

TOSCA Test Assertions Version 1.0

Committee Note Draft 01

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*TOSCA Simple Profile in YAML Version 1.1*. Edited by Matt Rutkowski and Luc Boutier. Latest version: <http://docs.oasis-open.org/tosca/TOSCA-Simple-Profile-YAML/v1.1/TOSCA-Simple-Profile-YAML-v1.1.html>.

Abstract:

This document describes templates and definitions that can be used to test TOSCA tools and orchestrator compliance.

Status:

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Table of Contents

[1 Conformance 6](#_Toc474161866)

[1.1 Conformance Targets 6](#_Toc474161867)

* 1. [1.1.1 TOSCA YAML service template or TOSCA archive 6](#_Toc474161868)
	2. [1.1.2 TOSCA Parser and validator 6](#_Toc474161869)
	3. [1.1.3 TOSCA Matching engine 7](#_Toc474161870)
	4. [1.1.4 TOSCA Orchestrator 7](#_Toc474161871)
	5. [1.1.5 TOSCA generator 7](#_Toc474161872)

[1.2 Prescription levels 7](#_Toc474161873)

[2 Conformance coverage 8](#_Toc474161874)

[3 TOSCA Grammar test assertions 12](#_Toc474161875)

[3.1 TOSCA Namespace URI and alias 12](#_Toc474161876)

* 1. [3.1.1 TOSCA Namespace prefix 12](#_Toc474161877)
	2. [3.1.2 TOSCA Namespacing in TOSCA Service Templates 12](#_Toc474161878)
	3. [3.1.3 Rules to avoid namespace collisions 14](#_Toc474161879)

[3.2 Parameter and property types 14](#_Toc474161880)

* 1. [3.2.1 Referenced YAML Types 14](#_Toc474161881)
	2. [3.2.2 TOSCA version 14](#_Toc474161882)
	3. [3.2.3 TOCSA range type 14](#_Toc474161883)
	4. [3.2.4 TOSCA list type 14](#_Toc474161884)
	5. [3.2.5 TOSCA map type 14](#_Toc474161885)
	6. [3.2.6 TOCSA scalar-unit type 14](#_Toc474161886)

[3.3 Normative values 14](#_Toc474161887)

* 1. [3.3.1 Node States 14](#_Toc474161888)
	2. [3.3.2 Relationship States 14](#_Toc474161889)
	3. [3.3.3 Directives 14](#_Toc474161890)
	4. [3.3.4 Network Name aliases 14](#_Toc474161891)

[3.4 TOSCA Metamodel 14](#_Toc474161892)

* 1. [3.4.1 Required Keynames 14](#_Toc474161893)

[3.5 Reusable modeling definitions 14](#_Toc474161894)

* 1. [3.5.1 Description definition 14](#_Toc474161895)
	2. [3.5.2 Constraint clause 15](#_Toc474161896)
	3. [3.5.3 Property Filter definition 15](#_Toc474161897)
	4. [3.5.4 Node Filter definition 15](#_Toc474161898)
	5. [3.5.5 Repository definition 15](#_Toc474161899)
	6. [3.5.6 Artifact definition 16](#_Toc474161900)
	7. [3.5.7 Import definition 16](#_Toc474161901)
	8. [3.5.8 Property definition 20](#_Toc474161902)
	9. [3.5.9 Property assignment 20](#_Toc474161903)
	10. [3.5.10 Attribute definition 20](#_Toc474161904)
	11. [3.5.11 Attribute assignment 20](#_Toc474161905)
	12. [3.5.12 Parameter definition 20](#_Toc474161906)
	13. [3.5.13 Operation definition 20](#_Toc474161907)
	14. [3.5.14 Interface definition 20](#_Toc474161908)

[3.6 Type-specific definitions 20](#_Toc474161909)

* 1. [3.6.1 Capability definition 20](#_Toc474161910)
	2. [3.6.2 Requirement definition 20](#_Toc474161911)
	3. [3.6.3 Artifact Type 20](#_Toc474161912)
	4. [3.6.4 Interface Type 21](#_Toc474161913)
	5. [3.6.5 Data Type 22](#_Toc474161914)
	6. [3.6.6 Capability Type 26](#_Toc474161915)
	7. [3.6.7 Requirement Type 28](#_Toc474161916)
	8. [3.6.8 Node Type 28](#_Toc474161917)
	9. [3.6.9 Relationship Type 28](#_Toc474161918)
	10. [3.6.10 Group Type 28](#_Toc474161919)
	11. [3.6.11 Policy Type 28](#_Toc474161920)

