## Test Item

FP Builder Library (FPBL) and FP Builder Console (FPBC).

## Test Cycle

The tests must be executed with every release of FPBL

## Test Environment

TBD

## Test approach/processing

### Test preparation

TBD

### Test processing

TBD

### Test results assessment

## Test procedures.

### Json Automation Tool

1. Easy performance test

|  |  |  |
| --- | --- | --- |
| № | Action | Result |
| 1 | TBD |  |

### FPBL test coverage table

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| № | Test | Single floor | Multi-floor | MFP | WFP | BFP | BLP | Portals | Disable fingerprints | Fp4 headers | FP performance | Linux test | Mapper data | Server build | Crowdsourcing mode | Iterative build |
| 1 | Single floor venue test | + |  | + | + |  |  |  |  |  |  |  |  |  |  |  |
| 2 | Multi-floor test #1 |  | + | + | + | + |  |  |  |  |  |  |  |  |  |  |
| 3 | Multi-floor test #2 |  | + | + | + |  |  |  |  |  |  |  |  |  |  |  |
| 4 | Portal test |  |  |  |  |  |  | + |  |  |  |  |  |  |  |  |
| 5 | BLP test |  |  |  |  |  | + |  |  |  |  |  |  |  |  |  |
| 6 | Disable enable test |  |  |  |  |  |  |  | + |  |  |  |  |  |  |  |
| 7 | Linux test |  |  |  |  |  |  |  |  |  |  | + |  |  |  |  |
| 8 | Mapper data test #1 |  |  |  |  |  |  |  |  |  |  |  | + |  |  |  |
| 9 | Mapper data test #2 |  |  |  |  |  |  |  |  |  |  |  | + |  |  |  |
| 10 | FP Integrity test |  |  |  |  |  |  |  |  | + |  |  |  |  |  |  |
| 11 | FP performance test |  |  |  |  |  |  |  |  |  | + |  |  |  |  |  |
| 12 | Server test |  |  |  |  |  |  |  |  |  |  |  |  | + |  |  |
| 13 | Crowd-sourced fingerprint test |  |  |  |  |  |  |  |  |  |  |  |  |  | + |  |
| 14 | Iterative build test |  |  |  |  |  |  |  |  |  |  |  |  |  |  | + |

### FPBL test procedures

1. Single floor venue test

|  |  |  |
| --- | --- | --- |
| **№** | **Action** | **Result** |
| 1 | Run FPBL console for Bridgestone-Kurume venue with parameters as defined below |  |
|  | Venue: Bridgestone-Kurume  magnetic\_enable: true  WiFi\_enable: true  BLE\_enable: false  ble\_proximity\_enable: true  input data: [\\cayyc-proj01\compute02\FPL\_DATA\test\_data\FPBL\_release\_testing\Bridgestone-Kurume\SurveyDatasets\](file:///\\cayyc-proj01\compute02\FPL_DATA\test_data\FPBL_release_testing\Bridgestone-Kurume\SurveyDatasets\)  input proximity data an venue.json: [\\cayyc-proj01\compute02\FPL\_DATA\test\_data\FPBL\_release\_testing\Bridgestone-Kurume\FPBLIn\](file:///\\cayyc-proj01\compute02\FPL_DATA\test_data\FPBL_release_testing\Bridgestone-Kurume\FPBLIn\) |  |
| 2 | Check for error and warning messages in console log | No error and warnings |
| 3 | Check that all fingerprints, grids and other required files are presented in output folders | The following file presented and not empty: \*.mfp4, \*.mfp3, \*.wfp4, \*.wfp3, \*.blp4, \*blp3, \*.maggrid, \*.wifigrid, validation\_log.csv |
| 4 | Compare built fingerprints and grids for bit-exactness with results of previous FPBL version.  Previous version files should be generated with MASTER\_B branch of git | There is bit-exactness all files except \*.\*fp4 files |
| 5 | If there is no bit-exactness in previous step, then analyze fingerprints and grid for matching with new released features | File changes are matched to the released features |

