|  |  |
| --- | --- |
|  | *SA Tool Application* |
|  | *http://www.kdd.org/kdd2010/images/Accenture_logo.jpg* |

# 

# Document Purpose

The purpose of the **Station Ambassador Tool (SA Tool) Functional Specifications** is to summarize the capabilities, functionality, and behaviour of the SA Tool Device. It describes how the device meets key business requirements f .

The SA Tool will be used by the Transit Agency operators to provide support such as sales, fare collection, and inspection.

## Scope

This document will contain an overview of the SA Tool Functional Specifications. This SA tool application will apply to Distance based Transit, DISTANCE BASED TRANSIT, the FLATFARE BASED, and any 905 transit agencies. These functional specifications will enable the operator to provide CLIENT product support such as sales, fare collection, and.

Thetable below summarizes the SA Tool core and ancillary functionalities that will be covered in the documen

| **Core Functions** | **Ancillary Functions** |
| --- | --- |
| * Fare Payment – Farecard , Tickets, e-Tickets, Virtual Card, Open Payments   + With/Without audio messages * Query a Farecard , Tickets, Virtual Card   + With/Without audio messages * Cardholder profile changes (Farecard)   + Change universal concession   + Change SP specific concession   + Change card language profile   + Default Trip   + Block/Unblock * Cardholder Profile Changes (VC)   + Change universal fare type   + Change TA specific fare type   + Change GO default trip * Inspection - Farecard , Tickets, e-Tickets   + With/Without audio messages     - Accept inspection     - Written warning     - Verbal warning     - Pay Fare     - Provincial offense notice (PON) * Inspection – Open Payments Media, Virtual Card   + With/Without audio messages     - Accept inspection     - Written warning     - Verbal warning     - Pay Fare     - Provincial offense notice (PON)     - Record inspections for processing     - Cancel inspections (back/waive) * Farecard Sales   + Farecard Sale   + E-Purse load   + Period pass load * Paper Tickets   + Tickets   + Special Tickets   + Upgrades   + Other Products * Vouchers * Service Guarantee * LUM Sales   + Fixed Ride LUM Sale   + Sliding Period Pass LUM Sale * Reversals   + e-Purse payment reversal   + Period pass load reversal * Refunds   + E-Purse balance refund   + Period pass refund   + Ticket/Special Ticket refund   + Other products * Counters   + Activate   + Increment   + Configure haptic feedback   + Check counter summary * GPS (DISTANCE BASED TRANSIT Only)   + Enable/Disable GPS   + Select new route and line   + Override inspection location * SP Remote   + Access SP Remote   + Customer Lookup   + Customer Details   + Transaction History   + Autoload settings   + View OSR * Find Ticket * Training Mode | * Power on / off / reboot SA Tool   + Power on   + Shut down   + Reboot * Passcode   + Enter lock screen passcode   + Change passcode   + Reset passcode   + Mandatory periodic passcode reset * Operator sign-in   + First-time user   + Existing user * Operator sign-off * Modify screen brightness * Modify audio tone volume * Battery   + Operator checks battery power level   + SA Tool battery drops below the low battery threshold   + SA Tool battery dies * Check SA Tool device information * Switch device mode between different SPs (DISTANCE BASED TRANSIT and Distance based Transit only) * Device states   + Operator switches SA Tool from standby to in-service state   + Operator switches SA Tool from in-service to standby state   + SA Tool switches to standby state after a configurable time of inactivity   + Operator switches to a third-party application * Check Shift statistics   + Print shift statistics   + View historical reports * Establish Wi-Fi or cellular network connection * Establish Printer Connection * Establish Payment Terminal Connection * Change operator language * In-App Training and FAQ * Download Remote Lists |

Details on device logic can be accessed by referencing the Ticketing Use Cases [R6] (for sales & fare payments) and Inspection Ticketing Use Cases [R2] (for inspections), while details regarding messaging and screen displays can be accessed by referencing the SA Tool HMI Specifications [R1].

## Functional Description Organization

This document will contain an overview of the CLIENT SA Toolfunctions. Main Use Cases associated alternate flows and/or exception flows will be used to describe the functionalities of the SA Tool. These Use Cases are divided into two sections:

1. User Functional Descriptions: describes the interactions of the operators who will use the device for its intended purpose; and
2. System Functional Descriptions: describes device-level functions triggered by internal events within the SA Tool system components.

Within the User Functional Descriptions and the System Functional Descriptions, the Main Use Cases, associated alternate flows and / or exception flows are further divided into:

1. Core Functions; and
2. Ancillary Functions

Core Functions describe the SA Tool functions that can be accessed and used by the operator to conduct Fare Payments, Sales, Inspections, and provide other CLIENT services. Ancillary Functions describe the functions that provide necessary support to the operator and to the core functionalities.

Under the Core and Ancillary functions, a main Use Case represents a set of steps / interactions to achieve the primary business goal of that Use Case. Along with each main Use Case, alternate flows and exception flows are used to describe behaviour alternate flows or exceptions in the main Use Case.

