Product Specification

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# Introduction

## Purpose

A Product Specification is a complete description of the behavior of the product to be developed. It includes a set of user stories that describe all the interactions the users will have with the software. In addition to user stories, this document also contains nonfunctional (or supplementary) requirements.

## Scope

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## References

*List any other documents or Web addresses to which this document refers. These may include user interface style guides, contracts, standards, system requirements specifications, use case documents, or a vision and scope document.*

# Overall Description

BlueLib provides the application methods to work with a BLE peripheral. It takes

# Product Requirements

## Supported Programming Languages

ShinelibTrial\_Agile/STA-105**STA-105 - As propopsition team we want to be able to use SWIFT language to help us write a...**

As propopsition team we want to be able to use SWIFT language to help us write apps quicker  
  
Acceptance Criteria:

* An iOS (test) application exists that was written in SWIFT that uses the BPM device

**[**Should Have, Draft**]**

## Dynamic Customization

ShinelibTrial\_Agile/STA-107**STA-107 - As plugin developer I want an easy way to dynamically add custom datatypes so I do not need to customize BlueLib**

As plugin developer I want an easy way to dynamically add custom datatypes so I do not need to customize BlueLib  
  
Acceptance Criteria:

* As plugin developer I can use my own data-types for my capability's needs usin a standard BlueLib delivery

**[**Should Have, Draft**]**

ShinelibTrial\_Agile/STA-108**STA-108 - As plugin developer I want an easy way to dynamically add custom capabilities so I do not ne...**

As plugin developer I want an easy way to dynamically add custom capabilities so I do not need to customize BlueLib  
  
Acceptance Criteria:

* As plugin developer I can use my own capabilities using a standard BlueLib delivery

**[**Should Have, Draft**]**

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## Association and Disassociation

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ShinelibTrial\_Agile/STA-83**STA-83 -**As a user I want to be able to setup a first time connection with my BLE peripheral**[**Should Have, Draft**]**

ShinelibTrial\_Agile/STA-84**STA-84 -**As a user I do not want others to be able to retrieve my personal data while it is being transmitted**[**Should Have, Draft**]**

ShinelibTrial\_Agile/STA-85**STA-85 -**As a user I may want to be warned when I have turned off BlueTooth so I know why the application does not get data (open item: check on init or always)**[**Should Have, Draft**]**

ShinelibTrial\_Agile/STA-86**STA-86 -**As a user I may want to be warned when I have turned on Flight Mode so I know why the application does not get data**[**Should Have, Draft**]**

ShinelibTrial\_Agile/STA-87**STA-87 -**As a user I want my application to associate with the most likely device I want to use (nearby reconnect - is this only for initial use or always and is it for this section)**[**Should Have, Draft**]**

* Select the device of a specific type (plugin?)
* Select the device that is nearest to my mobile device (plugin?)

ShinelibTrial\_Agile/STA-88**STA-88 -**As user I want to be able to manually select the device to connect to (based on scanning, not manual MAC/UUID input)**[**Should Have, Draft**]**

ShinelibTrial\_Agile/STA-89**STA-89 -**As a user I want my (secure) connection to be re-established when the connection was lost so operation is re-established without my interaction/knowledge (outside of BlueLib)**[**Should Have, Draft**]**

ShinelibTrial\_Agile/STA-90**STA-90 -**As a user I do not want any data to be lost due to a loss in connection so I have no gaps in my measurements data (other section/plugin)**[**Should Have, Draft**]**

ShinelibTrial\_Agile/STA-91**STA-91 -**As a user I want my personal device data to be removed from my phone when I 'remove' my peripheral (vanuit app/system) - Not device bound**[**Should Have, Draft**]**

ShinelibTrial\_Agile/STA-92**STA-92 -**As a user I may not want others to be able to retrieve data from my peripheral (plugin)**[**Should Have, Draft**]**

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## Logsync

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## DI\_COMM Firmware Update Capability

***"As user I want to be able to update my device with different software"***

***Business value: High***

***User benefit:***

* ***Resolve bugs***
* ***Add and improve features***
* ***Compatibility update***
* ***Restore previous working version***

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ShinelibTrial\_Agile/STA-98**STA-98 - As a user I want updates for my peripheral to be transferred to my peripheral**

As a user I want updates for my peripheral to be transferred to my peripheral  
  
Happy flow scenario:

* mobile is near peripheral (50 cm)
* transfer of complete update (no resume)

Acceptance Criteria:

