

Conformance Semantics

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Discussion

Conformance semantics defines meaning through conformance criteria, validation rules, test cases, expected results, permitted results, prohibited results, and acceptance conditions.

Conformance semantics identifies what an artefact, implementation, model, message, report, schema, rule, or runtime behaviour means when evaluated against a specified requirement or specification. A conformance test expresses semantic content because it distinguishes acceptable interpretation from unacceptable interpretation.

Conformance semantics depends on [traceability](#) to the requirement, rule, policy, [conceptual model](#), [semantics](#), [schema](#), [ontology](#), [report](#), or other authoritative source that establishes the intended meaning.

Conformance semantics prevents implementation behaviour from becoming the hidden source of meaning. A governed specification defines the meaning first, then defines conformance criteria that test whether an artefact preserves that meaning.

Conformance semantic content includes:

- Conformance criteria
- Validation rules
- Test cases
- Expected results
- Permitted results
- Prohibited results
- Acceptance conditions
- Rejection conditions
- Positive tests
- Negative tests
- Test evidence
- Evaluation procedures
- Conformance levels
- Conformance claims
- Traceability to requirements and semantic sources

Definition

meaning defined through criteria, tests, expected results, and acceptance conditions that distinguish conforming interpretation or behaviour from non-conforming interpretation or behaviour

Source

DIDO Solutions usage, informed by conformance testing practice, specification governance, validation practice, model-driven architecture principles, and semantic traceability practice.

Note

Conformance semantics is not equivalent to implementation testing alone. Implementation tests execute checks. Conformance semantics defines what the result of those checks means with respect to a specification, requirement, rule, policy, model, report, schema, ontology, or other governed semantic source.

Example

An FX Demo specification defines the following semantic rule:

A confirmed FX trade has a settlement date that does not precede the trade date.

The rule expresses domain meaning. It states that a confirmed trade with a settlement date before the trade date represents an invalid lifecycle interpretation, not merely an unusual calendar arrangement.

A conformance test expresses this meaning as an evaluation condition:

Test element	Value
Test subject	Confirmed FX trade message
Input trade identifier	Trade - 123
Trade date	2026-07-07
Settlement date	2026-07-05
Lifecycle state	Confirmed
Expected result	Reject
Rejection reason	Settlement date precedes trade date
Semantic source	FX trade lifecycle rule
Conformance interpretation	The trade message does not conform to the required lifecycle semantics

The test result carries conformance semantics because it explains what the failed check means. The rejected message does not merely contain a date comparison failure. The rejected message violates the defined meaning of a confirmed FX trade.

A second test provides the conforming case:

Test element	Value
Test subject	Confirmed FX trade message

Test element	Value
Input trade identifier	Trade - 124
Trade date	2026-07-07
Settlement date	2026-07-09
Lifecycle state	Confirmed
Expected result	Accept
Acceptance reason	Settlement date does not precede trade date
Semantic source	FX trade lifecycle rule
Conformance interpretation	The trade message conforms to the required lifecycle semantics

Together, the positive and negative tests define the boundary between conforming and non-conforming interpretation. The tests make the semantic rule testable, repeatable, and traceable.

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