Sequence Step

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Discussion

A Sequence Step identifies an occurrence of a Sequenced Test Object at a particular position within a Test Sequence.

A Sequence Step references one Sequenced Test Object, such as a:

- Test Set
- Test Case
- Test Step
- Test Executable

A Sequence Step can identify:

- Its identity
- Its name
- Its description
- Its referenced Sequenced Test Object
- Its applicable Test Argument Values
- Its applicable Expected Results
- Its applicable Test Items
- Its preconditions
- Its starting condition
- Its completion condition
- Its failure condition
- Its timeout
- Its permitted following Sequence Steps
- Its progression conditions
- Its error-handling path
- Its applicable Governance Policies
- Its Provenance
- Its Traceability

A Sequence Step can use Test Argument Values to supply occurrence-specific inputs to the referenced Sequenced Test Object.

A Sequence Step can also establish progression to one or more following Sequence Steps. Progression can depend on:

- Completion of the current Sequence Step
- A Test Result
- A Verdict
- A measured value
- An observed event

- A timeout
- An error
- Another defined condition

Definition

position within a Test Sequence that references an occurrence of a Sequenced Test Object and identifies permitted progression

Source

Adapted from:

- OMG Test Information Interchange Format (TestIF), Version 1.0 Beta 3, Section 7.3.4, SequenceStep
- Test Sequence
- Sequenced Test Object
- Test Argument Value
- DIDO Reference Implementation Conceptual Model
- DIDO-TE draft Requirements Register

OMG TestIF defines SequenceStep as a directed-graph node contained within a TestSequence. The SequenceStep references the SequencedTestObject represented at that position and identifies the SequenceSteps that can follow it.

OMG TestIF also permits a SequenceStep to provide ArgumentValues for the input variables of its referenced SequencedTestObject.

This definition preserves those characteristics while describing Sequence Step independently of a specific graph-storage or implementation technology.

Note

A Sequence Step differs from a Test Step:

- A Test Step specifies a reusable test action or Validation
- A Sequence Step identifies an occurrence of a Sequenced Test Object at a particular position within a Test Sequence

A Sequence Step can reference a Test Step, but the Sequence Step and Test Step remain separate objects.

The same Test Step can occur at multiple positions within one Test Sequence. Each occurrence uses a separate Sequence Step.

A Sequence Step differs from a Test Sequence:

- A Test Sequence defines the overall order and progression
- A Sequence Step identifies one position within that progression

A Sequence Step differs from a Sequenced Test Object:

- A Sequenced Test Object defines reusable test content
- A Sequence Step identifies an occurrence of that content within a Test Sequence

The same Sequenced Test Object can participate in:

- Multiple Test Sequences
- Multiple positions within one Test Sequence
- Multiple branches within one Test Sequence
- Multiple Test Runs

Each Sequence Step can provide different Test Argument Values, Expected Results, progression conditions, or other occurrence-specific information.

A Sequence Step does not copy or redefine the referenced Sequenced Test Object. It supplies the information needed to use that object at a particular position.

Multiple initial Sequence Steps can identify parallel starting paths.

Multiple following Sequence Steps can identify:

- Parallel progression
- Conditional progression
- Alternative paths
- Error-handling paths

The Test Sequence must provide sufficient conditions to distinguish parallel progression from conditional or alternative progression.

A Sequence Step defines permitted progression. The applicable Test Run records the progression that actually occurred during Test Execution.

A Test Result can reference both:

- The Sequenced Test Object whose performance produced the outcome
- The Sequence Step that identifies the particular occurrence of that object

This dual reference distinguishes results produced by multiple occurrences of the same Sequenced Test Object.

Example

A reusable Test Step submits a proposed transaction to a Node.

A Test Sequence contains three Sequence Steps that reference the same Test Step:

- Sequence Step `SS-01` supplies the Endpoint and identity of Node A
- Sequence Step `SS-02` supplies the Endpoint and identity of Node B

- Sequence Step SS-03 supplies the Endpoint and identity of Node C

Each Sequence Step supplies occurrence-specific Test Argument Values while reusing the same Test Step.

During Test Execution, the Test Run records:

- Whether each Sequence Step occurred
- The Test Argument Values used for each occurrence
- The start time and completion time of each occurrence
- The Test Result produced by each occurrence
- The Verdict assigned to each Test Result
- The progression path followed after each occurrence
- The supporting Evidence

Although all three Sequence Steps reference the same Test Step, each Test Result remains traceable to the particular Node and Sequence Step that produced it.
