUT receives a query Context Source Registration request from the client containing		
	URL set to /ngsi-ld/v1/csourceRegistrations and		
	method <b>set to</b> Get <b>and</b>	SUT ← Client	
	query params set to Context Source Registration query containing		
	Query Parameter limit set to \${limit} and		
	Query Parameter page set to \${page}		
	}		

Response State body set to list	the SUT sends a Response containing Response Status Code set to 200 (OK) and		SUT → Client
Permutation on TP Id	\${limit}	\${page}	}
TP/NGSI-LD/CS/DISC/037_11_01	1	2	
TP/NGSI-LD/CS/DISc/037_11_02	2	2	
TP/NGSI-LD/CS/DISC/037_11_03	15	1	

#### 4.2.4 Common Behaviours

#### 4.2.4.1 NGSI-LD API common behaviours

TP ld	TP/NGSI-LD/CB/043	
Test objective	Verify throwing 503 – LDContextNotAvaliable error if remote JSON-LD @conterretrieved	ext cannot be
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.2	
Config Id	CF_01	
Parent Release	V1.3.1	
PICS Selection	PICS_6_3_2	
Initial conditions	with {     the SUT being in the "initial state" }	
Expected behaviour	Test events	Direction
	when {     the SUT receives a Request from the client containing	
	URL set to /ngsi-ld/v1/\${endpoint} and	
	method set to POST and	$SUT \leftarrow Client$
	Header: Content-Type <b>set to</b> application/ld+json <b>and</b>	
	body set to JSON-LD object where	
	@context is not available	

Respo	nds a valid Response containing onse Status Code set to 503 and onse Body containing oblemDetails element containing type element set to https://uri.etsi.org/ngsi-ld/errors/ ailable and title element containing more information about the error	SUT → Client
Permutation on TP Id	\${endpoint}	
TP/NGSI-LD/CB/043_01 TP/NGSI-LD/CB/043_02	/entities/ /csourceSubscriptions/	
TP/NGSI-LD/CB/043_02	/temporal/entities/	
TP/NGSI-LD/CB/043_04	/entityOperations/create	
TP/NGSI-LD/CB/043_05 //csourceRegistrations/		

## 4.2.4.2 API HTTP binding common behaviours

#### 4.2.4.2.1 HTTP request pre-conditions

TP ld	TP/NGSI-LD/HTTP/044_01			
Test objective	Verify that PATCH HTTP requests can be done with "application/merge-patch+json" as Content-Type			
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.4	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.4		
Config Id	CF_01			
Parent Release	V1.3.1			
PICS Selection	PICS_6_3_4			
Initial conditions	with { the SUT being in the "initial state" and an \${object} already exists }			
Expected behaviour	Test events	Direction		
	when {     the SUT receives a Request from the client containing     URL set to /ngsi-ld/v1/\${endpoint} and     method set to PATCH and	SUT ← Client		
	Header: Content-Type set to application/merge-patch+json and body set to JSON object then {			

Permutation on TP Id	\${object}	\${endpoint}
TP/NGSI-LD/CB/044_01_01	entity	/entities/{entityId}/attrs/{attrId}
TP/NGSI-LD/CB/044_01_02	subscription	/subscriptions/{subscriptionId}

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75.11						
TP ld	TP/NGSI-LD/HTTP/(	044_02				
Test objective	Verify that on a GET HTTP request if nothing is specified on the Accept header,					
	"application/json" is	assumed				
Defenses						
Reference	ETSIGS CIM 009 V	(1.3.1 [1], clause 6.3.4				
Config Id	CF_01					
Parent Release	V1.3.1					
PICS Selection	PICS_6_3_4					
Initial conditions	with {					
	the SUI being in t	the "initial state" and an \${o	object} already exists			
	5					
Expected behaviour	Test events Direction					
	/hen { the SUT receives a Request from the client containing					
	the SUT receives	a Request from the client of	containing			
	URL set to /ngsi-ld/v1/\${endpoint} and			SUT ← Client		
	method <b>set to</b> GET					
	then {	· ·				
	the SUT send	the SUT sends a valid Response containing				
	Response Status Code set to 200 and SUT $\rightarrow$ Clien					
	Response Body <b>containing</b> queried \${object} in json format					
	}					
Permutatio	on on TP Id \${object} \${endpoint}					
TP/NGSI-LD/CB/044			/entities/{entityId}			
TP/NGSI-LD/CB/044		subscription	/subscriptions/{subscriptionId	}		
TP/NGSI-LD/CB/044		csource registration	/csourceRegistrations/			
TP/NGSI-LD/CB/044		temporal entity	/temporal/entities			

TP ld	TP/NGSI-LD/HTTP/044_03
Test objective	Verify throwing 415 HTTP status code (Unsupported Media Type) if "Content-Type" header is not "application/json" or "application/ld+json"
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.4
Config Id	CF_01
Parent Release	V1.3.1
PICS Selection	PICS_6_3_4
Initial conditions	with {     the SUT being in the "initial state" }