# Intended Audience

The **SA Tool Functional Specification** is intended to help the intended audience understand the SA Tool functions and capabilities and how the devices relate to the system requirements, business rules and operational needs. The intended audience includes:

* Client Team – to confirm that the functional specifications align with business needs and requirements
* Application Developers – to guide device software design and development
* Solution Architects – to confirm that the functional specifications align with the overall goals
* Business Analysts – to validate the traceability of the content to requirements
* Test Team – to validate that the build aligns with the design

# Assumptions

|  |  |
| --- | --- |
| **Number** | **Description** |
| 1 | The SA Tool will accept V1 Farecards as well as V2 Farecards |
| 2 | This document will apply explicitly to the SA Tool Solution for TA |
| 3 | All references to messaging and displays in this document are purely informational, not prescriptive. Exact message wording can be found in the SA Tool HMI Specifications [R1]. |
| 4 | The SA Tool will accept revenue and non-revenue fare cards. Non-revenue cards may only be tapped in Training mode. |
| 5 | When the device connects to the User Management service it will update the account status with the latest information related to the account. |
| 6 | Client will provide tested HTML content which fits the Zebra TC57 form factor for the In-App training and FAQ section of the SA Tool application. |
| 7 | Error details for failed Farecard, CLIENT Ticket, Open Payment taps that result from card read/write errors and/or card collision (e.g., 2 or more NFC media are tapped at the same time) will be captured in the SOTI logs. |
| 8 | The language of text displayed on the screen of the SA Tool will depend only upon the current language selection of the application. Should an operator turn on audio scripts for a customer, the audio script will be played out in the language of the language setting on the card / media. |
| 9 | When making a fare payment as a result of a failed inspection on the SA Tool, a customer may pay fare with any media type. The fare payment does not need to be performed with the same card or media type. |
| 10 | Tap performance (throughput rate) will meet current performance for existing PDS devices. |
| 11 | Latency times for Open Payments, Mobile Wallet, SVC, Bytemark, TICKET when used for inspection, forepayment and sales flow will be similar to existing PDS devices. |
| 12 | SA Tool will connect to the Ingenico EX8000 PIN Pad in an integrated mode only. |
| 13 | The SA Tool will not be able to support Inspection Fare & Penalty Fare functionality from the Panasonic MK2 Inspection Device as the MerchantID associated to the integrated card reader (PD20) must be registered for Fare Payment functionality. This is a known Moneris limitation. |

# Definitions

The following lists the main concepts used in this document:

* **Pre-conditions:** Specifies the state the application must be in before the Use Case execution
* **Modified pre-conditions:** Specified in the alternate flows and exception flows. They identify the state the application must be in before alternate and exception flow Use Case execution
* **Use Case Description:** Captures the intended behaviour of the system, what the system will do and how it will do it. This behaviour will be expressed as Use Cases that may also refer to functions such as services or tasks the device is required to perform
* **Use Case:** Defines a goal-oriented set of interactions between external actors and the system under consideration. That is, Use Cases capture who (actors) does what (interactions) with the system, for what purpose (goal). A complete set of Use Cases specifies all the different ways to use the device
* **Alternate Flows:** Represents alterations of the main Use Case that still achieve a positive / desired outcome
* **Exception Flows:** Represents alterations of the main Use Case which prevent the user from achieving a positive / desired outcome
* **Closed Loop Data:** Transaction data generated from processing a Farecard
* **Open Loop Data:** Transaction data generated from processing media such as Open Payment Media.
* **Offline Data Authentication (ODA):** A local device check to ensure authenticity of the media presented.
* **Deny List**: The Open Payments equivalent for a Farecard hotlist. The deny list includes any media that is restricted from performing actions such as travel due to unpaid fare or fraudulent activity as deemed by CLIENT
* **Unpaid Fare:** The fare that is a result of a failed capture of payments from an Open Payments Media.
* **Grace Period:** The maximum travel duration of a journey, whereby an Open Payments customer should not be penalized for an inspection if they were added to the deny list.

# Acronyms and Abbreviations

|  |  |
| --- | --- |
| **Acronym** | **Description** |
| ATS | Accenture Ticketing Services |
| DPT | Device Parameter Tool |
| FTP | Fare Transaction Processor |
| LUM | Limited Usage Media |
| ODA | Offline Data Authentication |
| OP | Open Payments |
| PDS | CLIENT Device Software |
| SA | Station Ambassador |
| SP | Service Provider |
| V1 | Version 1 Farecard |
| V2 | Version 2 Farecard |
| VC | Virtual Card |

# Overall Description

This subsection of the SA Tool Functional Specification document puts the device into perspective with other related systems and users. Since the devices are a component of the larger CLIENT system, this subsection identifies interfaces between that system and the device. This includes a table showing the major interactions of the device with different user (classes).

## Device Perspective

### System Context

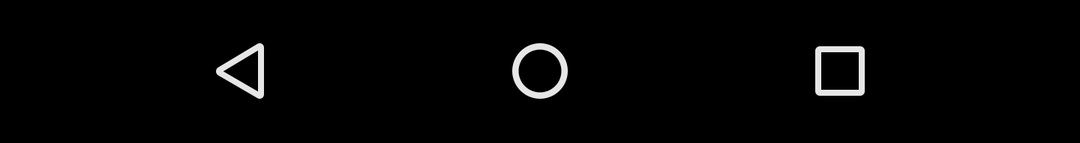
The SA Tool interacts with a cardholder’s Farecard and allows for the Use Cases described later in this document. The transactional data that is the result of the interactions between the Farecard and the SA Tool is sent to the Central System for processing.

In the case of Open Payments Media, the cardholder interacts with the device using their Open Payments media. With the Virtual Card Media, the cardholder interacts with the device using their Mobile Wallet. The Use Case described later in this document cover the interaction the cardholder has with the device. In the case of Open Payments and Virtual Card, transactional data is generated in ATS and not at the device. This information is then sent to the Central System for processing.

### User Interfaces

User interfaces are the device components that provide a communication channel with the SA Tool user. The PDS SA Tool will be developed on an Android device, with an integrated card reader.

