

SRS  
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# ARYA Testbench Requirement Specifications

**ABSTRACT:**

This document describes the requirement specifications of ARYA Testbench, a system designed to qualify the behaviour of different ESB.

**KEYWORDS:**

ARYA, Test, Requirement, specification

**APPROVED:**

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## Revision History

VERSION	DATE	AUTHOR	CHANGE DESCRIPTION
1.0	11/9/15	A Tamas-Leloup	Created the document from the template
1.1	11/16/15	Ya Wang	Added the diagrams and a few explanations
1.2	11/16/15	Ya Wang	Added the abstract
1.3	11/16/15	A Tamas-Leloup	Added the Non Functional Requirements
1.4	11/19/15	A Tamas-Leloup & Ya Wang	Worked on the System Requirements & Interfaces
1.5	11/19/15	A Tamas-Leloup	Completed the manage scenario part
1.6	11/21/15	Yuanbo Wang	Added node management
1.7	11/22/15	A Vey	Introduction and added launch scenario part
1.8	11/22/15	A Tamas-Leloup	Finalizing the document
1.9	01/20/15	Ya Wang	Review

# Table of Contents

- [1. Introduction](#)
  - [Purpose](#)
- [2. Overall Description](#)
  - [Overview](#)
  - [Actors view](#)
- [3. Functional Requirements](#)
  - [Overview](#)
  - [Manage scenarios](#)
    - [Introduction](#)
    - [Requirements](#)
  - [View Results](#)
    - [Introduction](#)
    - [Requirements](#)
  - [Execute a scenario](#)
    - [Introduction](#)
    - [Requirements](#)
  - [Node management](#)
    - [3.5.1 Introduction](#)
    - [3.5.2 Requirements](#)
- [4. Interface Requirements](#)
  - [Required Interfaces](#)
- [5. Non-Functional Requirements](#)
  - [Performance Requirements](#)
  - [Design Constraints](#)
  - [Safety Requirements](#)
  - [Security Requirements](#)
  - [Software Quality Attributes](#)
  - [Other Requirements](#)

# 1. Introduction

## 1.1 Purpose

The purpose of this document is to specify the software requirements for our PDL-SOA project. The system needs to implement the totality of the requirements and all the features specified by this document.

## 1.2 Scope

The scope of this document is to cover the requirements of an ESB simulating service, in which there are consumers and producers. The client can configure the services by choosing the number of web services, the message size, the frequency of request, etc. He can configure this with an XML file and see the results of the execution at the end.

## 1.3 Audience Description

This document shall be known, reviewed, used as a work basis by:

- client
- developer team
- designer of the project

This document has to be reviewed and validated by the requirements manager.

## 1.4 References

All references listed in this table are for internal Usage only.

TITLE	REFERENCE	VERSION	LOCATION
[1] ESB interoperability standards	1	1.0	<a href="http://download.boulder.ibm.com/ibmdl/pub/software/dw/specs/ws-esb-interop/ESB_Interop_Standards_WP_060208.pdf">http://download.boulder.ibm.com/ibmdl/pub/software/dw/specs/ws-esb-interop/ESB_Interop_Standards_WP_060208.pdf</a>

UPPER REQUIREMENTS	REFERENCE	VERSION	LOCATION
User Requirements	UR	1.0	DOORS

## 1.5 Definitions, Acronyms, and Abbreviations

TERM/ACRONYM	DEFINITION
ESB	Enterprise Service Bus
SRS	Software Requirements Specification
UR	User Requirements
SDD	Software Design Document
STD	Software Test Document
QAP	Quality Assurance Plan
UC	Use Case
DP	Design Pattern
SOA	Software Oriented Architecture
SOAP	Software Object Access Protocol
KPI	Key Performance Indicator
Producer	A service linked to the ESB which provides responses according to the request it receives
Consumer	An application which send requests via ESB to producers

## 1.6 Document Location

This document is located [here](#).

## 1.7 Problem Reporting

If you have any suggestions, improvements or modifications you can contact the requirement manager at: [yanchaowang@gmail.com](mailto:yanchaowang@gmail.com).

## 2 Overall Description

### 2.1 Overview

ESB is a technology that is becoming more and more popular. There are a lot of choices when a company want to deploy this technology: Mule, Camel, ServiceMix etc. It can be difficult to choose one from all these solutions, when you do not know their different performance, capabilities.

