# Contents

# Section 1. Introduction

## 1.1   Purpose

*The document intends to define the scope and the requirements to be implemented for the BPMN for IoT online diagram modeler. The intended audience is any technical role, academic role and public with knowledge on software engineering basics.*

## 1.2   Business Context

*Class project that is taken as a proof of concept for BPMN using IoT elements.*

## 1.3   Scope

*Small changes to UI. Connection between each activity and the properties table.*

## 1.4   User Characteristics

*Users can access the modeler with any computer and internet connection. Software is not yet adapted to be used in mobile devices.*

# Section 2. General System Description

## 2.1 System Context

*The system is an extended effort. It started as a BPM modeler using javascript frameworks and it has been extended to include IoT defined properties as a BPMN extension.*
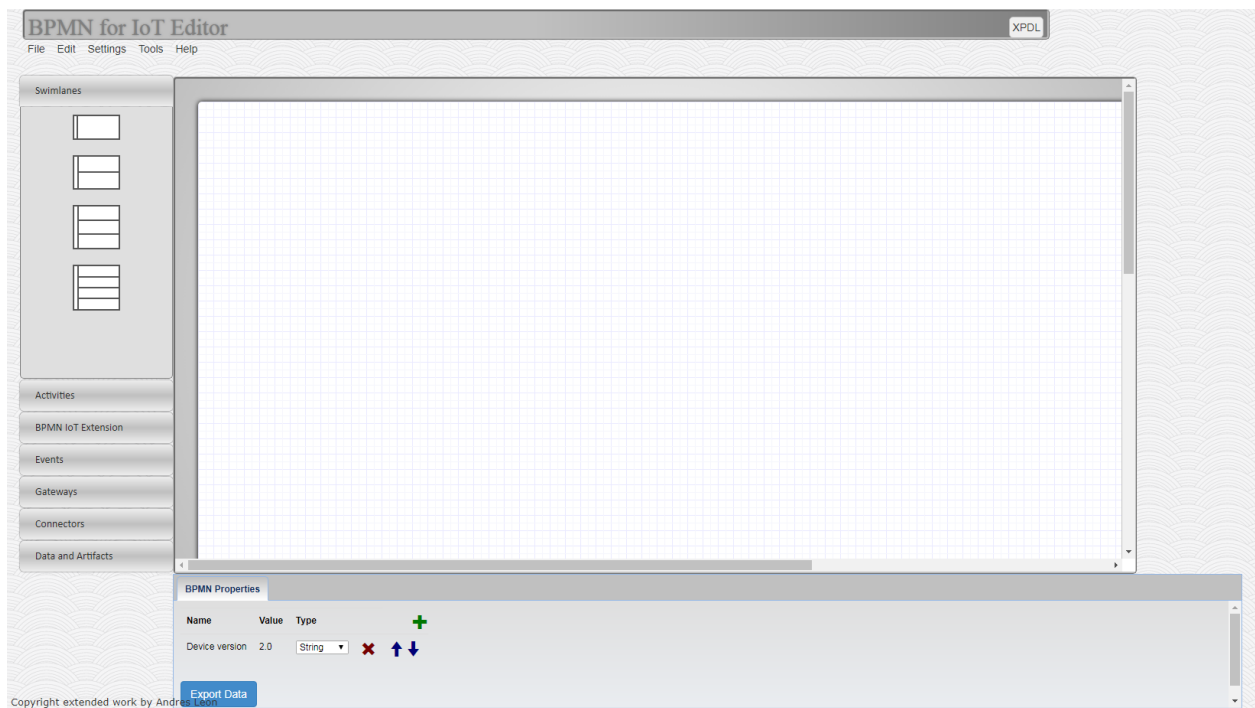


*Figure 1. current state of the project*

*The software has a main screen with the modeler in the middle of the screen. A menu bar, a left column with the BPMN elements that can be dragged and dropped to the modeler canvas. There is a new properties bar containing name, value and type of record. The properties table must be shown for each selected BPMN activity. There is a functionality for XPDL generation.*