Expected behaviour	Test events			Direction
	when { the SUT receives a Request from the client containing			
	URL <b>set to</b> /ngsi-ld	/v1/\${endpoint} and		
	method set to \${m	ethod} and		$SUT \leftarrow Client$
	Header: Content-Ty	/pe set to application/xm	and	
	body <b>set to</b> Ld+jsol	n object		
	then { the SUT sends a valid Response containing			
	Response Status Code set to 415 and			
	Response Body containing			
	ProblemD	etails element <b>containin</b>	g	SUT $\rightarrow$ Client
	type element <b>set to</b> Unsupported Media Type <b>and</b>			
	title el	ement containing		
	more information about the error			
	}			
Permutat	ion on TP ld	\${method}	\${endpoint}	
TP/NGSI-LD/CB/044_				
TP/NGSI-LD/CB/044_			d}	
TP/NGSI-LD/CB/044_				
TP/NGSI-LD/CB/044_				
TP/NGSI-LD/CB/044_				
TP/NGSI-LD/CB/044_	4_03_06 POST /entityOperations/create			

TP ld	TP/NGSI-LD/HTTP/044_04		
Test objective	Verify throwing 406 HTTP status code (Not Acceptable Media Type) if the "Accept" header does not imply "application/json" nor "application/ld+json"		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.4		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_ 6_3_4		
Initial conditions	<pre>with {    the SUT being in the "initial state" }</pre>		
Expected behaviour	Test events	Direction	
bonarioai	<pre>when {     the SUT receives a Request from the client containing     URL set to /ngsi-ld/v1/\${endpoint} and     method set to GET and     Header: Accept set to application/xml</pre>	SUT ← Client	

Response Statu Response Body	id Response <b>containing</b> as Code <b>set to</b> 415 <b>and</b> a <b>containing</b> vailable representations of the resources	SUT → Client
Permutation on TP Id	\${endpoint}	
TP/NGSI-LD/CB/044_04_01	/entities/{entityId}	
TP/NGSI-LD/CB/044_04_02	/subscriptions/{subscriptionId}	
TP/NGSI-LD/CB/044_04_03	/csourceRegistrations/	
TP/NGSI-LD/CB/044_04_04	/csourceSubscriptions/	
TP/NGSI-LD/CB/044_04_05	/temporal/entities	

TP ld	TP/NGSI-LD/HTTP/044_05		
Test objective	Verify throwing 406 HTTP status code (Not Acceptable Media Type) if the "Accept" header is "application/geo+json" for operations different than "Retrieve Entity" and "Query Entity".		
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.4		
Config Id	CF_01		
Parent Release	V1.3.1		
PICS Selection	PICS_6_3_4		
Initial conditions	with { the SUT being in the "initial state" }		
Expected behaviour	1	Test events	Direction
Denaviour	when { the SUT receives a Request from the client containing		
	URL set to /ngsi-ld/v1/\${endpoint} and SUT ← Clie		SUT ← Client
	method set to POST and		
	Header: Accept set to application/geo+json		
	then {		
	the SUT sends a valid Response containing		
	Response Status Cod	e <b>set to</b> 406 <b>and</b>	
Response Body containing SUT		SUT → Client	
	List of the available representations of the resources		
	}		
Perm	nutation on TP Id	\${endpoint}	
TP/NGSI-LD/CB/044		/entities/	
		/entities/{entityId}/attrs/{attrId}	
TP/NGSI-LD/CB/044	P/NGSI-LD/CB/044_05_03 /subscriptions/		
TP/NGSI-LD/CB/044	/NGSI-LD/CB/044_05_04 /subscriptions/{subscriptionId}		
TP/NGSI-LD/CB/044	P/NGSI-LD/CB/044_05_05 /temporal/entities/		
TP/NGSI-LD/CB/044_05_06 /entityOperations/create			
TP/NGSI-LD/CB/044_05_07 /csourceRegistrations/			

TP ld	TP/NGSI-LD/CB/HTTP/045_01				
Test objective	If the request verb is GET or DELETE, then the associated JSON-LD "@context" shall be obtained from a Link header as mandated by JSON-LD.				
Reference	ETSI GS CIM 009 V1.3.1 [1], clause 6.3.5				
Config Id	CF_01				
Parent Release	V1.3.1				
PICS Selection	PICS_6	_3_5			
Initial conditions	with { the S }	with { the SUT being in the "initial state" with an already created \${resource} }			
Expected behaviour		Test	events		Direction
Permutation on 1	contain He } then { th Source }	eader: Link <b>containing</b> a valie e <b>SUT sends</b> a valid Respon Response Status Code <b>set t</b> A cSourceNotification shall b Registration	d link to a JSON-LD @ se <b>containing</b> o 201 (CREATED) an e sent with the match	€context d ing Context	SUT ← Client
Permutation on T	'P Id	\${resource}	\${get_or_delete_ operation}	\${coordinates}	\${geoproperty }
TP/NGSI- LD/CB/HTTP/045_01_01		near;maxDistance==2000	Point	[8,40]	Not present
TP/NGSI- LD/CB/HTTP/045_01_02		within	Polygon	[ [100.0,0.0], [101.0,0.0], [101.0,1.0], [100.0,1.0], [100.0,0.0] ]	location

#### 4.2.4.2.2 JSON-LD @context resolution

## Annex A (informative): Change History

Date	Version	Information about changes
October, 19th 2020	V0.0.1	First draft of document
February, 4 <sup>th</sup> 2021	V1.0.1	Stable draft approved by ISG-CIM
March, 23 <sup>rd</sup> 2021	V1.0.2	
April 28 <sup>th</sup> 2021	V1.1.1	Last Technical Officer review for Publication pre-processing with ETSI EditHelp

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# History

Document history			
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