ARYA Testbench is a system which aims at making decisions on ESB choice easy for an enterprise.

Following is a brief introduction of the ARYA system. The different actors and use cases are shown in this diagram below.

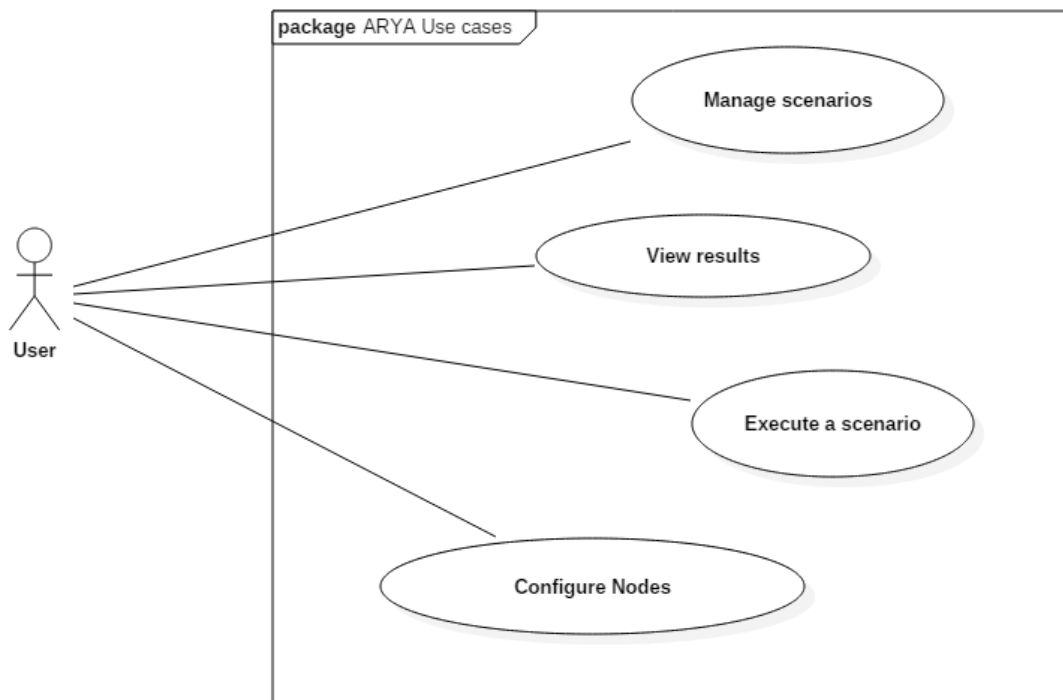


Figure 1: ARYA Use Case Diagram

## 2.2 Actors view

ACTOR	DESCRIPTION
User	This is the person who will be using our system in order to get the knowledge on a certain ESB. The user is the external actor.
ESB	This is the ESB solution that is being tested. We will use Mule ESB as our solution, but it can be replaced by other ESBs later. The ESB is the internal actor.

## 3. Functional Requirements

### 3.1 Overview

This section sums up in the below table the main features provided by ARYA, which will be detailed in the following sections.

We have categorized our requirements into 4 main use cases listed below, which will be detailed in a chapter with the same name.

MAIN FUNCTIONS	DESCRIPTION	ACTORS
Manage Scenarios	Users carry out management work on the scenarios	Users
View Results	Users see the results of the scenarios executions	Users
Execute a scenario	Users selects one scenario and launch it	ESB, Users
Configure nodes	Users configure nodes, and topology of the test target	Users