[3.7 Template-specific definitions 28](#_Toc474161921)

* 1. [3.7.1 Capability assignment 28](#_Toc474161922)
	2. [3.7.2 Requirement assignment 28](#_Toc474161923)
	3. [3.7.3 Node Template 28](#_Toc474161924)
	4. [3.7.4 Relationship Template 28](#_Toc474161925)
	5. [3.7.5 Group definition 28](#_Toc474161926)
	6. [3.7.6 Policy definition 28](#_Toc474161927)

[3.8 Topology Template definition 28](#_Toc474161928)

* 1. [3.8.1 Keynames 28](#_Toc474161929)
	2. [3.8.2 Grammar 28](#_Toc474161930)

[3.9 Service Template definition 28](#_Toc474161931)

* 1. [3.9.1 Keynames 28](#_Toc474161932)
	2. [3.9.2 Grammar 29](#_Toc474161933)
	3. [3.9.3 Top-level keyname definitions 29](#_Toc474161934)

# Conformance

This document aims to specify the requirements for implementations to be considered as TOSCA compliant.

## Conformance Targets

TOSCA simple profile in YAML defines conformance targets and requirements on their conformance in respect to the specification document. This document aims to provide test scenarios that can be used in order to validate tools or artifacts of the TOSCA ecosystem.

As a reminder the following categories are defined as conformance targets in the specification document:

* TOSCA YAML service template
* TOSCA archive
* TOSCA processor
	+ Parsers and validator
	+ Matching engines
		- Node matcher
		- Locations matcher
	+ Orchestrators
	+ Auditor
	+ Optimizer
	+ Catalog/Forge/Registry
* TOSCA generator
	+ IDE, Tools etc.
	+ Auditor
	+ Optimization engines

As specified a TOSCA orchestrator is a specific TOSCA processor.

### TOSCA YAML service template or TOSCA archive

A TOSCA yaml service template or TOSCA archive is considered as compliant if it can be validated by a TOSCA compliant parser that successfully qualifies it as a valid TOSCA YAML service template or TOSCA archive.

### TOSCA Parser and validator

Tosca parsers are tools that can read and validate TOSCA YAML document and TOSCA Archives. This document details the expected behavior of TOSCA Parsers.

This document defines a set of conformance scenarios that should be processed with correct output by the parser in order to be confirmed as being TOSCA compliant.

**Note:** This document doesn’t provide conformance for TOSCA parsing and validation as separated elements. We consider here tools that Parse and perform validation of the TOSCA templates.

### TOSCA Matching engine

A TOSCA matching engine is responsible for matching a TOSCA template with the resources that an underlying cloud system can provide. Most obvious example is the matching of a TOSCA Compute node that specifies a VM and constraints in term of operating system and hardware resources. Advanced matching engines may support policies and also take pricing data in account to provide best choices to their users.

### TOSCA Orchestrator

Note: TOSCA orchestrators should not try to orchestrate any TOSCA service template or archive that cannot be parsed by a TOSCA parser. This specification will not specify the expected behavior of orchestrators for any sample that should fail at parsing.

Note that a valid TOSCA orchestrator may fail to orchestrate some valid TOSCA Archives in case of errors in user provided scripts or inconsistencies between TOSCA node specifications and artifacts even if the Template or Archive is considered as valid from a TOSCA parsing point of view.

### TOSCA generator

TOSCA generators are considered as valid TOSCA generators only if the TOSCA service template or TOSCA archive they generate can be parsed by a TOSCA compliant parser that successfully qualifies it as a valid TOSCA YAML service template or TOSCA archive.

Moreover, the template or archive produced by the processor should be compliant with the generated lifecycle of TOSCA so that the archive can be processed by a compliant TOSCA orchestrator. The created template should provide enough information that enables any TOSCA orchestrator to perform a valid matching of resources that ensures the various implementation artifacts to be process in a valid way.

## Prescription levels

TOSCA plans to support multiple conformance levels in the future so that new tools can support only a subset of the overall specification and improve their support while still being officially recognized as part of the TOSCA ecosystem.

|  |  |
| --- | --- |
| Level  | Description |
| Mandatory | This level is required to be considered a valid TOSCA target. |
| recommended | This level is recommended to deliver support for some important TOSCA features. |
| optional | Optional prescription level is used to provide support for TOSCA experimental features or some TOSCA extentions. |

# Conformance coverage

The following table allows to validate that the various definitions and constraints of the specification document are covered by tests.