1. Multi-floor test #1

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| --- | --- | --- |
| **№** | **Action** | **Result** |
| 1 | Run FPBL console for ISJ\_all\_floors venue with parameters as defined below |  |
|  | Venue: ISJ\_all\_floors  magnetic\_enable: true  WiFi\_enable: true  BLE\_enable: true  ble\_proximity\_enable: false  venue.json: [\\cayyc-proj01\compute02\FPL\_DATA\test\_data\FPBL\_release\_testing\ISJ\FPBLIn\venue.json](file:///\\cayyc-proj01\compute02\FPL_DATA\test_data\FPBL_release_testing\ISJ\FPBLIn\venue.json)  input data: [\\cayyc-proj01\compute02\FPL\_DATA\test\_data\FPBL\_release\_testing\ISJ\SurveyDatasets\](file:///\\cayyc-proj01\compute02\FPL_DATA\test_data\FPBL_release_testing\ISJ\SurveyDatasets\) |  |
| 2 | Check for error and warning messages in console log | No error and warnings |
| 3 | Check that all fingerprints, grids and other required files are presented in output folders | The following file presented and not empty: \*.mfp4, \*.mfp3, \*.wfp4, \*.wfp3, \*.blp4, \*blp3, \*.maggrid, \*.wifigrid, validation\_log.csv |
| 4 | Compare built fingerprints and grids for bit-exactness with results of previous FPBL version.  Previous version files should be generated with MASTER\_B branch of git | There is bit-exactness all files except \*.\*fp4 files |
| 5 | If there is no bit-exactness in previous step, then analyze fingerprints and grid for matching with new released features | File changes are matched to the released features |

1. Multi-floor test #2

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| **№** | **Action** | **Result** |
| 1 | Run FPBL console for AeonShintoshinMall venue with parameters as defined below |  |
|  | Venue: AeonShintoshinMall (it is preferable to do Northland venue when it will be properly surveyed)  magnetic\_enable: true  WiFi\_enable: true  BLE\_enable: false  ble\_proximity\_enable: false  input data: [\\cayyc-proj01\compute02\FPL\_DATA\SurveyMap\datasets\prod\AeonShintoshinMall\](file:///\\cayyc-proj01\compute02\FPL_DATA\SurveyMap\datasets\prod\AeonShintoshinMall\) |  |
| 2 | Check for error and warning messages in console log | No error and warnings |
| 3 | Check that all fingerprints, grids and other required files are presented in output folders | The following file presented and not empty: \*.mfp4, \*.mfp3, \*.wfp4, \*.wfp3, \*.blp4, \*blp3, \*.maggrid, \*.wifigrid, validation\_log.csv |
| 4 | Compare built fingerprints and grids for bit-exactness with results of previous FPBL version.  Previous version files should be generated with MASTER\_B branch of git | There is bit-exactness all files except \*.\*fp4 files |
| 5 | If there is no bit-exactness in previous step, then analyze fingerprints and grid for matching with new released features | File changes are matched to the released features |

1. Portal test

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| --- | --- | --- |
| **№** | **Action** | **Result** |
| 1 | Build coverage maps with ACCA tool for the fingerprints built in Multi-floor test #1 and Multi-floor test #2. |  |
| 2 | Check that portals (elevators, escalators and stairs) are covered by surveyed data. | Coverage maps of MFP, BFP, WFP and Total Coverage Map show that portal cells contain data for each fingerprint |
| 4 | Compare built fingerprints and grids for bit-exactness with results of previous FPBL version in portal cells.  Previous version files should be generated with MASTER\_B branch of git | There is bit-exactness all files except \*.\*fp4 files |
| 5 | If there is no bit-exactness in previous step, then analyze fingerprints and grid for matching with new released features | File changes are matched to the released features |

1. BLP test

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| **№** | **Action** | **Result** |
| 1 | Analyze blp-databases built in Easy performance test (Single floor venue) for blp3/blp4 files content as it described below |  |
| 1.a | BLP-DB must contain same number of beacons as initial beacons\_db.csv file | As described in ‘Action’ |
| 1.b | Each beacon-line of BLP-DB must contain 8 parameters: UUID, major, minor, latitude, longitude, local-fingerprint floor, transmitted power level, height of beacon over the floor level | Parameters of each beacon match to the data presented in beacons\_db.csv file |
| 1.c | Height of beacon over the floor level must be equal the height presented in beacons\_db.csv or be equal to default height (2) if it missed in beacons\_db.csv | As described in ‘Action’ |

1. Disable enable test

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| **№** | **Action** | **Result** |
| 1 | Run FPBL console for Bridgestone-Kurume venue with parameters as defined below |  |
| 1.a | Venue: Bridgestone-Kurume  magnetic\_enable: false  WiFi\_enable: false  BLE\_enable: false  ble\_proximity\_enable: false  input data: [\\cayyc-proj01\compute02\FPL\_DATA\test\_data\FPBL\_release\_testing\Bridgestone-Kurume\SurveyDatasets\](file:///\\cayyc-proj01\compute02\FPL_DATA\test_data\FPBL_release_testing\Bridgestone-Kurume\SurveyDatasets\)  input proximity data an venue.json: [\\cayyc-proj01\compute02\FPL\_DATA\test\_data\FPBL\_release\_testing\Bridgestone-Kurume\FPBLIn\](file:///\\cayyc-proj01\compute02\FPL_DATA\test_data\FPBL_release_testing\Bridgestone-Kurume\FPBLIn\) |  |
| 2 | Check for error and warning messages in console log |  |
| 3 | Check that all fingerprints presence as described below: |  |
| 3.a | mfp3/mfp4 – not presented or empty | As described in ‘Action’ |
| 3.b | wfp3/wfp4 – not presented or empty | As described in ‘Action’ |
| 3.c | bfp3/bfp4 – not presented or empty | As described in ‘Action’ |
| 3.d | blp3/blp4 – not presented or empty | As described in ‘Action’ |