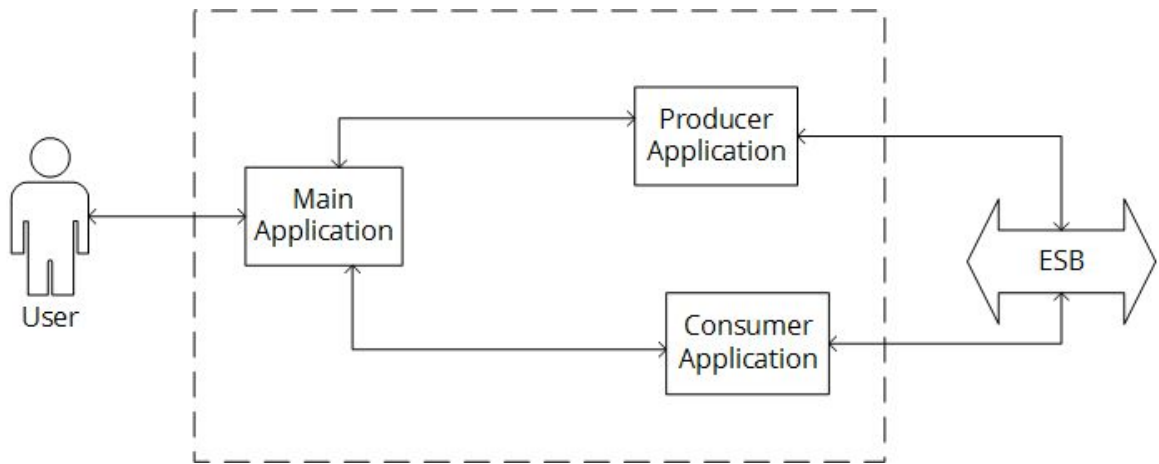


Figure 2: ARYA Black box Diagram

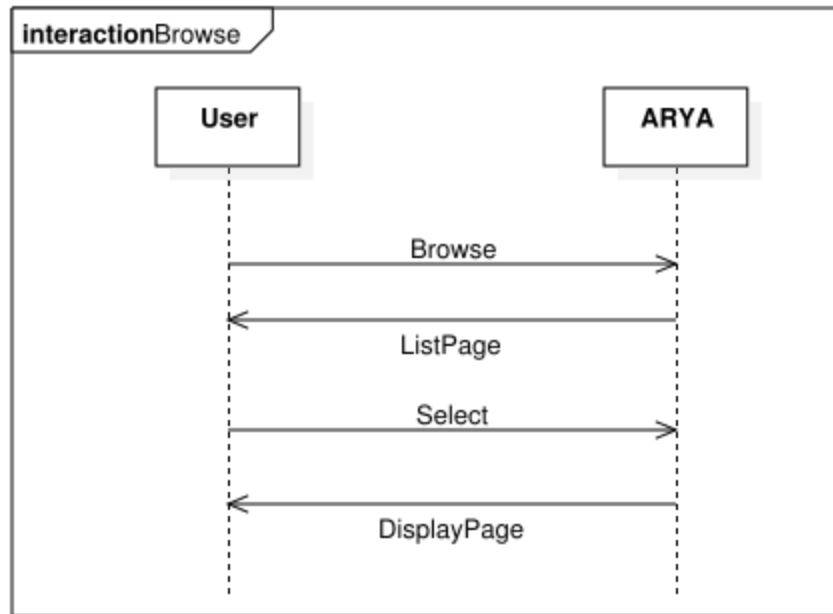
## 3.2 Manage scenarios

### 3.2.1 Introduction

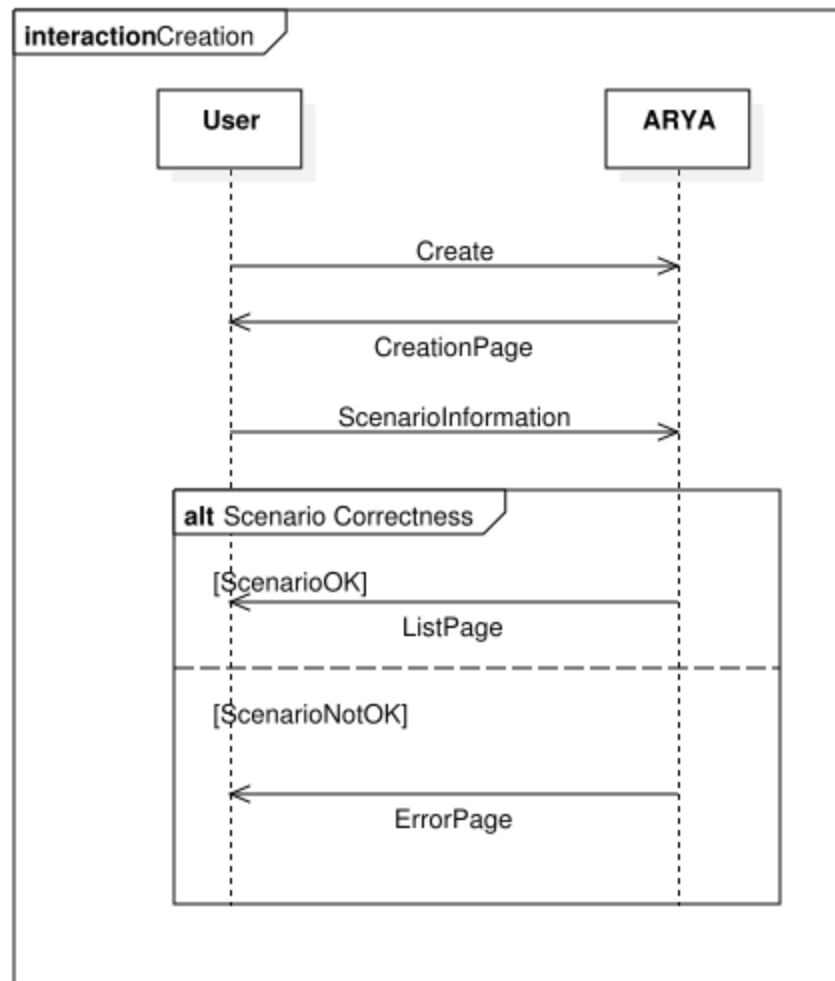
This section includes all the requirements that allow the user to manage the scenarios in the system, which includes creating/browsing/viewing details of one scenario/deleting scenarios.

