

The Forge: A Reforge Companion App

Specification Report

Requirements Engineering & Analysis

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Business Requirements Specification (BRS)

- A specification document that describes the core product goals or needs the client wants to achieve.
- Also known as System Definition Document (SDD) / Concept of Operations (ConOps) / User Requirements Document.

Purpose	To describe the organization's reasons for developing or changing a system. It defines the processes, policies, and rules that the system is used under. Also documents the high-level requirements from the stakeholder perspective, including stating the needs of users, operators, maintainers resulting from the context of use that is specified in a precise and unambiguous manner. Define business purpose and scope.
Content	<p><u>Organization level</u></p> <ul style="list-style-type: none">▪ The Business model▪ Organizational environment▪ Goals and objectives▪ Information environment <p><u>Business operation level</u></p> <ul style="list-style-type: none">▪ Business operation model▪ Business operation modes▪ Business operational quality▪ Organizational formation▪ Concept of the proposed system <p><u>Types of Requirements included</u></p> <ul style="list-style-type: none">▪ Organizational requirements▪ Business requirements
Target Audience	<p><u>Business Analyst or a Representative User</u></p> <ul style="list-style-type: none">▪ from the business that reviews and discusses the business model or operation <p><u>Business Management</u></p> <ul style="list-style-type: none">▪ To verify and revise▪ To review and discuss the potential technical solutions▪ Software / Systems Engineers▪ To create the SyRS and / or SRS
Creators	The business or organization itself, usually along with a business analyst.

1. Introduction

- 1.1 Business purpose
- 1.2 Business scope
- 1.3 Business overview
- 1.4 Definitions
- 1.5 Major stakeholders

2. References

3. Business management requirements

- 3.1 Business environment
- 3.2 Mission, goals, and objectives
- 3.3 Business model
- 3.4 Information environment

4. Business operational requirements

- 4.1 Business processes
- 4.2 Business operational policies and rules
- 4.3 Business operational constraints
- 4.4 Business operational modes
- 4.5 Business operational quality
- 4.6 Business structure

5. Preliminary operational concept of proposed system

- 5.1 Preliminary operational concept
- 5.2 Preliminary operational scenarios

6. Other preliminary life-cycle concepts

- 6.1 Preliminary acquisition concept
- 6.2 Preliminary deployment concept
- 6.3 Preliminary support concept
- 6.4 Preliminary retirement concept

7 Project Constraints

8. Appendix

- 8.1 Acronyms and abbreviations

Stakeholder Requirements Specification (StRS)

- Sometimes combined with the SYRS or BRS

Purpose	<p>To describe the organization's reasons for why the system is to be developed or changed. It defines the process, rules, and policies under which the system is to be used. It documents the high-level requirements from the stakeholder's perspective and describes the needs of the users, operators, and maintainers resulting from the context of use that is specified in a precise and unambiguous manner.</p> <p>To describe how the organization will utilize the system to contribute to the business in the context that is described in the BRS.</p>
Content	<p><u>Stakeholder requirements</u></p> <ul style="list-style-type: none">▪ Organizational requirements▪ Business requirements▪ User requirements <p>No one optimal organization for all projects.</p>
Target Audience	<p><u>Stakeholders</u></p> <ul style="list-style-type: none">▪ To review and achieve consensus. <p><u>Software / Systems engineers</u></p> <ul style="list-style-type: none">▪ To create the SyRS and / or SRS
Creators	<p>Business analyst or Requirements engineer.</p> <ul style="list-style-type: none">▪ Should be specified by the stakeholders, who should be responsible for the content of the specification.

System Requirements Specification (SyRS)

- Also known as System Operational Concept (OpsCon)
- Sometimes combined with SRS.