1. Linux test

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| **№** | **Action** | **Result** |
| 1 | Repeat Multi-floor test #1 under Linux |  |

1. Mapper data test #1

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| **№** | **Action** | **Result** |
| 1 | Run FPBL console for Northland\_M1 venue with parameters as defined below |  |
| 1.a | Venue: Northland\_M1  magnetic\_enable: true  WiFi\_enable: true  BLE\_enable: false  ble\_proximity\_enable: false  input data:  [\\cayyc-proj01\compute02\FPL\_DATA\test\_data\FPBL\_release\_testing\Northland\_M1\](file:///\\cayyc-proj01\compute02\FPL_DATA\test_data\FPBL_release_testing\Northland_M1\) |  |
| 2 | Check for error and warning messages in console log | No error and warnings |
| 3 | Check that all fingerprints, grids and other required files are presented in output folders | The following file presented and not empty: \*.mfp4, \*.mfp3, \*.wfp4, \*.wfp3, \*.blp4, \*blp3, \*.maggrid, \*.wifigrid, validation\_log.csv |
| 4 | Compare built fingerprints and grids for bit-exactness with results of previous FPBL version.  Previous version files should be generated with MASTER\_B branch of git | There is bit-exactness all files except \*.\*fp4 files |
| 5 | If there is no bit-exactness in previous step, then analyze fingerprints and grid for matching with new released features | File changes are matched to the released features |

1. Mapper data test #2

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| **№** | **Action** | **Result** |
| 1 | Run FPBL console for ISJ\_M1 venue with parameters as defined below |  |
| 1.a | Venue: ISJ\_M1  magnetic\_enable: true  WiFi\_enable: true  BLE\_enable: true  ble\_proximity\_enable: false  input data:  [\\cayyc-proj01\compute02\FPL\_DATA\test\_data\FPBL\_release\_testing\ISJ\_M1\](file:///\\cayyc-proj01\compute02\FPL_DATA\test_data\FPBL_release_testing\ISJ_M1\) |  |
| 2 | Check for error and warning messages in console log | No error and warnings |
| 3 | Check that all fingerprints, grids and other required files are presented in output folders | The following file presented and not empty: \*.mfp4, \*.mfp3, \*.wfp4, \*.wfp3, \*.blp4, \*blp3, \*.maggrid, \*.wifigrid, validation\_log.csv |
| 4 | Compare built fingerprints and grids for bit-exactness with results of previous FPBL version.  Previous version files should be generated with MASTER\_B branch of git | There is bit-exactness all files except \*.\*fp4 files |
| 5 | If there is no bit-exactness in previous step, then analyze fingerprints and grid for matching with new released features | File changes are matched to the released features |

1. FP Integrity test

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| **№** | **Action** | **Result** |
| 1 | Run RTFPPL positioning console (from MASTER branch) with the fp4-fingerprints built in Multi-floor test #1. | No error and warnings in RTFPPL console log |
| 2 | Check in pf\_log.txt file the flowing parameters: |  |
| 2.a | Check “WFP DB:” line | The line has right FPBL version number and correct built date |
| 2.b | Check “WFP initialization status” | is 111 |
| 2.c | “BFP DB:” line has right FPBL version number and correct built date | The line has right FPBL version number and correct built date |
| 2.d | “BLPox initialization status” | is 111 |
| 2.e | “MFP DB:” line has right FPBL version number and correct built date | The line has right FPBL version number and correct built date |
| 2.f | “MFP initialization status” | is 111 |
| 3 | Run RTFPPL positioning console (from MASTER branch) with the fingerprints built in Easy performance test (Single floor venue). | No error and warnings in RTFPPL console log |
| 4 | Check in pf\_log.txt file the flowing parameters: |  |
| 4.a | “BLPox DB:” line has right FPBL version number and correct built date | The line has right FPBL version number and correct built date |
| 4.b | “BFP initialization status” | is 111 |