**Note:** some specification element may be covered in more than one test but the one(s) considered as most significant(s) and requiring the lower subset of overall coverage are referenced here.

| Spec. Ref. | Conformance document references (or assignee) | Target(s) | Note |
| --- | --- | --- | --- |
| 3 |  |  |  |
| 3.1 |  |  |  |
| 3.1.1 |  |  | Ensure no people can define a TOSCA alias for their namespace. |
| 3.1.2 |  | Parser |  |
| 3.1.3 |  |  | Namespace collision tests for every type, template and properties etc. |
| 3.2 |   |  | Parameters and property types support should be managed with property and constraint tests. |
| 3.2.1 |  |  | YAML types |
| 3.2.2 |  |  | Version |
| 3.2.3 |  |  | Range type |
| 3.2.4 |  |  | List type |
| 3.2.5 |  |  | Map type |
| 3.2.6 |  |  | Scalar-unit types |
| 3.3 |  |  | Normative values |
| 3.3.1 |  |  | Node States |
| 3.3.2 |  |  | Relationship states |
| 3.3.3 |  |  | Directives |
| 3.3.4 |  |  | Network name aliases |
| 3.4 | N.A |  | TOSCA Metamodel |
| 3.4.1 | N.A |  | Required Keynames |
| 3.5.1 |  |  | Description definition |
| 3.5.2 |  |  | Constraint clause |
| 3.5.3 |  |  | Property filter definition |
| 3.5.4 |  |  | Node filter definition |
| 3.5.5 |  |  | Repository definition |
| 3.5.6 |  |  | Artifact definition |
| 3.5.7 |  |  | Import definition |
| 3.5.8 |  |  | Property definition |
| 3.5.9 |  |  | Property assignment |
| 3.5.10 |  |  | Attribute definition |
| 3.5.11 |  |  | Attribute assignment |
| 3.5.12 |  |  | Parameter definition |
| 3.5.13 |  |  | Operation definition |
| 3.5.14 |  |  | Interface definition |
| 3.6 |  |  | Type-specific definitions |
| 3.6.1 |  |  | Capability definition |
| 3.6.2 |  |  | Requirement definition |
| 3.6.3 |  |  | Artifact Type |
| 3.6.4 |  |  | Interface Type |
| 3.6.5 |  |  | Data Type |
| 3.6.6 |  |  | Capability Type |
| 3.6.7 |  |  | Requirement Type |
| 3.6.8 |  |  | Node Type |
| 3.6.9 |  |  | Relationship Type |
| 3.6.10 |  |  | Group Type |
| 3.6.11 |  |  | Policy Type |
| 3.7.1 |  |  | Capability assignment |
| 3.7.2 |  |  | Requirement assignment |
| 3.7.3 |  |  | Node template |
| 3.7.4 |  |  | Relationship template |
| 3.7.5 |  |  | Group definition |
| 3.7.6 |  |  | Policy definition |
| 3.8 |  |  | Topology template definition |
| 3.9 |  |  | Service template definition |
| 4 |  |  | TOSCA functions |
| 4.1 |  |  | Reserved function keywords |
| 4.2 |  |  | Environment variable conventions |
| 4.2.1 |  |  | Reserved environment variable names and usage |
| 4.2.2 |  |  | Prefixed vs. Unprefixed TARGET names |
| 4.3 |  |  | Intrinsic functions |
| 4.3.1 |  |  | concat |
| 4.3.2 |  |  | token |
| 4.4 |  |  | Property functions |
| 4.4.1 |  |  | get\_input |
| 4.4.2 |  |  | get\_property |
| 4.5 |  |  | Attribute functions |
| 4.5.1 |  |  | get\_attribute |
| 4.6 |  |  | Operation functions |
| 4.6.1 |  |  | get\_operation\_output |
| 4.7 |  |  | Navigation functions |
| 4.7.1 |  |  | get\_nodes\_of\_type |
| 4.8 |  |  | Artifact functions |