* **Card Reader:** The SA Tool will have an integrated Card Reader (Datecs PD20) for interacting with the Fare cards, Virtual Cards, tickets and Open Payment media.
* **Printer:** The SA Tool will have the ability to connect to an external printer to enable printing of receipts, tickets, sales reports, etc.
* **Payment Terminal:** The SA Tool will have the ability to connect to an external PIN pad payment terminal (EX8000) to accept credit and debit methods of payment.
* **Keyboard:** The SA Tool has an on-screen keyboard when a value entry is required.
* **Touch Screen:** The SA Tool has a colour touch screen display.
* **Power Button:** The SA Tool is fitted with a power button.
* **Volume Button:** The SA Tool is fitted with volume adjustment buttons.
* **QR Code Scanner Buttons**: The SA Tool is fitted with two buttons on either side of the device that activate the QR code scanner when pressed.
* **Speakers:** The SA Tool is fitted with speakers for audio tones.
* **Vibration mode:** The SA Tool is equipped with vibration mode.
* **Headphone Jack:** The SA Tool is equipped with a headphone jack.
* **Navigation Bar:** The SA Tool has an on-screen navigation bar that has 3-buttons for Back, Home and App Overview (left to right)



### Communication Interfaces

#### Fare Media

The SA Tool can communicate with the Subsystem over private cellular network or Wi-Fi. The communication interface is used for:

* **Farecard Transaction Data:** all transaction-related data which is sent to the Central System via Subsystem. This data encompasses, for example, inspections, fare payments, sales, etc.
* **Events:** non-transactional events, such as device mode changes, to the Subsystem for sDistance based Transitrvision purposes.
* **Device Mode and Audit Counters:** Device event messages which are sent to the Subsystem. These include device mode changes and device audit parameters collected during the life span of the device.
* **Remote Lists:** Applicable Card remote lists (load value list, action list, and hotlist) which are downloaded from Central System via the Subsystem.
* **Device Management**: The device management agent communicates with the Subsystem for device management and monitoring purposes.

#### Open Payments Media

* **Open Payments Transaction Data:** All data related to Open Payments is sent from the device to ATS.
* **Open Payments Remote lists:** Applicable for the Open Payments Media local deny list, which is downloaded from ATS via the Subsystem.
* **Open Payments FTP Transactions**: Open Payments transactions from local FTPs that can be downloaded onto the SA Tool Device via Wi-Fi P2P. This information is used to validate Open Payments inspections. Download results will be recorded in device logs which are sent upstream to SOTI / the Subsystem.

#### Virtual Card

The SA Tool can communicate with the ATS over Client private cellular network or Wi-Fi. The communication interface is used for:

* **VC Transaction Data:** All transaction-related data is sent to ATS. This data encompasses card sales, fare payments, inspections, etc.
* **VC Remote Lists:** Applicable for the VC Media local deny list, which is downloaded from ATS via the Subsystem.

## States

The state describes the main operating conditions for the device. The SA Tool has the following states:

* In-Service State
* Out-of-Service State
* Standby State

### In-Service State

“In-Service” is the normal operational state of the device. During “In-Service” state, the SA Tool application is successfully launched and in the foreground. “In-service” state has two modes: “Online” and “Offline”. Both allow operators to interact with the device, but with different functionalities.

#### Open Payments Modes and Configurations

The SA Tool can be configured for Open Payments either in real-time mode or queued mode.

**Real-Time Mode -** In real-time mode, Open Payments fare payments & inspections provide a near real-time response to the Operator of the result for the customer’s media. Real-time mode requires the device to have an active internet connection to ATS in order to provide a near real-time response. If the device does not have an active internet connection, it will default to Queued mode.

**Queued Mode** – In Queued mode, the device sends the taps collected to ATS, whereby no *true* inspection or fare payment result is provided to the Operator. When the device is configured in queued mode (as set in the Device Provisioning Tool), it will be unknown to the Operator if the customer has successfully paid their fare. The Operator will rely on the local deny list in order to retrieve the tap results such as declined.

When the device is online, all taps are sent to ATS based on a configurable interval. When the device is offline, the taps are sent to ATS when the device re-connects.

Should the device remain offline for a period greater than the configured “maximum offline period” time, the device will provide a notification to the Operator that their local deny list may be unreliable. This is served to the Operator in the form of a pop-up.

The second configuration includes the EMV purge configuration. If the device remains offline greater than the configured “maximum offline period per card brand” time, the device will begin purging the offline transactions in the database by card brand. Although the SA Tool is configured to comply with PCI-DSS rules and includes a purging feature, the SA Tool will have a maintenance technician service the device prior to the purging occurring.

The third configuration includes the degraded mode configuration. When the device is configured in degraded mode, it can only accept Farecard s. This mode can either be manually set through a configuration when Open Payments is disabled or automatically after a configurable period of time the device is offline. Individual card brands each have their own degraded mode time configuration (i.e., partial degraded mode), as well as a global parameter for all open payment card brands.

#### Virtual Card

**Real-Time Mode -** In real-time mode, VC taps provide a near real-time response to the Operator of the result for the customer’s media. Real-time mode requires the device to have an active internet connection to ATS to provide a near real-time response. If the device does not have an active internet connection, it will default to Queued state.

**Queued Mode** – In Queued mode for Virtual Cards, the device evaluates the tap result offline based on the scratchpad and the local deny list. Afterwards, it sends the taps collected to ATS, which will confirm the tap result and may override the result if required. Should the device remain offline for a period greater than the configured “maximum offline period” time, the device will provide a notification to the Operator that their local deny list may be unreliable. This is served to the Operator in the form of a pop-up.