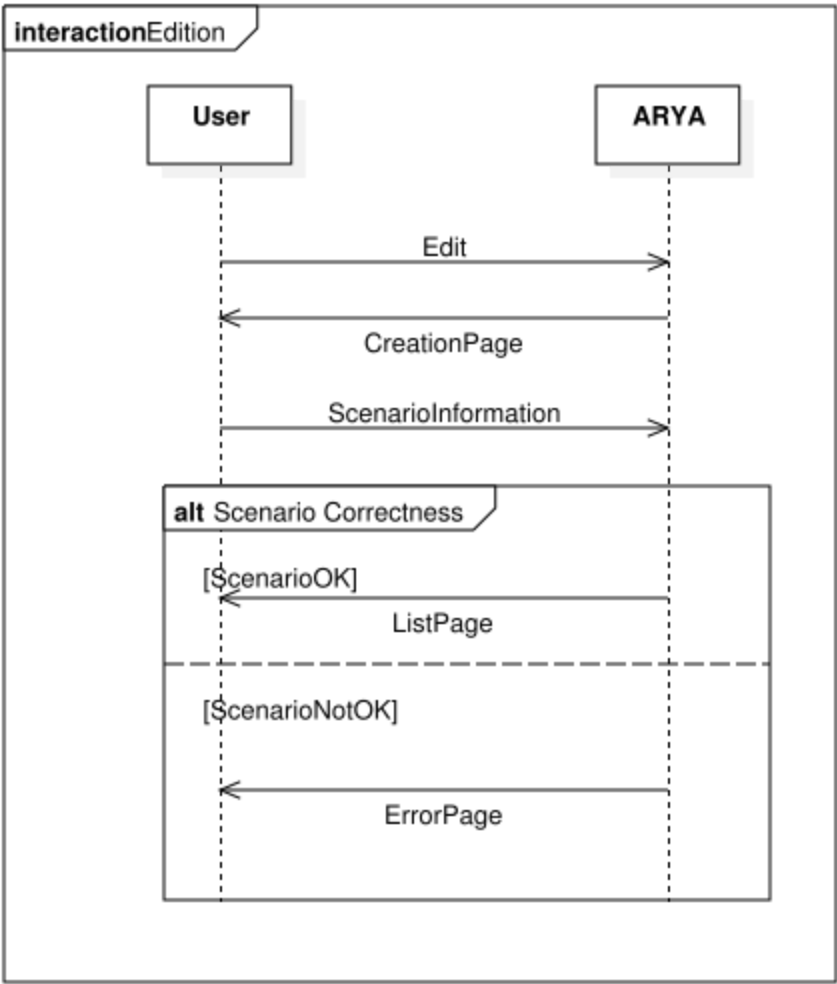
### 3.2.2 Requirements

IDENTIFIER	VERSION	NAME	REQUIREMENT TEXT / DATA	UPPER LINKS
AR-SR-MS-01	1	Show all scenarios	The system shall include a page that displays all scenarios	
AR-SR-MS-02	1	Fetch scenario	The system shall be able to retrieve all scenarios from the storage	
AR-SR-MS-03	1	Scenario selection	The system shall allow the user to choose a scenario from the list	
AR-SR-MS-04	1	Scenario displaying	The system shall provide a page to see one specific scenario and all the related information	