| 4.8.1 |  |  | get\_artifact |
| 5 |  |  | TOSCA Normative type definitions |
| 5.2 |  |  | Data types |
| 5.2.1 |  |  | tosca.datatypes.Root |
| 5.2.2 |  |  | tosca.datatypes.Credential |
| 5.2.3 |  |  | tosca.datatypes.network.NetworkInfo |
| 5.2.4 |  |  | tosca.datatypes.network.PortInfo |
| 5.2.5 |  |  | tosca.datatypes.network.PortDef |
| 5.2.6 |  |  | tosca.datatypes.network.PortSpec |
| 5.3 |  |  | Artifact types |
| 5.3.1 |  |  | tosca.artifacts.Root |
| 5.3.2 |  |  | tosca.artifacts.File |
| 5.3.3 |  |  | Deployment types |
| 5.3.3.1 |  |  | tosca.artifacts.Deployment |
| 5.3.3.3 |  |  | tosca.artifacts.Deployment.Image |
| 5.3.3.4 |  |  | tosca.artifacts.Deployment.Image.VM |
| 5.3.4 |  |  | Implementation Types |
| 5.3.4.1 |  |  | tosca.artifacts.Implementation |
| 5.3.4.3 |  |  | tosca.artifacts.Implementation.Bash |
| 5.3.4.4 |  |  | tosca.artifacts.Implementation.Python |
| 5.4 |  |  | Capability Types |
| 5.4.1 |  |  | tosca.capabilities.Root |
| 5.4.2 |  |  | tosca.capabilities.Node |
| 5.4.3 |  |  | tosca.capabilities.Container |
| 5.4.4 |  |  | tosca.capabilities.Endpoint |
| 5.4.5 |  |  | tosca.capabilities.Endpoint.Public |
| 5.4.6 |  |  | tosca.capabilities.Endpoint.Admin |
| 5.4.7 |  |  | tosca.capabilities.Endpoint.Database |
| 5.4.8 |  |  | tosca.capabilities.Attachment |
| 5.4.9 |  |  | tosca.capabilities.OperatingSystem |
| 5.4.10 |  |  | tosca.capabilities.Scalable |
| 5.4.11 |  |  | tosca.capabilities.network.Bindable |
| 5.5 |  |  | Requirement Types |
| 5.6 |  |  | Relationship Types |
| 5.6.1 |  |  | tosca.relationships.Root |
| 5.6.2 |  |  | tosca.relationships.DependsOn |
| 5.6.3 |  |  | tosca.relationships.HostedOn |
| 5.6.4 |  |  | tosca.relationships.ConnectsTo |
| 5.6.5 |  |  | tosca.relationships.AttachesTo |
| 5.6.6 |  |  | tosca.relationships.RoutesTo |
| 5.7 |  |  | Interface Types |
| 5.7.3 |  |  | tosca.interfaces.Root |
| 5.7.4 |  |  | tosca.interfaces.node.lifecycle.Standard |
| 5.7.5 |  |  | tosca.interfaces.relationship.Configure |
| 5.8 |  |  | Node Types |
| 5.8.1 |  |  | tosca.nodes.Root |
| 5.8.2 | TODO: Parser should parse shorthand Names and Type URL names. | Parser | tosca.nodes.Compute |
| 5.8.3 |  |  | tosca.nodes.SoftwareComponent |
| 5.8.4 |  |  | tosca.nodes.WebServer |
| 5.8.5 |  |  | tosca.nodes.WebApplication |
| 5.8.6 |  |  | tosca.nodes.DBMS |
| 5.8.7 |  |  | tosca.nodes.Database |
| 5.8.8 |  |  | tosca.nodes.ObjectStorage |
| 5.8.9 |  |  | tosca.nodes.BlockStorage |
| 5.8.10 |  |  | tosca.nodes.Container.Runtime |
| 5.8.11 |  |  | tosca.nodes.Container.Application |
| 5.8.12 |  |  | tosca.nodes.LoadBalancer |
| 5.9 |  |  | Group Types |
| 5.9.1 |  |  | tosca.groups.Root |
| 5.10 |  |  | Policy Types |
| 5.10.1 |  |  | tosca.policies.Root |
| 5.10.2 |  |  | tosca.policies.Placement |
| 5.10.3 |  |  | tosca.policies.Scaling |
| 5.10.4 |  |  | tosca.policies.Update |
| 5.10.5 |  |  | tosca.policies.Performance |
| 6 |  |  | CSAR |
| 7 |  |  | TOSCA Networking |
|  |  |  |  |