**Degraded Mode** – When the device is configured in degraded mode, it can only accept Farecard taps. This mode can either be set through a configuration when Virtual Card is disabled, or after a configurable period of time the device is offline. In this state, a Virtual Card will not be accepted.

### Out-of-Service State

If a SA Tool is in “Out-of-Service” state, it is unable to accept a Farecard for any kind of functionality and may require maintenance to restore out-of-order components.

If an operator is signed-in and the device goes into out-of-service state, the SA Tool application will not close the operator’s shift unless the operator has requested to sign-off.

### Standby State

#### Screen is turned off

An operator can temporarily suspend all SA Tool functionality while in Standby state. After the SA Tool remains inactive for a configurable period of time, the SA Tool will switch into a Standby state where the screen will turn off. Alternatively, the operator can press the physical power button to switch the SA Tool into standby state directly. Once in the standby mode, the SA tool disconnects from all the peripherals i.e. the card reader, PIN pad and the printer to conserve battery life.

Once the SA Tool is in Standby state (screen turned off), an operator must press the physical power button and sign- in to the device lock screen to bring the device back into In-Service state.

#### SA Tool application is running in the background

The SA Tool device allows the operator to use authorized third-party applications as needed. The operator can launch multiple applications on the android device and move between them. If the SA Tool PDS application is running but is not in the foreground (i.e., the operator is using another application), the application will be in Standby State. Once in the standby mode, the SA tool disconnects from all the peripherals i.e. the card reader, PIN pad and the printer to conserve battery life.

In order to resume the functionality of the SA Tool application, the operator merely needs to switch back to the SA Tool application. The third-party applications may continue to run in the background.

## Modes

Modes reflect the status of the device while it is operating within a specific state. The SA Tool will have the following modes:

* Revenue
* Training

Upon logon, operators with access to both modes will be able to select which Mode they would like to operate their shift in. ‘Training’ users, as defined in the User Management Portal group, will only have access to Training mode.

### Revenue Mode

Upon logon the operator will be able to select which mode they would like to operate their shift in. The Revenue Mode allows the SA Tool operator to interact with customers. In this mode, the operator can perform inspection, fare payments, sales, refunds/reversals, farecard queries, and other customer service gestures. SA tool will only have access to the EPT in the revenue mode and will accept the credit and debit payments.

### Training Mode

The Training Mode allows the SA Tool operator to mimic all functionality available within Sales Mode without accepting payment, and only sending non-revenue transactions. Only non-revenue Farecard will be accepted in Training Mode. This allows for thorough training directly at the SA Tool. Payment by credit /debit will not be enabled. All paper tickets printed from the SA Tool will indicate that they were printed while in training mode. They will not be a form of valid proof of payment.

## Users

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| **Configurable Functionality** | **SA Tool Operators** | **SA Tool Operators - 3rd Party** | **SDistance based Transitrvisors** | **Maintenance** | **Training** |
| Access Revenue Mode | Yes | TBD | TBD | TBD | No |
| Core Functionality - Sales | Yes | TBD | TBD | TBD | No |
| Core Functionality - Fare Payment | Yes | TBD | TBD | TBD | No |
| Core Functionality - Inspection | Yes | TBD | TBD | TBD | No |
| SA Tool Remote Access | Yes | TBD | TBD | TBD | No |
| Unblock Farecard | Yes | TBD | TBD | TBD | No |
| Modify Card Concession | Yes | TBD | TBD | TBD | No |

## Device Parameter Tool Configurations

The following document describes the configurations for the SA Tool introduced under the Open Payments release in the Device Parameter Tool.



# User Functional Descriptions

The User Functional Descriptions of the SA Tool are written from a user’s perspective. Main users of the SA Tool will be the authorized operators also known as Station Ambassadors, Farecard holders, and Open Payments Cardholders. The functional descriptions are presented in the form of Use Cases for each user type. A Use Case defines a goal-oriented set of interactions between a user and the fare solution. A Use Case describes who (actors) does what (interactions) with the system for what purpose (goal). The Use Case does not describe the internal structure of the solution. The system is treated as a “black box”, and the interactions with the system, including system responses, are perceived as being outside the system.

Details on device logic is further described in the Ticketing Use Cases [R2, R7], while details on device messages and screen displays are further described in SA Tool HMI Specifications [R1].

## Station Ambassador (SA) Tool Operator Use Cases

### Overview

This section describes the main interactions between authorized operators and the SA Tool. The use cases are split into two sections: Ancillary functions and Core Functions.

## Ancillary Functions

This section describes the SA Tool ancillary functions that can be accessed and used by the operator. These functions provide necessary support to the operator and to the core SA Tool’s Fare Payment, Sales, Inspection, Query and Digital Counter functionalities.



### Power on SA Tool

This Use Case describes how an operator powers on the SA Tool.