* Reception of the (application provided) update is confirmed by the peripheral
* Updates can be done multiple times
* Confirmation is received within update-size(kb)/1500 seconds between a Samsung S6 and a Tuscany handle with no other bluetooth communication ongoing

**[**Should Have, Draft**]**

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ShinelibTrial\_Agile/STA-95**STA-95 - As a user I want the transfer of the firmware to be done in the background so I...**

As a user I want the transfer of the firmware to be done in the background so I can continue to work with my peripheral while transfer is ongoing  
  
Background upload scenario:

* mobile is near peripheral
* transfer of complete firmware (no resume)
* other communication between mobile and peripheral ongoing at the same time
* stress on streaming only

Not included:

* Peripheral or mobile under stress
* Other communication may not exceed 60%
* Automated testing (manual test only)

Dependencies:

* Cococo team to provide special implementation for streaming testing

Acceptance criteria:

* Reception of the (application provided) firmware is confirmed by the peripheral while other communication via BlueLib is ongoing with the device
* Reception of the (application provided) firmware is confirmed by the peripheral while music is streamed without interruptions using BlueTooth (phone test?)

**[**Should Have, Draft**]**

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ShinelibTrial\_Agile/STA-96**STA-96 - As a user I want the transfer to be done segmentally so I can turn off my devi...**

As a user I want the transfer to be done segmentally so I can turn off my peripheral and the transfer can be continue a next time I use the peripheral  
  
Firmware upload resume scenario (app stopped):

* Application requests firmware update
* Application is stopped
* <time passes>
* Application is restarted
* Application requests firmware update

Firmware upload resume scenario (peripheral stopped or connection lost):

* Application requests firmware update
* Peripheral is stopped or connection is lost
* <time passes>
* Peripheral is started or connection re-established
* (assuming application continues firmware update trials)

Not included/assumptions:

* No concurrent uploads from multiple mobile devices
* Firmware image file is not being overwritten while the transfer takes place unless the application requests a new firmware update

Firmware updates can be interrupted due to:

* Connection Loss
* Peripheral stopped
* Application stopped

Open Issues:

* How to get the version number of the image to upload
* How to get the version number of the (partial) uploaded image available on the device
* Cancel of upload option for the application is needed(?)

Assumptions:

* Version of the (partial) uploaded update can be retrieved from the peripheral
* Version of the update as received from application is known
* New callback needed and logic in application

Open Actions:

* Discuss in technical alignment meeting

Acceptance criteria:

* A firmware upload with the same version number as the one that was partly uploaded is resumed (already transferred parts are not send again)
* A firmware upload request with a different version number as the one that was partly uploaded is restarted (full upload restart)
* Reference implementation for application (example plugin)
* **A request for upload of a firmware version stops an ongoing update**

​​**[**Should Have, Draft**]**

ShinelibTrial\_Agile/STA-97**STA-97 - As a user I want the transfer to be possible from different devices so my transf...**

As a user I want the transfer to be possible from different devices so my transfer can be done from any mobile near my device (with a supporting app)  
  
Scenario: User walks away from peripheral and someone else gets near the peripheral with a (running) supporting app (upload of same version)

* Firmware upload version A is started using mobile A
* Mobile A disconnects from peripheral
* Mobile B connects with peripheral
* Mobile B resumes upload of firmware version A (partial transfer)

Scenario: User walks away from peripheral and someone else gets near the peripheral with a (running) supporting app (upload of different version)

* Firmware upload version A is started using mobile A
* Mobile A disconnects from peripheral
* Different firmware becomes available in the cloud
* Mobile B connects with peripheral
* Mobile B starts upload of firmware version B  (full transfer)

Not included/Assumptions:

* **Mobiles have same version of firmware (it may be possible that a mobile has an old version as it has no connectivity to the internet)**
* Downgrades are always done (application or device responsibility to prevent such if not wanted, device could decline an update)
* Only one connected device to a peripheral at any moment in time
* Version name returned by peripheral is unique
* Manual test only (very similar to previous)

Acceptance criteria:

* A firmware that was partially uploaded using Mobile A is resumed when Mobile B requests a firmware upload with the same version number
* A firmware that was partially uploaded using Mobile A is stopped when Mobile B requests a firmware upload with the different version number. Transfer of the different version is started from the beginning.