*Table 1. Javascript technology stack*

| Javascript framework | description |
|---|---|
| Jquery | |
| Svg Javascript | |
| Codemirror XML javascripot processor | |
| Vkbeautify javascript | To beautify and pretty print XML and JSON |
| Bootstrap for properties bar | |

## 2.2   System Modes and States

*There is one normal way of operation and is the static mode execution of the JavaScript*

## 2.3   Major System Capabilities

*System can model a BPMN model diagram and exporting it to XPDL processing language.*

## 2.4   Major System Conditions

*Software must run online hence internet connection is required.*

*No login access Is required.*

## 2.5   Major System Constraints

*System cannot save models to a file.*

*The generated XPDL does not conform to BPMN standards.*

*System does not offer documentation on the use of the BPMN extension.*

## 2.6   Assumptions

*It is assumed the user understand the basics of BPMN. An intermediate knowledge of IoT is expected by the user.*

## 2.7   Dependencies

*System depends on the javascript technology stack mention in table 1.*

## 2.8   Operational Scenarios

*A need to model a process that involves the use of IoT devices. A Quick prototyping need can be achieved with this software..*

# Section 3. System Capabilities, Conditions, and Constraints

### 3.1 Business Requirements

*The modeler would allow clients to model BPMN processes that use IoT devices. The modeler should allow to export the model in an exchange data format such as XPDL. User should be able to export the model in a multimedia datatype such as image JPG or PNG.*

### 3.2 Functional Requirements

*The improvements to be performed are:*

*1. Add a dummy menu with future functionalities to be developed. Such as cloud integration, export, import.*

*2. Extension of BPMN:*

    *a. User activities, service activities, business rule task, manual task from BPMN*

    *b. When setting the name of the activity it should be on the bottom of the BPMN element and not inside*

*3. When doing right click it should show: delete, bring to top, duplicate, properties.*

*4. For each activity when right click> properties the properties bar should toggle and focus on each activity's object.*

*5. Properties for each activity should be persisted or stored inside each bpm object. Every BPM object must have properties.*

*6. Add a menu file bar*

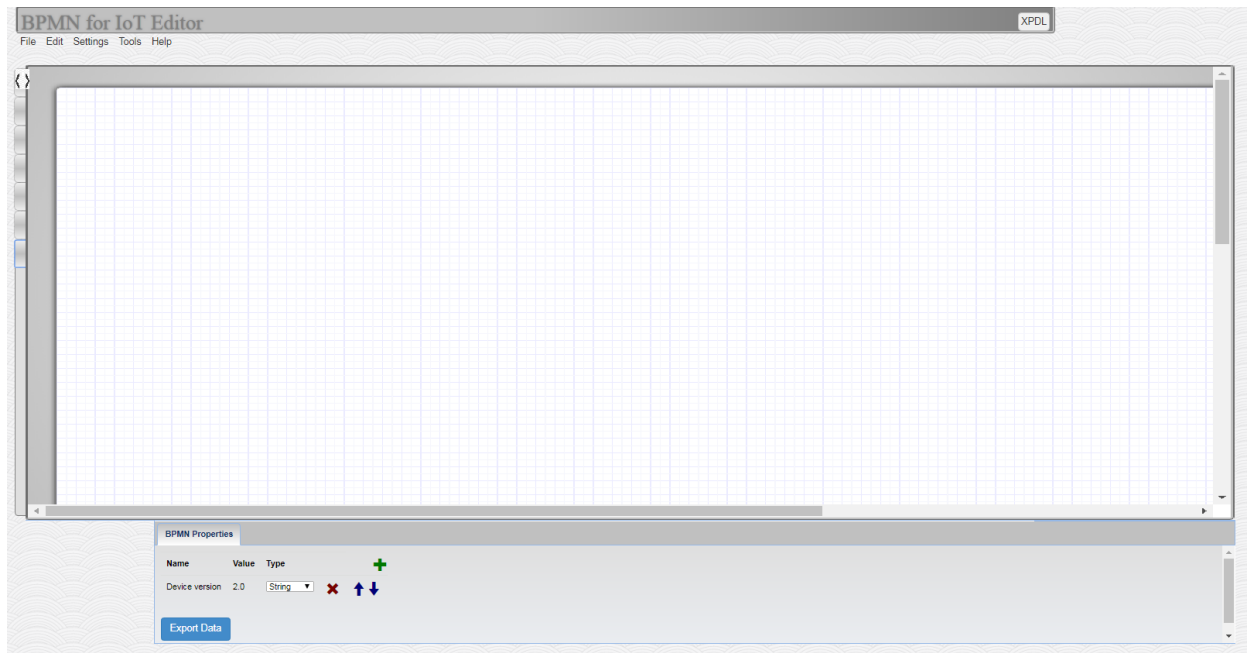*7.* *Hide palette or panel on the left with a collapsible function to minimize space.*