Purpose	<p>To identify technical requirements for the selected system-of -interest, and the requirements related to the usability for human-system interaction.</p> <p>To define high-level system requirements from the domain perspective, and the background information about the overall objectives for the system, target environment, and statements of the constraints, assumptions, and non-functional requirements.</p> <p>To provide a description of what the system should do, in the terms of its interactions / interfaces with its external environment.</p> <p>To describe what the system is expected to do for the acquirers, the system's expected environment, the system's usage profile, performance parameters, expected quality and effectiveness and verification activities.</p>
Content	<p><u>Conceptual models</u></p> <ul style="list-style-type: none">▪ Models used to illustrate the system context, usage scenarios, principal domain entities, data, information, and workflows.▪ Completely describes all inputs, outputs, and required relationships between inputs and outputs. <p><u>Types of conceptual models:</u></p> <ul style="list-style-type: none">▪ Data flow diagram▪ Prototypes▪ Use case diagrams
Target Audience	<p><u>Technical community</u> (developers, system architects, etc.)</p> <ul style="list-style-type: none">▪ The acquirer and the technical community both need to understand this document.
Creators	Systems engineer or Software engineer

Software Requirements Specification (SRS)

Purpose	To provide a specification for a specific software product, program, or set of programs that perform certain functions in a specified environment.
Content	<p><u>For the specified software product to which it applies</u></p> <ul style="list-style-type: none">▪ All the required capabilities are described.▪ As well as the documentation of the conditions and constraints that the software must perform under.▪ The intended verification approaches for the requirements.
Target Audience	<p><u>Stakeholders</u></p> <ul style="list-style-type: none">▪ To review and validate <p><u>Development team and team managers</u></p> <ul style="list-style-type: none">▪ As a basis for coding <p><u>Quality assurance / Testers</u></p> <ul style="list-style-type: none">▪ As a basis for designing tests <p><u>Operations</u></p> <p><u>Maintenance</u></p> <p><u>Project consultants</u></p>
Creators	Typically, a software engineer, but could also be a technical writer, systems architect, or a software programmer. One or more representatives of the supplier, one or more representatives of the acquirer, or by both.

Example Outline of SRS

1. Introduction

1.1 Purpose

1.2 Scope

1.3 Product overview

1.3.1 Product perspective

1.3.2 Product functions

1.3.3 User characteristics

1.3.4 Limitations

1.4 Definitions

2. References

3. Specific requirements

3.1 Functions

3.2 Performance requirements

3.3 Usability requirements

3.4 Interface requirements

3.5 Logical database requirements

3.6 Design constraints

3.7 Software system attributes

3.8 Supporting information

4. Verification

(parallel to subsections in Section 3)

5. Appendices

5.1 Assumptions and dependencies

5.2 Acronyms and abbreviations

Summary of Experience

Description of constructing the Business Requirements Specification (BRS)

To create the BRS I had to first do some research about what went into the document. I started by consulting my resources, most notably 29148-2018 sections 6.2, 8.2.2, and 9.3. This is where I found the template that I used. I became familiar with the terms and techniques used to acquire the information needed to fill out a standard BRS template. After researching the business on my own, I set up a meeting to solicit more of the business requirements from the enterprise. These requirements included the business purpose, scope, overview, and stakeholders. As well as the business management requirements and business operational requirements. The information gathered and the notes from my research were documented in a Jira next gen project.

Once I preformed this business analysis and documented the business rules, I then set about characterizing the solution space. Once again, I consulted 29148-2018 as well as the MITRE Systems Engineering Guide, the course website, and the “Software Requirements” by Karl Wieggers and Joy Beatty. Another meeting was set up with my sponsor to learn more about the specifics of the business and to discuss the solution in broad terms. I was then able to define the preliminary operational concepts and other concepts in the project life cycle, identify candidate alternative solutions that cover the potential solution space, assess the alternative solution class, and select the preferred alternative solution. This information allowed me to complete the BRS.

Description of constructing the Software Requirements Specification (SRS)

To construct the SRS time was spent analyzing and verifying the systems requirements and capabilities, as well the conditions and constraints that the system will perform under. I have been using the template that can be seen in the SRS section of this document and was taken from the course website. I have already documented parts of this specification document, such as the purpose statement for the solution, the scope of the product including the product name, overview, goals, and what is out of scope. A context diagram was also created, and constraints were documented. The product functions and user characteristics were also documented. Then the limitations were added from the issues that were created in Jira. The definitions section and References of my BRS were also added. The next step was to add my set of requirements and the verification of the requirements and the approach I took to have them verified. Assumptions and acronyms were then added. During the course of gathering the needed information meetings were conducted and feedback was given from my sponsor on the various artifacts that were created.