​​**[**Should Have, Draft**]**

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ShinelibTrial\_Agile/STA-99**STA-99 - As a user I want to initiate the deploy firmware that was uploaded before so I ca...**

As a user I want to be asked to deploy firmware that was uploaded before so I can have a better user experience**[**Should Have, Draft**]**

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ShinelibTrial\_Agile/STA-100**STA-100 - As a user I may want to see progress of the transfer taking place**

As a user I may want to be able to see progress of the transfer taking place**[**Should Have, Draft**]**

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ShinelibTrial\_Agile/STA-101**STA-101 - As a user I may have two phones near my device in which case I expect the transf...**

As a user I may have two phones near my device in which case I expect the transfer to progress as expected**[**Should Have, Draft**]**

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ShinelibTrial\_Agile/STA-102**STA-102 - As a user I may have multiple devices for which the firmware needs to be transfe...**

As a user I may have multiple devices for which the firmware needs to be transferred from my single phone**[**Should Have, Draft**]**

ShinelibTrial\_Agile/STA-103**STA-103 - As a user I want to be warned when, after an update, I need to re-pair my periph...**

As a user I want to be warned when, after an update, I need to re-pair my peripheral again**[**Should Have, Draft**]**

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# Automated Testing Support

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ShinelibTrial\_Agile/STA-113**STA-113 - As plugin developer I may want to use a device-simulator so I can more quickly w...**

As plugin developer I may want to use a device-simulator so I can more quickly write/debug/test my plugin**[**Should Have, Draft**]**

ShinelibTrial\_Agile/STA-114**STA-114 - As user of a (Philips) BLE-Sig compliant thermometer I expect it to work as expe...**

As user of a (Philips) BLE-Sig compliant thermometer I expect it to work as expected````````````````  
  
Acceptance Criteria:  
V1

* DIS service test available
* Battery service test available
* HealthThermometer service test available
* Time service test available

V2

* Test-result for the full testset is shown on build-server

​​**[**Should Have, Draft**]**

# Documentation

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ShinelibTrial\_Agile/STA-110**STA-110 - As a first-time plugin developer I want to have plugin-development documentation...**

As a first-time plugin developer I want to have plugin-development documentation so I can do so quickly and without too many errors  
  
Acceptance Criteria:  
  - Documented example plugin for BLE-SIG compliant device available to other Philips developers  
  - Documentation for writing a plugin available to other Philips developers**[**Should Have, Draft**]**

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ShinelibTrial\_Agile/STA-111**STA-111 - As a first-time application developer I want to have application-development do...**

As a first-time application developer I want to have application -development documentation so I can do so quickly and without too many errors**[**Should Have, Draft**]**

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# Nonfunctional Requirements

## Performance Requirements

*If there are performance requirements for the product under various circumstances, state them here and explain their rationale, to help the developers understand the intent and make suitable design choices. Specify the timing relationships for real time systems. Make such requirements as specific as possible. You may need to state performance requirements for individual functional requirements or features.*

ShinelibTrial\_Agile/STA-2**STA-2 -**This is a sample of non functional requirement.**[**Should Have, Draft**]**

## Safety Requirements

*Specify those requirements that are concerned with possible loss, damage, or harm that could result from the use of the product. Define any safeguards or actions that must be taken, as well as actions that must be prevented. Refer to any external policies or regulations that state safety issues that affect the product’s design or use. Define any safety certifications that must be satisfied.*

## Security Requirements

*Specify any requirements regarding security or privacy issues surrounding use of the product or protection of the data used or created by the product. Define any user identity authentication requirements. Refer to any external policies or regulations containing security issues that affect the product. Define any security or privacy certifications that must be satisfied.*

## Software Quality Attributes

*Specify any additional quality characteristics for the product that will be important to either the customers or the developers. Some to consider are: adaptability, availability, correctness, flexibility, interoperability, maintainability, portability, reliability, reusability, robustness, testability, and usability. Write these to be specific, quantitative, and verifiable when possible. At the least, clarify the relative preferences for various attributes, such as ease of use over ease of learning.*

## Other Requirements

*Define any other requirements not covered elsewhere in the specification. This might include database requirements, internationalization requirements, legal requirements, reuse objectives for the project, and so on. Add any new sections that are pertinent to the project.*

# Appendix A: Terminology/Glossary/Definitions list

*Define all the terms necessary to properly interpret this document, including acronyms and abbreviations. You may wish to build a separate glossary that spans multiple projects or the entire organization, and just include terms specific to a single project in each document.*

# Appendix B: Analysis Models

*Optionally, include any pertinent analysis models, such as data flow diagrams, class diagrams, state-transition diagrams, or entity-relationship diagrams.*