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-001** | | **Power On SA Tool** |
| **Use Case Description**:  This Use Case describes the power on flow for the SA Tool. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the Main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * SA Tool is fully powered off * SA Tool is charged above the low battery threshold * SA Tool has sufficient memory available above the low memory threshold | | |
| **Main Use Case:** **Power On SA Tool** | | |
| **Step #** | **Step Description** | |
| 1 | The operator powers on the SA Tool by pressing and holding the power button. The device boot ups.  *Screen display during device start up may include the device’s manufacture default start-up screen.* | |
| 2 | The device performs an initial self-diagnostic and does not find errors or failures.  ***NOTE:*** *Device self-diagnostic check is dependent on the device hardware and OS capability.* | |
| 3 | After successful boot up, the device requires the operator to enter the OS Lock screen passcode at the device lock screen (see UC-SA Tool-004 for details)  ***Note:*** *The device lock screen is a standard feature of the Android operating system.* | |
| 4 | After a valid passcode is entered at the lock screen, the device launches the Android home screen of the SA Tool device. From this home screen, the operator can launch either the SA Tool application or any of the other authorized third-party applications as required. | |

### Launching the SA Tool Application

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-002** | | **Launching the SA Tool Application** |
| **Use Case Description**:  This Use Case describes the steps for an authorized operator to launch the SA Tool Application | | |
| **Pre-Conditions**: The following pre-conditions hold true for the Main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * SA Tool is fully powered on * SA Tool is charged above the low battery threshold * SA Tool has sufficient memory available above the low memory threshold | | |
| **Main Use Case:** **Launching the SA Tool Application** | | |
| **Step #** | **Step Description** | |
| 1 | Operator selects the SA Tool Application icon from home screen of the SA Tool device. | |
| 2 | The SA Tool application performs continuous diagnostic checks as the application is launched. These continuous diagnostic checks will check for:   * Network / cellular connection (connectivity to the Subsystem) * Battery level * Available storage space | |
| 3 | After the SA Tool application successfully launches, the SA Tool application sign-in screen is displayed. Please see UC-SA Tool-003 Sign-In to the SA Tool application (First-Time User) use case if the user is a first-time user, and UC-SA Tool-004 Sign-In to SA Tool application (Existing User) use case if the user is an existing user. | |

##### Alternate Flow

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| **Alternate Flows** | |
| **UC-SA Tool-002.1** | **Power on SA Tool: continuous self-diagnostic check is unsuccessful (network connection not available)** |
| **Modified pre-conditions:** N/A |
| The Steps from the Main Use Case will be completed as follows:   1. Step 1 as stated in the Main Use Case 2. The SA Tool performs the continuous diagnostic checks and determines that the device is unable to connect to a network. This will be indicated on the SA Tool. 3. Step 3 as stated in Main Use Case   ***Note:*** *This is intended to identify that the SA Tool can operate in offline mode. Forget passcode and passcode change functionalities are unavailable when the device is offline.* |

##### Exception Flow

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| **Exception Flows** | |
| **UC-SA Tool-002.2** | **Power on SA Tool: initial self-diagnostic check is unsuccessful** |
| **Modified pre-conditions:** N/A |
| The Steps from the Main Use Case will be completed as follows:   1. Step 1 as stated in the Main Use Case. 2. SA Tool performs initial self-diagnostic checks and finds critical failures. 3. SA Tool goes to error state. |
| **UC-SA Tool-002.3** | **Power on SA Tool: Continuous self-diagnostic check is unsuccessful (storage, battery or secure element)** |
| **Modified pre-conditions:** N/A |
| The Steps from the Main Use Case will be completed as follows:   1. The SA Tool application performs the continuous self-diagnostics for storage, battery or secure element and finds errors or failures in any of these elements. 2. SA Tool goes to out-of-service state. 3. A critical event is sent to SOTI Mobicontrol and CSM. |

### Switching between the PDS SA Tool application and third-party applications

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-003** | | **Switching between the PDS SA Tool application and third-party applications** |
| **Use Case Description**:  This Use Case describes the steps for an authorized operator to switch between the SA Tool Application and the whitelisted third-party applications on the device. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the Main Use Case, alternate flows and exception flows unless explicitly stated otherwise.,,   * SA Tool is powered on * The operator has already unlocked the device * The PDS SA Tool application is in the foreground | | |
| **Main Use Case:** **Switching between the PDS SA Tool application and third-party applications** | | |
| **Step #** | **Step Description** | |
| 1 | Operator taps on the home button present on the android navigation bar to navigate to the list of whitelisted third-party applications.  Note: The navigation bar is a standard feature of the android device available at the bottom of the device screen. The navigation bar has three buttons as described in section 6.2, External Interfaces. | |
| 2 | Once the operator is on the home screen, they can swipe up or down to find the other apps. Alternatively, they can try to search the app by using the search bar located at the top of the home screen. | |
| 3 | Operator presses on desired application icon from home screen of the SA Tool device to launch it. | |

##### Alternate Flow

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| **Alternate Flows** | |
| **UC-SA Tool-003.1** | **The application is already launched and is running in the background,** |
| **Modified pre-condition:**   * The application that the operator intends to launch is already running in the device background |
| 1. Steps 1 through 3 as stated in the main use case. 2. The operator can also tap on the App Overview button on the bottom navigation bar. 3. The operator can swipe to navigate through the list of open applications until they find the desired application. 4. Operator presses on the desired application to launch it. |

### Enter Lock Screen Passcode

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-004** | | **Enter Lock Screen Passcode** |
| **Use Case Description**:  This Use Case describes the steps for an authorized operator to enter a correct passcode to unlock the device from its lock screen. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the Main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * SA Tool is powered on * SA Tool is displaying the device lock screen (either after power on or resume from standby) | | |
| **Main Use Case:** **Enter Lock Screen Passcode** | | |
| **Step #** | **Step Description** | |
| 1 | The operator enters the valid passcode on the lock screen. | |
| 2 | Device recognizes the correct passcode and displays the home screen of the device.  The home screen will provide access to the PDS SA Tool application as well as the other authorized third-party applications. | |