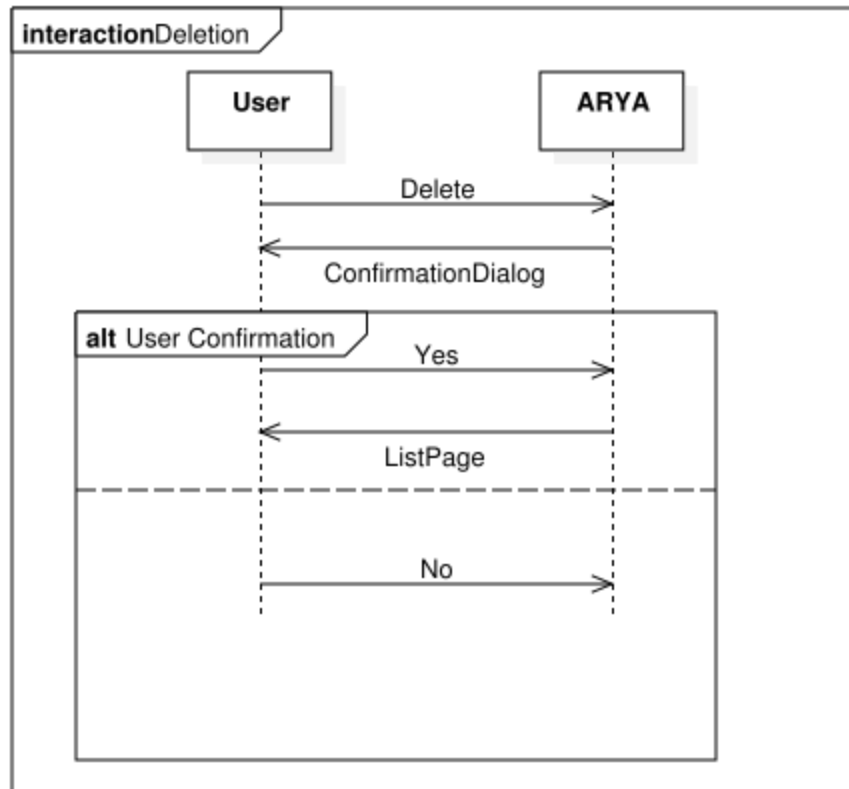


AR-SR-MS-05	1	Scenario creation	The system shall allow the user to initiate a scenario creation sequence
AR-SR-MS-06	1	Scenario checking	The system shall check that a provided scenario is correct, if it is then display the list of scenario. If not then display an error page.
AR-SR-MS-07	1	Scenario saving	After an edition or a creation, the scenario shall be stored/updated by the system





AR-SR-MS-09	1	Scenario deleting	The system shall allow the user to delete a scenario
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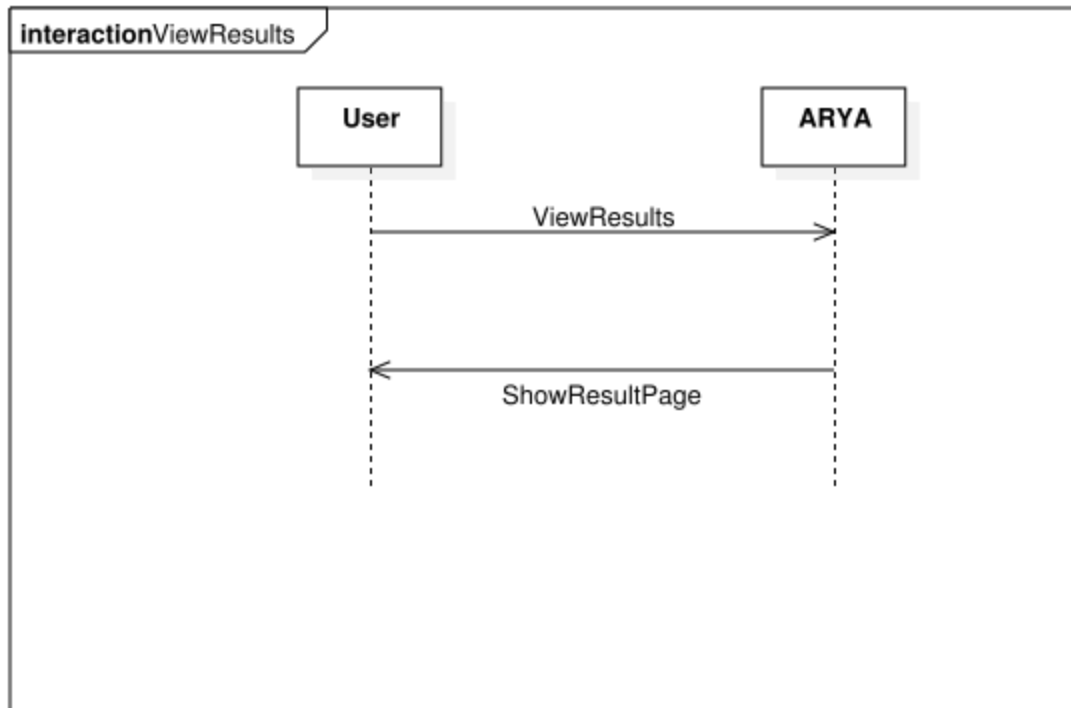
## 3.3 View Results

