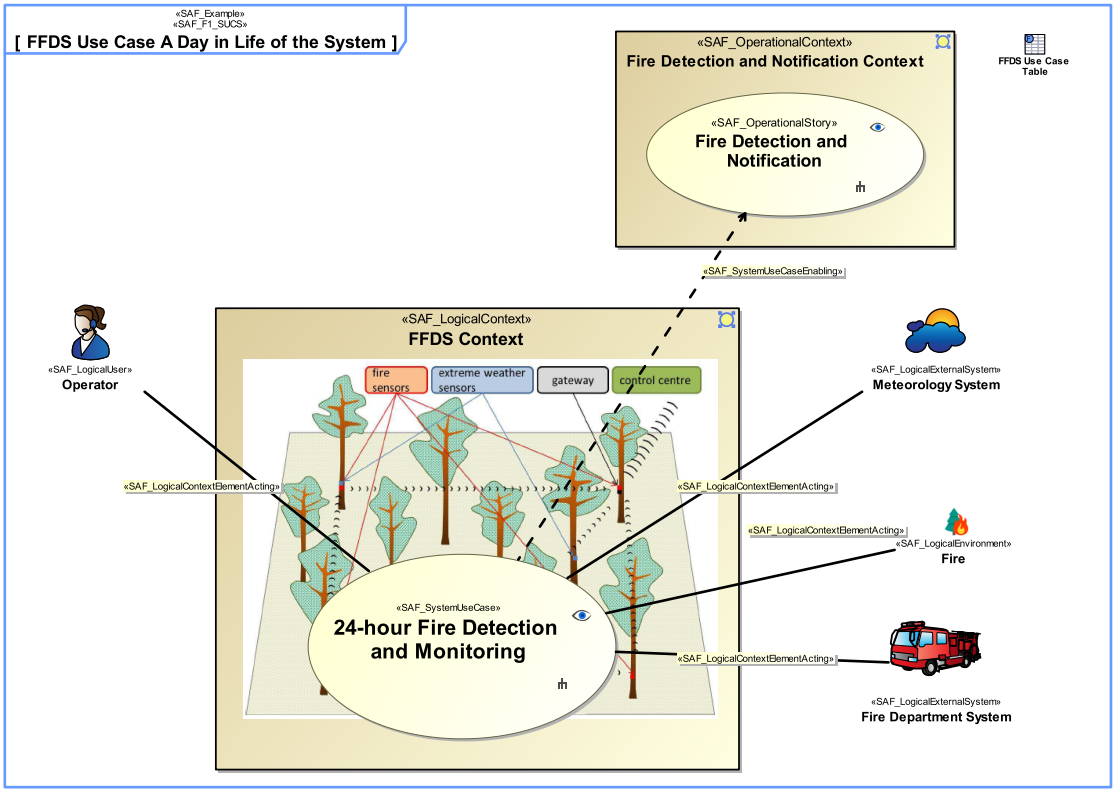
SAF User Documentation : F1_SUCS System Use Case Viewpoint