#### Exception Flow

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| **Exception Flows** | |
| **UC-SA Tool-004.1** | **Enter lock screen passcode: incorrect passcode entered** |
| **Modified pre-condition:**   * Counter for the incorrect sign-on is not sitting at the 4th, 9th…attempt, where the user sign-on is suspended for 30 seconds after every 5th failed sign-in attempt (5th, 10th) and suspended for 30 seconds every failed attempt after the 10th try |
| The Steps from the Main Use Case will be completed as follows:   1. The operator enters an invalid passcode. 2. The device informs the operator that the passcode is incorrect. 3. The device starts/increments the counter for device lock screen sign-in attempts. This counter will be maintained through device reboot. The counter is reset whenever a correct passcode is entered. |
| **UC-SA Tool-004.2** | **Enter Lock Screen Passcode—user sign-on is suspended for 30 seconds at every 5th failed sign on attempt (5th, 10th)** |
| **Modified pre-condition:**   * Counter for the incorrect sign-on is sitting at the 4th, 9th… attempt, where the user sign-on is suspended for 30 seconds after every 5th failed sign-in attempt (5th, 10th) |
| 1. The operator enters an invalid passcode at the 5th, 10th…attempt. 2. The device informs the operator that the passcode is incorrect for the counted number of times, and a re-try is permitted after 30 seconds. During the 30-second countdown, the user is not allowed to attempt sign on. After 30 seconds, the operator can try again. |
| **UC-SA Tool-004.3** | **Enter Lock Screen Passcode—user sign-on is suspended for 30 seconds at every failed attempt after the 10th try** |
| **Modified pre-condition:**   * Counter for the incorrect sign-on is sitting at the 10th attempt, where the user sign-on is suspended for 30 seconds at every failed attempt after the 10th try |
| 1. The operator enters an invalid passcode at the 10th… attempt. 2. The device informs the operator that the passcode is incorrect for the counted number of times, and a re-try is permitted after 30 seconds. During the 30-second countdown, the user is not allowed to attempt sign on. After 30 seconds, the operator can try again. |

### Sign-In to SA Tool application (First-Time User)

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-005** | | **Sign-In to SA Tool application (First-Time User)** |
| **Use Case Description**:  This Use Case describes the procedures for authorized operators to sign-in to the SA Tool application as a first-time user. Since the operator is a first-time user, they will be provided with an operator badge ID and a temporary passcode for first-time sign-in. The operators will enter their operator badge ID and temporary passcode as login credentials for the SA Tool application. The operator will be required to change their temporary passcode upon initial log-in.  There are two types of login authentications which must be met for successful sign-on:  **Online Authentication** – The SA Tool communicates with the User management service to authenticate user login. Online authentication is required when the device is online for:   * 1. First time users   2. After the local cache is cleaned based on a configurable credential caching duration   **Local Authentication –** No connectivity to the user management service is required. Local authentication is used for users re-logging into the same SA Tool and whose credentials have not been cleaned based on the configurable credential caching duration. The local credential cache only stores the credentials of users who have logged in to the specific device previously. The credentials are stored for a configurable duration. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Operator has launched the SA Tool application on the android device * Android device is charged above the minimum battery threshold * SA Tool application is in “in-service” mode * Operator has a valid badge ID and temporary passcode * SA Tool application has connectivity to the user management service | | |
| **Main Use Case:** **Sign- In to SA Tool Device** | | |
| **Step #** | **Step Description** | |
| 1 | Operator launches the SA Tool application from the home screen. | |
| 2 | The SA Tool application requests the user to enter the operator Badge ID and passcode   * User inputs:   + - Badge ID     - Passcode * Options:   + Forgot Passcode   + Sign In   + Language Toggle   + SP Toggle (GO / DISTANCE BASED TRANSIT only)   ***Note:*** *A language toggle will be provided for the operator to switch between English and French. As the operator is a first-time user, this language setting will be saved to the operator’s account on the Subsystem.*  ***Note:*** *When switching between SPs using the SP toggle, the application will support Open Payments media based on that SPs configuration. If the SP has Open Payments enabled, toggling to that SP will allow for OP inspection taps. See alternate flow UC-SA Tool-003.4 and UC-SA Tool-003.5 for details.* | |
| 3 | 1. Operator enters a valid operator badge ID and temporary passcode combination, and confirms input. | |
| 4 | 1. SA Tool application validates the operator badge ID and temporary passcode combination based on operator credentials stored in user management service | |
| 5 | 1. On successfully validating the credentials the user selected Language preference will be stored in the user management service | |
| 6 | 1. SA Tool application informs the operator of successful first-time sign-in and displays the Security Setup screen. A language toggle will be provided for the operator to switch between English and French on the Security Setup screen. This language setting will override the selection in the sign-on screen and be saved to the operator’s account on the Subsystem. | |
| 7 | 1. SA Tool application notifies the operator that they will need to set up security questions and a new passcode. The new passcode must be a 4-digit number. | |
| 8 | 1. Operator enters passcode twice to confirm the same passcode is entered twice. | |
| 9 | 1. Operator selects 2 security questions from a list of pre-defined security questions and provides their answers to the questions. 2. Answers will be limited to alphanumerical characters and up to 20 characters. The character limit will be configurable. Answers will be case insensitive. The operator will not be able to enter non-alphanumerical characters. | |
| 10 | 1. Operator submits their security questions, security question answers and new passcode. | |
| 11 | 1. SA Tool application validates that the new passcode meets passcode length criteria by connecting to the user management service. If the new passcode length meets the defined criteria, the SA Tool application will indicate to the operator that the passcode was successfully changed and displays the Inspection Parameters screen. 2. SA Tool application also validates that the new passcode does not match the temporary passcode, and that the new passcodes that were entered twice match each other. | |
| 12 | The operator selects their parameters for the shift (Section 7.1.2.19) | |
| 13 | A confirmation screen is displayed to the operator and the SA Tool starts the operator’s shift. | |