### 3.3.1 Introduction

This section includes requirements about the results of execution of the scenarios. The system shall allow the user to see information contained in the results.

### 3.3.2 Requirements

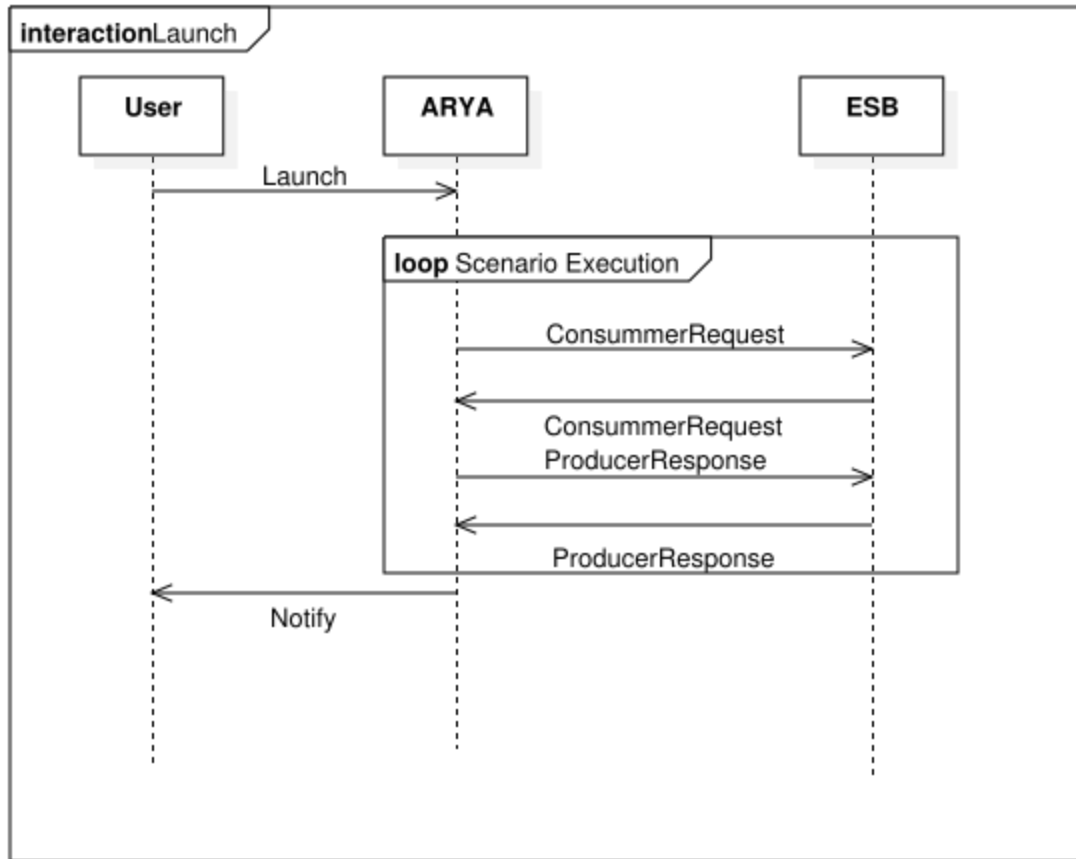
IDENTIFIER	VERSION	NAME	REQUIREMENT TEXT / DATA	UPPER LINKS
AR-SR-VR-01	1	Result visualisation	The system shall use a graphing/visualisation library to generate graphs for the result data	
AR-SR-VR-02	1	Descriptive graphs	The system shall have clearly labeled graphs that are easy for the user to understand	
AR-SR-VR-03	1	Scenario/ execution display	The system shall display information about the scenario and execution beside the result	
AR-SR-VR-04	1	Timestamped executions	The system shall assign a unique timestamp to each execution of a scenario	
AR-SR-VR-05	1	Support multiple results	The system shall have a dropdown menu to choose between results, and be able to display any of them on the graph as requested	