# TOSCA Grammar test assertions

This section contains the test assertions for the TOSCA grammar validation (basically parser/validator). It follows the same structure as the Specification document section 3 in order to highlight specification test coverage and to allow implementors to refer to the right section of the specification.

## TOSCA Namespace URI and alias

### TOSCA Namespace prefix

### TOSCA Namespacing in TOSCA Service Templates

**Id:** 3.1.2-tosca\_definitions\_version-01-valid-definition

**Prerequisite:**

**Description:** Parsing a document with valid tosca definition version MUST succeed.

**Target:** a tosca template that has a valid tosca\_definitions\_version value equals to 'tosca\_simple\_yaml\_1\_0'

**Predicate:** When parsing the template assert 'tosca\_definitions\_version' value is equal to 'http://docs.oasis-open.org/tosca/ns/simple/yaml/1.0' or 'tosca\_simple\_yaml\_1\_0'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.1.2-tosca\_definitions\_version-02-valid-definition-url

**Prerequisite:**

**Description:** Parsing a document with valid tosca definition version defined as an url MUST succeed

**Target:** a tosca template that has a valid tosca\_definitions\_version value equals to 'http://docs,oasis-open,org/tosca/ns/simple/yaml/1,0'

**Predicate:** When parsing the template assert 'tosca\_definitions\_version' value is equal to 'http://docs.oasis-open.org/tosca/ns/simple/yaml/1.0' or 'tosca\_simple\_yaml\_1\_0'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.1.2-tosca\_definitions\_version-03-invalid

**Prerequisite:**

**Description:** Parser SHOULD be failing if tosca\_definitions\_version is not valid.

**Target:** a tosca template that has an invalid tosca\_definitions\_version value equals to 'not\_tosca\_simple\_yaml\_1\_0'

**Predicate:** When parsing the template assert raises the error 'InvalidTOSCAVersion'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.1.2-tosca\_definitions\_version-04-missing

**Prerequisite:**

**Description:** Parsing a document without tosca definition version MUST fail.

**Target:** a tosca template that does not define tosca\_definitions\_version

**Predicate:** When parsing the template assert raises the error 'MissingTOSCAVersion'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.1.2-tosca\_definitions\_version-05-not\_first\_line

**Prerequisite:**

**Description:** Parsing a document where tosca definition is not the first line version SHOULD fail.

**Target:** a tosca template where description is defined before tosca\_definitions\_version

**Predicate:** When parsing the template assert raises the error 'TOSCAVersionMustBeFirstLine'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

### Rules to avoid namespace collisions

## Parameter and property types

### Referenced YAML Types

### TOSCA version

### TOCSA range type

### TOSCA list type

### TOSCA map type

### TOCSA scalar-unit type

## Normative values

### Node States

### Relationship States

### Directives

### Network Name aliases

## TOSCA Metamodel

### Required Keynames

## Reusable modeling definitions

### Description definition

**Id:** 3.5.1-description-01-valid\_single\_line

**Prerequisite:**

**Description:** Parsing a document with valid description MUST succeed.

**Target:** a tosca template that has a valid description value equals to 'This is an example of a single line description [no folding],'

**Predicate:** When parsing the template assert 'description' value is equal to 'This is an example of a single line description (no folding).'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.5.1-description-02-valid\_multi\_line

**Prerequisite:**

**Description:** Parsing a document with valid multi-line description MUST succeed.

**Target:** a tosca template that has a valid multi-line description value equals to 'This is an example of a multi-line description using YAML, It permits for line breaks for easier readability,,, if needed, However, [multiple] line breaks are folded into a single space character when processed into a single string value,'

**Predicate:** When parsing the template assert 'description' value is equal to 'This is an example of a multi-line description using YAML. It permits for line breaks for easier readability... if needed. However, (multiple) line breaks are folded into a single space character when processed into a single string value.'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.5.1-description-03-invalid

**Prerequisite:**

**Description:** Parser MUST fail if description is not a string.

**Target:** a tosca template where the description value is a complex yaml value [map/list]

**Predicate:** When parsing the template assert raises the error 'InvalidType'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

### Constraint clause

### Property Filter definition

### Node Filter definition

### Repository definition

**Id:** 3.5.5-repositories-01-valid-definition

**Prerequisite:**

**Description:** Parsing a document with valid repository MUST succeed.

**Target:** a tosca template that defines a valid repository definition

**Predicate:** When parsing the template Then The repository out of the parsing assert 'description' value is equal to 'A repository' assert 'url' value is equal to 'https://github.com/my-project/' assert 'credential.user' value is equal to 'username' assert 'credential.token' value is equal to 'password'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.5.5-repositories-02-valid-simple-definition

**Prerequisite:**

**Description:** Parsing a document with valid repository MUST succeed.

**Target:** a tosca template that defines a valid single line repository

**Predicate:** When parsing the template Then The repository out of the parsing assert 'url' value is equal to 'https://github.com/my-other-project/'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.5.5-repositories-03-no-url

**Prerequisite:**

**Description:** Parsing a document that defines a repository without url SHOULD fail.

**Target:** a tosca template that defines a repository definition without url

**Predicate:** When parsing the template assert raises the error 'MissingRequiredKeyname'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

