SAF User Documentation : System Requirement Viewpoint

Domain	Aspect	Maturity
Functional	Requirement	released

Example

#	Id	Name	Applied Stereotype	Text	Requirement Derived FROM	Source
1		Fire Detection				
2	SYS-REQ-001	24/7 Forest Fire Detection	SAF_SystemFunctionalRequirement [Class]	The FFDS system shall allow a forest fire detection day & night.		SDS
3	SYS-REQ-002	Forest Fire Detection	SAF_SystemFunctionalRequirement [Class]	The FFDS system shall allow a forest fire detection acquiring data collected by terrestrial-based and aerial-based systems.	CPBLTY-11 Fire Detection	SDS
4	SYS-REQ-002.1	Smoke and Fire Detection	SAF_SystemFunctionalRequirement [Class]	The FFDS system shall allow querying and analysis of the provided sensor data using a smoke and fire detection algorithm.		SDS
5	SYS-REQ-002.2	Smoke and Fire Alert	SAF_SystemFunctionalRequirement [Class]	When a forest fire is detected, the FFDS system shall allow to warn FFDS operator, the Fire Department, and other interacting agents about the danger.		SDS
6		Fire Monitoring				
7	SYS-REQ-003	Forest Fire Evolution Monitoring	SAF_SystemFunctionalRequirement [Class]	In the event of a forest fire, the FFDS system shall allow a specific area of interest observation interacting with aerial-based systems.	CPBLTY-12 Fire Monitoring	SDS
8		Fire Prediction				
9	SYS-REQ-004	Forest Fire Spread Prediction	SAF_SystemFunctionalRequirement [Class]	In the event of a forest fire, the FFDS system shall allow a fire spread prediction using empirical and physical fire spread models.	CPBLTY-25 Propagation Estimation	SDS
10		Fire Assessment				
11	SYS-REQ-005	Forest Fire Damage Assessment	SAF_SystemFunctionalRequirement [Class]	For evaluating the impacts of forest fire in landscape and biodiversity the FFDS system shall allow the determination of burned and fire affected areas using digital image processing of pre- and post-fire images.		SDS

Purpose

The System Requirement Viewpoint specifies functions, non-functional properties, or constraints of the System. System Requirements are captured, the interrelationships between Functional and Non-Functional Requirements on the same level of abstraction and the traceability to Stakeholder Requirements are depicted.

Applicability

The System Requirement Viewpoint supports the "System Requirements Definition Process" activities of the INCOSE SYSTEMS ENGINEERING HANDBOOK 2015 [§4.3] and contributes to the System Requirements Verification and Traceability Matrix (RVTM).

Stakeholder

- Hardware Developer
- IV&V Engineer
- Project Manager
- Software Developer
- System Architect

Concern

- What are the Interface Requirements imposed on the system?
- What are the exchange requirements imposed on the system?
- What are the functional requirements imposed on the system?
- What are the non-functional requirements imposed on the system?
- What are the requirements of environmental conditions imposed on the system?
- What is the range of acceptable system performance, i.e. the critical, top-level performance requirements derived from the operational needs?
- Which Stakeholder Requirements are addressed by System Requirements?

Presentation

A System Requirement Table (RVTM), a tabular format, featuring

- unique requirement ID, text, and attributes
- traceability reference to Stakeholder Requirements
- traceability reference to depended requirements on the same abstraction level

Profile Model Reference

- SAF_SFV06a_View
- SAF_StakeholderRequirement
- SAF_SystemFunctionalRequirement
- SAF_SystemFunctionalRequirementConstraint
- SAF_SystemNonFunctionalRequirement
- SAF_SystemRequirement
- SAF_SystemRequirementDerivation
- SAF_SystemRequirementDerivation

Input from other Viewpoints

Required Viewpoints

- Stakeholder Requirement Viewpoint

Recommended Viewpoints

- Operational Story Viewpoint
- Operational Context Exchange Viewpoint
- Operational Capability Viewpoint
- Operational Process Viewpoint
- Operational Interaction Viewpoint
- Operational Capability Mapping Viewpoint
- Operational Process Mapping Viewpoint