## 3.4 Execute a scenario

### 3.4.1 Introduction

This section includes the requirements about execution of scenarios. The system shall allow users to launch scenarios on nodes and ESB connections that are defined prior to execution.



### 3.4.2 Requirements

IDENTIFIER	VERSION	NAME	REQUIREMENT TEXT / DATA	UPPER LINKS
AR-SR-ES-01		Launch scenario	The system shall provide the user with an interface to launch a scenario	
AR-SR-ES-02		Configure scenario	The system shall provide configure producers and consumers for a specific scenario	

AR-SR-ES-03	Execute scenario	The system shall provide the user to execute a scenario
AR-SR-ES-04	Executing scenario	The system shall provide stop to send messages to the ESB during an execution
AR-SR-ES-05	Retrieve results	The system shall retrieve results at the end of the execution of a scenario
AR-SR-ES-06	Save results	The system shall save the results at the end of the execution of a scenario
AR-SR-ES-07	Show results	The system shall provide a view of the results at the end of the execution of a scenario to the user

## 3.5 Node management

### 3.5.1 Introduction

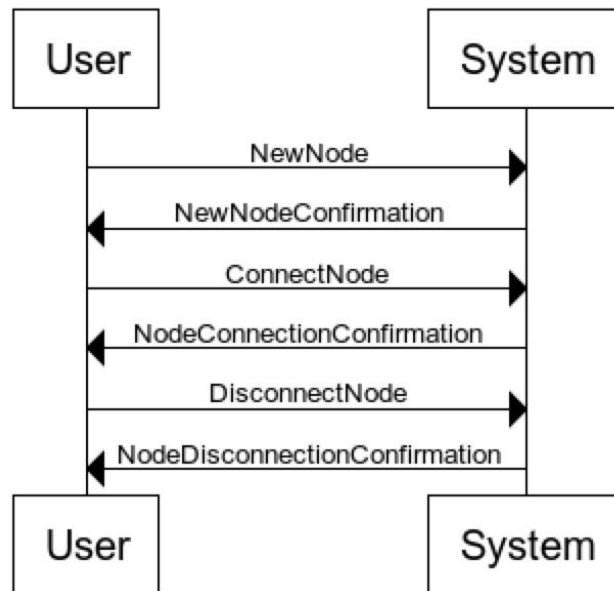
This section includes requirements about the node management. The system shall allow the user to manage the node(producer, consumer) within the system.

### 3.5.2 Requirements

IDENTIFIER	VERSION	NAME	REQUIREMENT TEXT / DATA	UPPER LINKS
AR-SR-NM-01		Producer node creation	The system shall provide the user with an interface to create a new Producer node	
AR-SR-NM-02		Producer node connection	The system shall provide the user with an interface to connect a Producer node	
AR-SR-NM-03		Producer node disconnection	The system shall provide the user with an interface to disconnect a Producer node	
AR-SR-NM-04		Consumer node creation	The system shall provide the user with an interface to create a new Consumer node	
AR-SR-NM-05		Consumer node connection	The system shall provide the user with an interface to connect a Consumer node	



AR-SR-NM-06	Consumer node disconnection	The system shall provide the user with an interface to disconnect a Consumer node
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## 4 Interface Requirements

### 4.1 Provided Interfaces

IDENTIFIER	DESCRIPTION	SERVICES	ACTORS
IP_CREATIONPAGE	This interface is used to create a new scenario	AR-SR-MS-05	User
IP_LISTPAGE	This interface is used to show all the scenarios	AR-SR-MS-01 AR-SR-MS-08 AR-SR-MS-09	User