### Artifact definition

### Import definition

**Id:** 3.5.7-imports-01-simple-relative

**Prerequisite:** TODO Add reference to the node template parsing test.

**Description:** Parsing a document with an single line import from a relative file MUST be successful.

**Target:** a tosca template that defines a valid single line import to a relative file

**Predicate:** When parsing the template assert there is no errors

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.5.7-imports-02-relative

**Prerequisite:** TODO Add reference to the node template parsing test.

**Description:** Parsing a document with an import from a relative file MUST be successful.

**Target:** a tosca template that defines a valid single line import to a relative file

**Predicate:** When parsing the template assert there is no errors

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.5.7-imports-03-no-file

**Prerequisite:**

**Description:** Parsing a document with an import that does not specifies a file MUST fail.

**Target:** a tosca template that defines an import without a file key

**Predicate:** When parsing the template assert raises the error 'MissingRequiredKeyname'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.5.7-imports-04-missing-relative-file

**Prerequisite:**

**Description:** Parsing a document with an import that points to a local missing file SHOULD fail.

**Target:** a tosca template that defines an import that points to a local missing file

**Predicate:** When parsing the template assert raises the error 'MissingImportFile'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.5.7-imports-05-simple-url

**Prerequisite:** TODO Add reference to the node template parsing test.

**Description:** Parsing a document with an single line import from a remote file MUST be successful.

**Target:** a tosca template that defines a valid single line import to a remote file

**Predicate:** When parsing the template assert there is no errors

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.5.7-imports-06-missing-remote-file

**Prerequisite:**

**Description:** Parsing a document with an single line import from a remote file that does not exists SHOULD fail.

**Target:** a tosca template that defines a valid single line import to a remote file that does not exists

**Predicate:** When parsing the template assert raises the error 'MissingImportFile'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.5.7-imports-07-repository-remote

**Prerequisite:** TODO Add reference to the node template parsing test.

**Description:** Parsing a document with an single line import from a remote file MUST be successful.

**Target:** a tosca template that defines an import to a remote file resolved through a repository definition

**Predicate:** When parsing the template assert there is no errors

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.5.7-imports-08-missing-repository-remote

**Prerequisite:**

**Description:** Parsing a document with an import to a remote file resolved through a missing repository definition SHOULD fail.

**Target:** a tosca template that defines an import to a remote file resolved through a missing repository definition

**Predicate:** When parsing the template assert raises the error 'MissingImportFile' assert raises the error 'UnknownRepository'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.5.7-imports-09-unreachable-repository-remote

**Prerequisite:**

**Description:** Parsing a document with an import to a missing remote file resolved through a repository definition SHOULD fail.

**Target:** a tosca template that defines an import to a missing remote file resolved through a repository definition

**Predicate:** When parsing the template assert raises the error 'MissingImportFile'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

### Property definition

### Property assignment

### Attribute definition

### Attribute assignment

### Parameter definition

### Operation definition

### Interface definition

## Type-specific definitions

### Capability definition

### Requirement definition

### Artifact Type

**Id:** 3.6.3-artifact\_type-01-valid\_simple

**Prerequisite:**

**Description:** This test ensure that the parser is able to parse a TOSCA artifact type. The version keyname is not defined as it's usage is not defined in the specification. The properties keyname is as well not defined as it's usage is also not defined in the specification.

**Target:** a tosca template that defines a valid artifact\_type with all keynames but version and properties

**Predicate:** When parsing the template assert there is no errors

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.6.3-artifact\_type-02-valid\_all\_keynames

**Prerequisite:**

**Description:** This test ensure that the parser is able to parse a TOSCA artifact type where all keynames are defined.

**Target:** a tosca template that defines a valid artifact\_type with all keynames

**Predicate:** When parsing the template assert there is no errors

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.6.3-artifact\_type-03-no\_root\_inherited

**Prerequisite:**

**Description:** This test ensure that the parser is able to parse a TOSCA artifact type where all keynames are defined.

**Target:** a tosca template that defines a valid artifact\_type with only the description

**Predicate:** When parsing the template assert there is no errors optional assert raises the warning 'WarnNotInheritFromRoot'

**Prescription level:** preferred

**Conformance target:** Parser-Validator

**Id:** 3.6.3-artifact\_type-04-unknown\_parent\_type

**Prerequisite:**

**Description:** Parsing an artifact type that derives from an unknown type should fail.

**Target:** a tosca template that defines an artifact\_type with derived\_from set to 'tosca,test,UnknownType' and no imports

**Predicate:** When parsing the template assert raises the error 'MissingArtifactType'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