*Figure 2 example of requirement 7*

*8.* *Explicitly separate IoT Functions in a category BPMN for IoT extension*

## 3.2. nf Function $X$

*N/A*

### 3.2. nf.1 Function $X$ Purpose

*N/A*

### 3.2. nf.2 Function $X$ Inputs

**3.3.** *N/A*

### 3.2. nf.3 Function $X$ Operations

*N/A*
### 3.2. nf.4 Function $X$ Outputs

*N/A*

*3.2.    nu* **Use Case** *Y*

*When use cases are used as the means of specifying the functional requirements, provide a*

*3.2.        nu subsection for each use case. Each 3.2.nu subsection should be labeled and titled appropriately for a specific use case, where nu is the appropriate sequential subsection number and Y is the name of the specific use case.*

*Within each use case subsection, specify the use case information, including the actor, preconditions, post-conditions, scenarios, and alternate scenarios.*

## 3.3   Physical Requirements

### 3.3.1   Construction

*Specify the environmental characteristics of where the system will be installed.*

### 3.3.2   Durability

*Specify the durability characteristics of the system.*

### 3.3.3   Adaptability

*Specify the growth, expansion, capability, and contraction characteristics of the system.*

## 3.4   Logical Data Requirements

*The properties are structures asname, value and type.*

## 3.5    User Requirements

*Model BPMN process that uses IoT devices*

*Export the modeled process to XPDL*

## 3.6   Information Management Requirements

*N/A*

## 3.7    Systems Requirements

### 3.7.1    Performance Requirements

*Describe the performance conditions and their associated capabilities.*

### 3.7.2    Quality Requirements

*Describe requirements for the quality characteristics of the system.*

## 3.8    Policy and Regulation Requirements

*Describe policy and regulations for the system.*

## 3.9    System Life Cycle Sustainment Requirements

*Describe the life cycle sustainment activities to be executed during the life cycle of the system.*

# Section 4. System Interfaces

*Future extension should include cloud storage capabilities to Google drive, OneDrive and Dropbox.*

# Section 6. References

*Provide a list of all documents and other sources of information referenced in the SyRS and utilized in developing the SyRS.* Include for each the document number, title, date, and author.

| Document No. | Document Title | Date | Author |
|---|---|---|---|
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|  |  |  |  |
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# Section 7. Glossary

*Define of all terms and acronyms required to interpret the SyRS properly*

**BPMN:** *business process management notation*

**IoT:** *Internet Of Things*

**Web application:** *web based software app.*

*.*

# Section 8. Revision History

*Identify changes to the SyRS.*

| Version | Date | Name | Description |
|---------|------|------|-------------|
| 1.0 | May-10-2018 | Andres Leon | Initial version. Proposed extension |
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# Section 9. Appendices

*N/A*