1. FP performance test

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| **№** | **Action** | **Result** |
| 1 | Execute KPI testing for fingerprints built in Mapper data test #1 and Mapper data test #2. |  |
| 1.a | Use the following parameters for KPI testing:  RTFPPL branch: MASTER  KPI input data (test #1):  [\\cayyc-proj01\compute02\FPL\_DATA\test\_data\KPI\_sources.rel\Northland\](file:///\\cayyc-proj01\compute02\FPL_DATA\test_data\KPI_sources.rel\Northland\)  KPI input data (test #2):  [\\cayyc-proj01\compute02\FPL\_DATA\test\_data\KPI\_sources.rel\ISJ\](file:///\\cayyc-proj01\compute02\FPL_DATA\test_data\KPI_sources.rel\ISJ\) |  |
| 2 | Compare KPI results for bit-exactness – KPI with MASTER\_B’s fingerprints vs KPI with fingerprints of current release candidate. | KPI results are bit-exact. |
| 3 | If there is no bit-exactness in previous step, then analyze fingerprints for matching with new released features | File changes are matched to the released features |

1. Server test

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| **№** | **Action** | **Result** |
| 1 | Trigger Jenkins/SurveyApp job ”FPBuilder\_Reprocessing” for ISJ venue. | Built have been compete without any errors. |
| 2 | Compare fingerprint for bit-exactness with fingerprints built in Linux test | There is bit-exactness all files except \*.\*fp4 files, these files have got a header which includes date of build and this can be different in server and local build |

1. Crowd-sourced fingerprint test

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| **№** | **Action** | **Result** |
| 1 | Run FPBL console for ICA\_Crowdsource venue with parameters as defined below |  |
|  | Venue: ICA\_Crowdsource  magnetic\_enable: true  WiFi\_enable: true  BLE\_enable: true  ble\_proximity\_enable: false  input data:  [\\cayyc-proj01\compute02\FPL\_DATA\test\_data\FPBL\_release\_testing\ICA\_ivl\_data\_300\](file:///\\cayyc-proj01\compute02\FPL_DATA\test_data\FPBL_release_testing\ICA_ivl_data_300\)  json: ica\_ivl.json (see input folder)  input list: July2020\_ivl\_data\_300.json (see input folder) |  |
| 2 | Check for error and warning messages in console log | No error and warnings |
| 3 | Check that all fingerprints, grids and other required files are presented in output folders | The following file presented and not empty: \*.mfp4, \*.mfp3, \*.wfp4, \*.wfp3, \*.blp4, \*blp3, \*.maggrid, \*.wifigrid, validation\_log.csv |
| 4 | Compare built fingerprints and grids for bit-exactness with results of previous FPBL version. | There is bit-exactness all files except \*.\*fp4 files |
| 5 | If there is no bit-exactness in previous step, then analyze fingerprints and grid for matching with new released features | File changes are matched to the released features |

1. Iterative test build

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| **№** | **Action** | **Result** |
| 0 | Divide TDKHQ\_Nihondashi data using input lists by two parts to meet the following requirements:   1. Each part contains ~50% of data 2. Data from at least one route divided between both parts 3. Each part contains ~50% of portal datasets 4. Data from at least one portal divided between both parts |  |
| 1 | Run FPBL console for all TDKHQ\_Nihondashi venue data with parameters as defined below |  |
|  | Venue: TDKHQ\_Nihondashi  magnetic\_enable: true  WiFi\_enable: true  BLE\_enable: true  ble\_proximity\_enable: false  input data: TBD  json: TBD (see input folder)  input list: TBD – for whole data(see input folder) |  |
| 2 | Run FPBL console for all TDKHQ\_Nihondashi venue data with parameters as defined below |  |
|  | Venue: TDKHQ\_Nihondashi  magnetic\_enable: true  WiFi\_enable: true  BLE\_enable: true  ble\_proximity\_enable: false  input data: TBD  json: TBD (see input folder)  input list: TBD – part one data (see input folder) |  |
| 3 | Run FPBL console for all TDKHQ\_Nihondashi venue data with parameters as defined below |  |
|  | Venue: TDKHQ\_Nihondashi  magnetic\_enable: true  WiFi\_enable: true  BLE\_enable: true  ble\_proximity\_enable: false  input grids: from previous step  input data: TBD  json: TBD (see input folder)  input list: TBD – part two data (see input folder) |  |
| 4 | Check for error and warning messages in console log in steps 1-3 | No error and warnings |
| 5 | Check that all fingerprints, grids and other required files are presented in output folders for steps 1-3 | The following file presented and not empty: \*.mfp4, \*.mfp3, \*.wfp4, \*.wfp3, \*.blp4, \*blp3, \*.maggrid, \*.wifigrid, validation\_log.csv |
| 6 | Compare fingerprints and grids built in steps 1 and 3 for bit-exactness. | There is bit-exactness of all files except \*.\*fp4 files |

1. Route types test - TBD

### ASCA

Execute ASCA tests according to ASCA Test Plan document