### Interface Type

**Id:** 3.6.4-interface\_type-01-all-keynames

**Prerequisite:**

**Description:** Parsing an interface type that defines all keynames should be successful.

**Target:** a tosca template that defines a valid interface type with all keynames

**Predicate:** When parsing the template assert there is no errors

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.6.4-interface\_type-02-only-required-keynames

**Prerequisite:**

**Description:** Parsing an interface type with required keynames only should be successful.

**Target:** a tosca template that defines a valid interface type with no optional keynames

**Predicate:** When parsing the template assert there is no errors optional assert raises the warning 'WarnNotInheritFromRoot'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.6.4-interface\_type-03-inputs-operation

**Prerequisite:**

**Description:** Parsing an interface type with an operation mapped to the inputs keyname should fail

**Target:** a tosca template that defines interface type with an operation mapped to the inputs keyname

**Predicate:** When parsing the template assert raises the error 'InvalidSyntax'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

### Data Type

**Id:** 3.6.5-data\_type-01-complex\_type

**Prerequisite:**

**Description:** Parsing a data type that defines a complex type should be successful.

**Target:** a tosca template that defines a valid 'tosca,example,types,Person' data\_type with a description, 2 string properties and 1 integer property

**Predicate:** When parsing the template assert there is no errors

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.6.5-data\_type-02-complex\_type\_derived

**Prerequisite:**

**Description:** Parsing a data type that defines a complex type that derives from another one should be successful.

**Target:** a tosca template that defines a valid 'tosca,example,types,Person' data\_type and a 'tosca,example,types,AdvancedPerson' that derives from the 'tosca,example,types,Person' type and override the a string property to add a min\_length constraint and add a new string property

**Predicate:** When parsing the template assert there is no errors

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.6.5-data\_type-03-complex\_type\_derived\_unknown

**Prerequisite:**

**Description:** Parsing a data type that defines a complex type that derives from an unknown complex type should fail.

**Target:** a tosca template that defines a valid 'tosca,example,types,Person' that derives from an unknown data type

**Predicate:** When parsing the template assert raises the error 'InvalidParentType'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.6.5-data\_type-04-complex\_type\_complex\_property

**Prerequisite:**

**Description:** Parsing a data type that defines a complex type using another complex type should be successful.

**Target:** a tosca template that defines a 'tosca,example,types,Address' data type and a 'tosca,example,types,Person' data type that defines a property of type 'tosca,example,types,Address'

**Predicate:** When parsing the template assert there is no errors

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.6.5-data\_type-04-complex\_type\_complex\_property

**Prerequisite:**

**Description:** Parsing a data type that defines a complex type using another unknown complex type should fail.

**Target:** a tosca template that defines a 'tosca,example,types,Person' data type that defines a property of type 'tosca,test,UnknownType' with no imports

**Predicate:** When parsing the template assert raises the error 'UnknownDataType'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.6.5-data\_type-06-complex\_type\_list\_property\_complex

**Prerequisite:**

**Description:** Parsing a data type that defines a complex type with a list of another complex type should be successful.

**Target:** a tosca template that defines a 'tosca,example,types,Address' data type and a 'tosca,example,types,Person' data type that defines a property of type list of 'tosca,example,types,Address'

**Predicate:** When parsing the template assert there is no errors

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.6.5-data\_type-07-complex\_type\_list\_property\_type\_unknown

**Prerequisite:**

**Description:** Parsing a data type that defines a complex type with a list of another unknown complex type should fail.

**Target:** a tosca template that defines a 'tosca,example,types,Address' data type and a 'tosca,example,types,Person' data type that defines a property of type list of a type that is neither normative or a defined data type

**Predicate:** When parsing the template assert raises the error 'UnknownDataType'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.6.5-data\_type-08-complex\_type\_map\_property\_complex

**Prerequisite:**

**Description:** Parsing a data type that defines a complex type with a map of another complex type should be successful.

**Target:** a tosca template that defines a 'tosca,example,types,Address' data type and a 'tosca,example,types,Person' data type that defines a property of type map of 'tosca,example,types,Address'

**Predicate:** When parsing the template assert there is no errors

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.6.5-data\_type-09-complex\_type\_map\_property\_type\_unknown

**Prerequisite:**

**Description:** Parsing a data type that defines a complex type with a map of another unknown complex type should fail.

**Target:** a tosca template that defines a 'tosca,example,types,Address' data type and a 'tosca,example,types,Person' data type that defines a property of type map of a type that is neither normative or a defined data type

**Predicate:** When parsing the template assert raises the error 'UnknownDataType'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.6.5-data\_type-10-extend\_native