#### Alternate Flow

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| **Alternate Flows** | |
| **UC-SA Tool-005.1** | **Operator Enters Incorrect Username or Passcode** |
| **Modified Pre-Conditions**: N/A |
| The Steps from Main Use Case will be completed as follows:   1. Steps 1 – 2 as stated in Main Use Case 2. The SA Tool will notify the operator that the entered badge ID or passcode is incorrect 3. Operator enters correct badge ID and passcode 4. Follow Steps 3 – 16 in Main Use Case |
| **UC-SA Tool-005.2** | **Sign-in while another operator is signed-in to the same device** |
| **Modified Pre-Conditions:**   * Another Operator is currently signed into the SA Tool |
| The Steps from Main Use Case will be completed as follows:   1. Step 1 – 2 as stated in Main Use Case 2. The SA Tool will display a message indicating another Operator is currently signed into the device. The message will prompt the Operator to select whether or not they want to proceed with their sign-in 3. Operator selects Yes. The previous Operator is now signed out of the SA Tool and their shift is closed 4. Follow Steps 3 – 16 in Main Use Case |
| **UC-SA Tool-005.3** | **Operator Powers Down SA Tool During Account Setup** |
| **Modified Pre-Conditions:** N/A |
| The Steps from Main Use Case will be completed as follows:   1. Steps 1 – 10 as stated in the Main Flow 2. The operator powers down the SA Tool Application. The SA Tool saves the language preference selected from Step 1 and/or Step 10 of the Main Use Case. The next time the operator is signed-in the language preferences are applied. |
|  | **Operator toggles to secondary Transit Agency when Open Payments is not enabled for the secondary transit agency** |
| **Modified Pre-Conditions:** Secondary transit agency does not have Open Payments enabled ~~(~~applicable for GO/DISTANCE BASED TRANSIT SA Tools) |
| The Steps from Main Use Case will be completed as follows:   1. Steps 1 – 16 as stated in the Main Flow. 2. The application will function only with Farecard taps. Application will not respond to taps from contactless payment cards.   **Note:** Toggling to the secondary SP will not re-load the OP config |
|  | **Operator toggles to secondary Transit Agency when Open Payments is enabled for the secondary transit agency** |
| **Modified Pre-Conditions:** Secondary transit agency has Open Payments enabled ~~(~~applicable for GO/DISTANCE BASED TRANSIT SA Tools) |
| The Steps from Main Use Case will be completed as follows:   1. Steps 1 – 16 as stated in the Main Flow. 2. The application will function for both Farecard s and Open Payment media.   **Note:** Toggling to the secondary SP will not re-load the OP config |

#### Exception Flow

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| **Exception Flows** | |
| **UC-SA Tool-005.4** | **Temporary Passcode Expires** |
| **Modified Pre-Conditions**:   * Operator’s temporary passcode has expired |
| 1. Steps 1 – 2 as stated in Main Use Case 2. Operator enters a valid operator badge ID and an expired temporary passcode 3. The SA Tool application checks that the operator badge ID and passcode combination entered are invalid based on operator credentials stored in the Subsystem 4. SA Tool informs the operator of an expired temporary passcode and increments the invalid entry counter by one to track the number of invalid sign-ins. The SA Tool clears the passcode field in the sign-in screen |
| **UC-SA Tool-005.5** | **Operator Enters Incorrect Username or Passcode** |
| **Modified Pre-Conditions**: N/A |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 2 as stated in Main Use Case 2. Operator enters an invalid operator badge ID and/or invalid temporary passcode 3. The SA Tool application checks that the operator badge ID or temporary passcode is invalid based on operator credentials stored in the Subsystem. 4. SA Tool informs the operator of an invalid operator badge ID and passcode combination. The SA Tool clears the passcode field.   **Note**: At this point, the SA Tool would take the user back to Step 1 in the Main Use Case where they would be prompted to input their operator badge ID and passcode again until they reach the maximum number of log-in attempts. Please see UC-SA Tool-003.7 for more details. |
| **UC-SA Tool-005.6** | **Operator Signs in for the First Time Using a Temporary Passcode and Network is Not Available** |
| **Modified Pre-Conditions**:   * Network is unavailable |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 2 as stated in Main Use Case. 2. SA Tool application displays a message to the operator requesting them to sign in when network is available. 3. The operator is not signed in. |
| **UC-SA Tool-005.7** | **Operator Reaches the Maximum Number of Login Attempts** |
| **Modified Pre-Conditions**:   * SA Tool has had multiple unsuccessful sign-in attempts for the same operator badge ID (one attempt less than the configurable maximum number of attempts allowed). |
| The SA Tool application records a cumulative number of unsuccessful sign on attempts for a single valid operator badge ID on a SA Tool. This counter will be maintained throughout the device reboot. When the number of unsuccessful sign-in attempts reaches the maximum number of sign-on attempts, the SA Tool application denies access to that operator until the operator badge ID is unlocked by the CLIENT Operations user or automatically unlocked after a configurable amount of time. The maximum number of allowed sign-in attempts and the locking duration prior to auto-unlock are configurable via the UM Portal.   1. Step 1 – 2 as stated in Main Use Case. 2. User enters a valid operator badge ID and invalid temporary passcode combination and reaches the maximum number of attempts allowed. The tracking counter for the number of operator account log-in attempts will be cumulative and will not be reset at any point. 3. The SA Tool application checks and determines that the operator badge ID and passcode combination entered are incorrect, and that the maximum number of sign-in attempts has been reached. 4. The SA Tool application locks the operator user account. 5. The SA Tool application informs the operator that the user account associated with the operator ID is locked and clears the passcode field in the sign-in screen.   ***Note****: Locked user will not be able to sign-in from that SA Tool until the user is unlocked by a CLIENT Operations User. If the locked operator attempts to sign-in after the account has been locked, the SA Tool application will display the same message in step 5 to the operator.* |
| **UC-SA Tool-005.8** | **New Passcode is the Same as The Temporary Passcode** |
| **Modified Pre-Conditions:** N/A |
| The steps from Main Use Case will be completed as follows:   1. Steps 1 – 9 as stated in Main Use Case. 2. SA Tool application detects that the new passcode is the same as the temporary passcode in the Subsystem. 3. The SA Tool Device informs the user of the error and clears the new passcode fields. |
| **UC-SA Tool-005.9** | **New Passcode Length Does Not Meet Pre-Defined Criteria** |
| **Modified Pre-Conditions:** N/A |
| The steps from Main Use Case will be completed as follows:   1. Steps 1 – 9 as stated in Main Use Case. 2. SA Tool will not enable the submit button until the passcode entered is the correct length. |