Domain	Aspect	Maturity
Functional	Context & Exchange	released

Example

#	Name	Applied Stereotype	Subject	Documentation	System Use Case Enabling
1	24-hour Fire Detection and Monitoring	SAF_SystemUseCase [UseCase]	FFDS Context	Purpose: A Day in the Life of the System. The system observes the Area of Interest, detects, monitors and reports forest fires. Trigger: Operator starts the observation loop. Result: Potential forest fire is reported.	Fire Detection and Notification
2	Detect and Report Fire	SAF_SystemUseCase [UseCase]	FFDS Context	Purpose: The Area of Interest is being observed, potential forest fires are being detected and reported to the Coordination Center. Trigger: TbD Result: TbD	
3	Ping a Sensor Node	SAF_SystemUseCase [UseCase]	FFDS Context	Purpose: Select and contact a sensor to check if it is alive. Trigger: Operator starts the ping service. Result: Sensor is alive and responded the ping.	
4	Add a Sensor Node	SAF_SystemUseCase [UseCase]	FFDS Context	Purpose: Trigger: Result:	
5	Remove a Sensor Node	SAF_SystemUseCase [UseCase]	FFDS Context	Purpose: Trigger: Result:	
6	Run Observation Test	SAF_SystemUseCase [UseCase]	FFDS Context	Purpose: Run a observation loop to test components with simulated forest fires. Trigger: Operator is going to start the observation test. Result: Simulated forest fire is reported.	
7	Start the System	SAF_SystemUseCase [UseCase]	FFDS Context	Purpose: Start the system. Trigger: The operator is going to switched the system on. Result: System is in mode Operating.	
8	Switch to Test Mode	SAF_SystemUseCase [UseCase]	FFDS Context	Purpose: The system components and functions are going to be tested without triggering a real fire alarm. Test data is going to be injected into the system, for instance sensor data of a real forest fire. Trigger: Maintenance activates test mode. Result: System is in mode Test.	
9	Switch to Maintenance Mode	SAF_SystemUseCase [UseCase]	FFDS Context	Purpose: The system is going to be maintained. Components of the system could be switched off. No real forest fire alarms are triggered. Trigger: Maintenance activates maintenance mode. Result: System is in mode Maintenance.	
10	Stop the System	SAF_SystemUseCase [UseCase]	FFDS Context	Purpose: Switch off the system. Trigger: The operator is going to switched the system off. Result: System is shut down.	



Purpose

The System Use Case Viewpoint provides an outside view on the system functionality from the perspective of the system users and contributes to the definition of system requirements and system usage. The intended system use may be captured as free-text use case description, as well as storytelling approach on a coarse level of detail. The main system exchange partners participating in the intended system use are identified. System use cases are related to a specific system context. System use cases are derived from operational scenarios elaborated during mission analysis.

Applicability

The System Use Case Viewpoint supports the "Stakeholder Needs and Requirements Definition Process" and the "System Requirements Definition Process" activities of the INCOSE SYSTEMS ENGINEERING HANDBOOK 2023 [§2.3.5.2, §2.3.5.3] and contributes to the definition of the system boundary and the identification of the expected system function.

Presentation

A use case diagram featuring model elements representing System Use Cases, System Context, and System Context Elements. The System Context shall be used as subject of the use case. The System Context Elements playing a Role in the Use Case shall be connected to the Use Case by associations. Note: System Use Case pre- and postconditions shall be represented either by callout or compartment notation. Relationship to operational stories can be related to the use case in order trace to mission analysis.

A tabular format listing the System Use Cases, the System Use Case pre- and postconditions, the System Context, and the System Context Elements. Additionaly, the relationship to operational stories, if applicable.

Stakeholder

- Acquirer
- Customer
- IV&V Engineer
- Operator
- Project Manager
- System Architect
- User

Concern

- For what purpose is the system developed or adapted?
- How is the system being used or utilized and interacting with other external systems to satisfy user needs?
- What has the system to accomplish for its users?
- Which are the system scenarios, i.e., course of action, for the system context in which the system solution will exist?
- Which users does the system support?

Profile Model Reference

The following Stereotypes / Model Elements are used in the Viewpoint:

- Attribute "PostConditionStates" of SAF_SystemUseCase referencing State
- Attribute "PreConditionStates" of SAF_SystemUseCase referencing State
- Attribute "subject" of UseCase referencing SAF_LogicalContext
- Include [UML_Standard_Profile]
- State [UML_Standard_Profile]
- SAF_F1_SUCS
- SAF_F1_SUCS_Table
- SAF_LogicalContextElementActing
- SAF_LogicalContext
- SAF_LogicalEnvironment
- SAF_LogicalExternalSystem
- SAF_LogicalUser
- SAF_SystemUseCaseEnabling
- SAF_SystemUseCase

Input from other Viewpoints

Required Viewpoints

- System Context Definition Viewpoint

Recommended Viewpoints

- Operational Context Definition Viewpoint