**Prerequisite:**

**Description:** Parsing a data type that extends a native type with constraints should be successful.

**Target:** a tosca template that defines three data types extented from string each adding some constraints to it

**Predicate:** When parsing the template assert there is no errors

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.6.5-data\_type-11-extend\_native\_add\_properties

**Prerequisite:**

**Description:** Parsing a data type that adds properties to a native type should fail.

**Target:** a tosca template that defines a data types extented from string and that add properties

**Predicate:** When parsing the template assert raises the error 'InvalidNativeTypeExtend'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

### Capability Type

**Id:** 3.6.6-capability\_types-01-valid

**Prerequisite:**

**Description:** Parsing a capability type with all keynames should be successful.

**Target:** a tosca template that defines a valid capability type with all keynames

**Predicate:** When parsing the template assert there is no errors

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.6.6-capability\_types-02-valid-required-only

**Prerequisite:**

**Description:** Parsing a capability type with required keynames only should be successful.

**Target:** a tosca template that defines a valid capability type with no optional keynames

**Predicate:** When parsing the template assert there is no errors optional assert raises the warning 'WarnNotInheritFromRoot'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.6.6-capability\_types-03-unknown-parent-type

**Prerequisite:**

**Description:** Parsing a capability type that derives from an unknown capability type should fail.

**Target:** a tosca template that defines a valid capability type that derives from an unknown capability type

**Predicate:** When parsing the template assert raises the error 'InvalidParentType'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.6.6-capability\_types-04-unknown-source-type

**Prerequisite:**

**Description:** Parsing a capability type that defines a capability type with an unknown source type should fail.

**Target:** a tosca template that defines a capability type with an unknown source type

**Predicate:** When parsing the template assert raises the error 'UnknownCapabilityType'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

### Requirement Type

### Node Type

### Relationship Type

### Group Type

### Policy Type

## Template-specific definitions

### Capability assignment

### Requirement assignment

### Node Template

### Relationship Template

### Group definition

### Policy definition

## Topology Template definition

### Keynames

### Grammar

## Service Template definition

### Keynames

**Id:** 3.9.1.1-metadata-01-valid

**Prerequisite:**

**Description:** Parsing a valid metadata section MUST succeed.

**Target:** The 'metadata' value out of the parsing

**Predicate:** When parsing the template assert 'template\_name' value is equal to 'tosca\_meta\_data\_test'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

### Grammar

### Top-level keyname definitions

**Id:** 3.9.3.3-metadata-02-complex\_template\_name\_metadata

**Prerequisite:**

**Description:** Parser should be fail if metadata is a complex yaml value and template\_name type is a string.

**Target:** a tosca template that has a complex yaml value [map/list] defined for template\_name metadata

**Predicate:** When parsing the template assert raises the error 'InvalidType'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.9.3.4-metadata-03-complex\_template\_author\_metadata

**Prerequisite:**

**Description:** Parser should be fail if metadata is a complex yaml value and template\_author type is a string.

**Target:** a tosca template that has a complex yaml value [map/list] defined for template\_author metadata

**Predicate:** When parsing the template assert raises the error 'InvalidType'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.9.3.5-metadata-04-version\_metadata\_type

**Prerequisite:**

**Description:** Parser shoud fails when template\_version metadata is not a version type

**Target:** a tosca template that has a non-version value defined for template\_version metadata

**Predicate:** When parsing the template assert raises the error 'ValueTypeMismatch'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.9.3.7-dsl\_definitions-01-valid

**Prerequisite:** TODO Add reference to the node template parsing test.

**Description:** Parsing a document with valid dsl\_definitions version MUST succeed.

**Target:** a tosca template that has a valid dsl\_definitions

**Predicate:** When parsing the template assert there is no errors

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.9.3.7-dsl\_definitions-02-invalid-value-type

**Prerequisite:** TODO Add reference to the node template parsing test.

**Description:** Parsing a document with valid dsl\_definitions that contains wrong values MUST fail.

**Target:** a tosca template that has a valid dsl\_definitions which defines incorrect value types

**Predicate:** When parsing the template assert raises the error 'ValueTypeMismatch'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator

**Id:** 3.9.3.7-dsl\_definitions-03-unknown-definition

**Prerequisite:** TODO Add reference to the node template parsing test.

**Description:** Parsing a document with valid dsl\_definitions and wrong reference MUST fail.

**Target:** a tosca template that refers to an unknown dsl\_definition

**Predicate:** When parsing the template assert raises the error 'UnknownDslDefinition'

**Prescription level:** mandatory

**Conformance target:** Parser-Validator