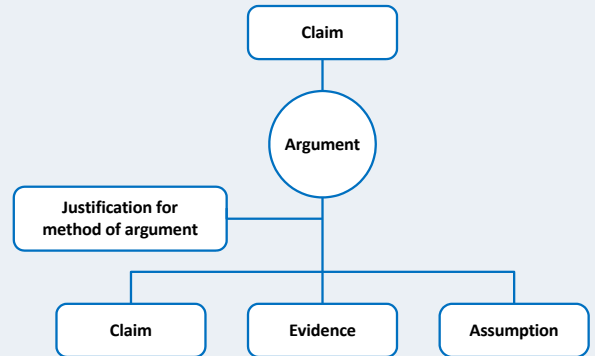
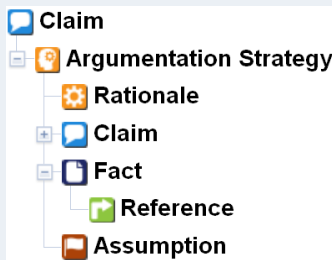


ISO/IEC 15026 "Systems and software assurance" defines requirements for assurance case structure and contents. The standard is also published as IEEE Std 15026.

Diagram to the right presents main components and relations in an assurance case as defined in ISO/IEC 15026. TRUST-IT assurance case is a tree-like structure developing from the left to the right.



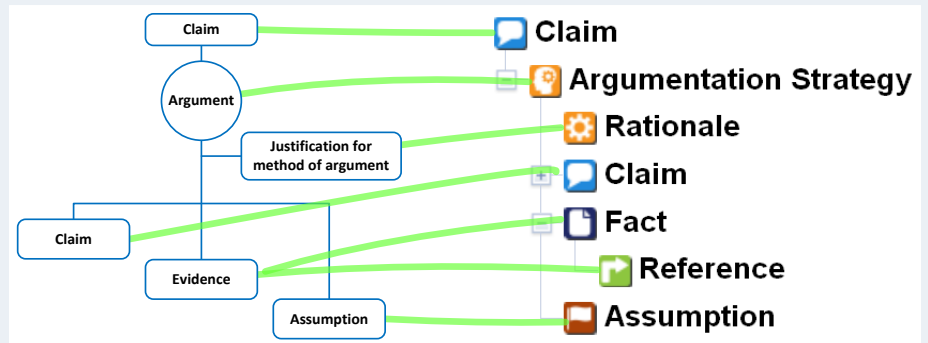
Derived from ISO/IEC TR 15026-1:2010, page 23, figure 3



Evidence is presented by **Fact** and **Reference** nodes. The reference points to any external document which submits evidence to the assurance case.

Claim is always linked to the corresponding **Argumentation Strategy** and its **Rationale** (justification). Argumentation strategy refers to more specific claims, facts and assumptions.

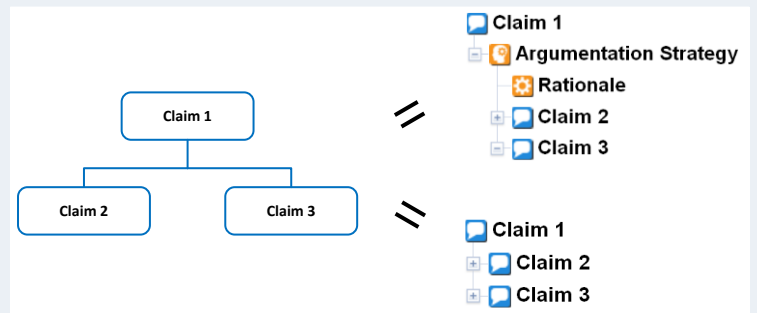
Mapping of ISO/IEC 15026 assurance case structure to TRUST-IT is presented in the diagram to the right.



Situation where a claim is directly supported by an evidence (permitted by ISO/IEC 15026) can be represented in TRUST-IT in two ways (illustrated in the figure on the left). The actual choice depends on the analyst's judgment.

ISO/IEC 15026 allows a claim to be supported directly by other claims without explicit argument.

TRUST-IT always requires an explicit argument strategy to be provided. However, the viewing functionality provides for hiding argument nodes from the user (see the diagram on the right).











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ISO/IEC 15026-2 specifies minimum requirements for the structure and contents of an assurance case. It requires an assurance case to include unambiguous mapping to the components and relationships in Clause 6 of the standard.

Mapping assurance case components

ISO/IEC 15026-2		Corresponding TRUST-IT assurance case component
Clause	Component	
6.3	Claim	 Claim – a true-false statement that requires argumentation and evidence to demonstrate that it is satisfied
6.3.4	Justification of the choice of top-level claims	 Information labelled 'Justification'
6.4	Argument	 Argumentation Strategy  Counter-argumentation Strategy
6.4.2	Justification of argument	 Rationale
6.5	Evidence	 Fact – a statement describing the evidence  Reference to external evidence (documentation)
6.6	Assumption	 Assumption

Mapping assurance case structure

Notation "**A** ← **B**" denotes relation when **A** is supported by **B**, for example argument supported by evidence.

ISO/IEC 15026-2		Corresponding TRUST-IT assurance case relation
Clause	Relation	
6.2.a	One or more top-level claims	One or more top-level claims
6.2.c	Claim ← Argument	Claim ← Argumentation Strategy
	Claim ← Evidence, Claim(s), Assumption(s)	TRUST-IT requires claims to be supported by argumentation strategy, not directly by the evidence, assumptions and other claims: Claim ← Argumentation Strategy ← ← Fact(s), Claim(s), Assumption(s) A proposition supported directly by evidence is represented as a fact: Fact ← Reference(s)
6.2.b	Argument ← Evidence, Claim(s), Assumption(s)	Argumentation Strategy ← Fact(s), Claim(s), Assumption(s) where evidence is represented by Reference related to fact: Fact ← Reference(s)
6.4.2	Argument ← Justification	Argumentation Strategy ← Rationale
6.5.3	Evidence ← Assumption(s)	Assumptions are related to argument strategies. Any assumption that relates to an argument strategy is valid for its subordinate evidence: Argumentation Strategy ← Assumption(s) Argumentation Strategy ← Fact(s) ← Reference(s)
6.6.3	Assumption ← Evidence	Assumption ← Reference(s)
6.3.4	Top-level Claim ← Justification	Top-level Claim ← Information node labelled 'Justification'
1	Linking assurance case components: " [The standard] places no requirements on the means of physical implementation [...], including no requirements for redundancy"	TRUST-IT system provides for: – linking between assurance case components to re-use parts of the argument structure – copy-paste operations on components and corresponding subtrees
6.8	Combining assurance cases: "incorporated assurance case's top-level claim or claims shall each be placed within the original assurance case's structure at points where claims are allowed"	TRUST-IT system provides for: – links between different assurance cases maintained by the system (with some restrictions) – using textual references to other assurance cases outside the system

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