IP_ERRORPAGE	This interface is used to show error information	AR-SR-MS-06 AR-SR-MS-08	User
IP_CREATIONPAGE_SCENARIOID	This interface is used to show a page with editable information of the scenario	AR-SR-MS-08	User
IP_CONFIRMATION_DIALOG	This interface is used to get show a confirmation from	AR-SR-MS-09	User
IP_DISPLAYPAGE_SCENARIOID	This interface is used to show the selected scenario detail to	AR-SR-MS-04	User
IP_SHOWRESULTS	This interface is used to show the results of scenarios to	AR-SR-VR-01 AR-SR-VR-02 AR-SR-VR-03 AR-SR-VR-04 AR-SR-VR-05 AR-SR-ES-07 AR-SR-ES-06	User
IP_NOTIFY	This interface is used to send execution notifications to	AR-SR-ES-07	User
IP_CONSUMERREQUEST	This interface is used to send a request via ESB	AR-SR-ES-03	ESB
IP_PRODUCERRESPONSE	This interface is used to send a response via ESB	AR-SR-ES-03	ESB
IP_RETURNNEWNODE	This interface is used to give a new node info to	AR-SR-NM-01 AR-SR-NM-04	User
IP_SENDCONNECTIONCONFIRMATION	This interface is used to send a connection confirmation to	AR-SR-NM-02 AR-SR-NM-05	User
IP_SENDDISCONNECTIONCONFIRMATION	This interface is used to send a disconnection confirmation to	AR-SR-NM-03 AR-SR-NM-06	User

## 4.2 Required Interfaces

IDENTIFIER	DESCRIPTION	SERVICES	ACTORS
ID_CREATE	This interface is used to get the fact the user want to create a new scenario	AR-SR-MS-05	User
ID_SCENARIO	This interface is used to get the new scenario information	AR-SR-MS-05 AR-SR-MS-08	User

ID_EDIT	This interface is used to get the fact that the user want to edit a scenario	AR-SR-MS-08	User
ID_DELETE	This interface is used to get the fact that user want to delete a scenario	AR-SR-MS-09	User
ID_CONFIRMATION	This interface is used to get the confirmation from the user	AR-SR-MS-09	User
ID_BROWSE	This interface is used to get the fact that the user to browse all scenarios	AR-SR-MS-01	User
ID_SELECT_SCENARIOID	This interface is used to get the id of the scenario selected by	AR-SR-MS-03	User
ID_LAUNCH	This interface is used to get the fact that user want to launch a scenario	AR-SR-ES-01 AR-SR-ES-03	User
ID_CONSUMERREQUEST	This interface is used to allow ESB to get a request from Consumer	AR-SR-ES-03	ESB
ID_PRODUCERRESPONSE	This interface is used to allow ESB to get a response from Producer	AR-SR-ES-03	ESB
ID_DEMANDENENODE	This interface allow user to initialize a new node creation	AR-SR-NM-01 AR-SR-NM-04	User
ID_CONNECTNODE	This interface allow user to initialize a new connection	AR-SR-NM-02 AR-SR-NM-05	User
ID_DISCONNECTNODE	This interface allow user to initialize a new disconnection	AR-SR-NM-03 AR-SR-NM-06	User

## 5 Non-Functional Requirements

### 5.1 Performance Requirements

IDENTIFIER	VERSION	REQUIREMENT TEXT/DATA	UPPER LINKS
ARYA-PR-01	1	The system shall not affect the performance of the ESB when watching its behaviour	
ARYA-PR-02	1	The system shall not communicate with the ESB during a scenario	

## 5.2 Design Constraints

IDENTIFIER	VERSION	REQUIREMENT TEXT / DATA	UPPER LINKS
ARYA-DC-03	1	The system shall be divided into small parts that are only responsible for one function	QAP-Modularity

## 5.3 Safety Requirements

Safety requirements is not applicable for this project.

## 5.4 Security Requirements

This project does not include security aspect requirements.

## 5.5 Software Quality Attributes

IDENTIFIER	VERSION	REQUIREMENT TEXT / DATA	UPPER LINKS
ARYA-QA-01	1	The system shall allow an easy navigation between the pages	QAP-Usability
ARYA-QA-02	1	The system shall provide a clear, well designed GUI	QAP-Usability
ARYA-QA-03	1	The system shall be divided into small parts that are only responsible for one function	QAP-Modularity ARYA-DC-01

## 5.6 Other Requirements

IDENTIFIER	VERSION	REQUIREMENT TEXT / DATA	UPPER LINKS
AR-OR-01	1	The system shall include internationalization	
AR-OR-02	1	The system shall include accessibility	