### Sign-In to SA Tool application at the beginning of shift (Existing User)

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-006** | | **Sign-In to SA Tool application at the beginning of the shift (Existing User)** |
| **Use Case Description**:  This Use Case describes the procedures for authorized operators to sign-in to the SA Tool application as an existing user (not a first-time user). Authorized operators will enter their operator badge ID and passcode as login credentials for the SA Tool application.  There are two types of login authentications which must be met for successful sign-on:   1. **Online Authentication** – The SA Tool Device communicates with the Subsystem to authenticate user login. Online authentication is required when the device is online for:    1. First time users    2. After the local cache is cleaned based on a configurable credential caching duration 2. **Local Authentication –** No connectivity to the subsystem is required. Local authentication is used for users re-logging into the same SA Tool and whose credentials have not been cleaned based on the configurable credential caching duration. The local credential cache only stores the credentials of users who have logged in to the specific device previously. The credentials are stored for a configurable duration.   The default language will be set to English for existing users without language preferences set.  Note – The counters values are reset at the beginning of shift for all TA’s | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exceptions unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Operator has launched the SA Tool application on the android device * Android device is charged above the minimum battery threshold * SA Tool application is in “in-service” mode * Operator has valid credentials | | |
| **Main Use Case:** **Sign- In to SA Tool** | | |
| **Step #** | **Step Description** | |
| 1 | The SA Tool application requests the user to enter the operator badge ID and passcode.   * User inputs:   + - Operator badge ID     - Passcode * Options:   + Reset Passcode   + Sign In   + Language Toggle   + SP Toggle (if DISTANCE BASED TRANSIT/GO)   If the operator is re-signing in after activating the device from standby state, the SA Tool application will pre-populate the operator’s user ID.  ***Note:*** *A language toggle will be provided for the operator to switch between English and French. As the operator is an existing user, this language setting will* ***not*** *be saved to the operator’s account and only apply the language change to the sign-on page.*  ***Note:*** *When switching between SPs using the SP toggle, the application will support Open Payments media based on that SPs configuration. If the SP has Open Payments enabled, toggling to that SP will allow for OP taps. See alternate flow UC-SA Tool-004.8 and UC-SA Tool-004.9 for details.* | |
| 2 | The operator enters an operator badge ID and passcode in the sign-in screen and confirms input. | |
| 3 | The SA Tool application checks that the operator badge ID and passcode combination entered are valid based on operator credentials stored in the Subsystem. | |
| 4 | The operator selects their route parameters for the shift | |
| 5 | A confirmation screen is displayed to the operator and the SA Tool starts the operator’s shift. | |

#### Alternate Flow

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| **Alternate Flows** | |
| **UC-SA Tool-006.1** | **Sign-in without network connection**: **Operator’s log-in details are stored in the local cache** |
| **Modified Pre-Conditions**:   * The operator’s log-in details are stored in the local cache * The SA Tool does not have network connection |
| The Steps from Main Use Case will be completed as follows:   1. Steps 1 - 2 as stated in Main Use Case. 2. The SA Tool application checks that the operator badge ID and passcode combination entered are valid based on operator credentials stored in the local cache. 3. Step 4 as stated in the Main Use Case. |
| **UC-SA Tool -006.2** | **Sign-in while another operator is signed-in to the same device** |
| **Modified Pre-Conditions**:   * The SA Tool is on standby and is logged in to another operator’s shift |
| The Steps from Main Use Case will be completed as follows:   1. Steps 1 - 2 as stated in Main Use Case. 2. The SA Tool will notify the operator that another operator is currently signed-in to the same device. The SA Tool will ask the operator if they would like to continue signing in with their credentials. If yes, step 3 will occur. If not, the Use Case terminates. 3. The SA Tool Device will close the shift of the operator that was currently signed-in. A shift statistics email will be sent. The shift statistics for the closed shift will be displayed (no historical shifts will be selectable). See Operator Sign-Off for more details. 4. Step 3 in Main Use Case.    1. If the credentials entered are valid, the login proceeds. The SA Tool closes the shift of the previous operator, and opens a shift for the current newly signed-on operator.    2. If the credentials cannot be validated, the SA Tool application notifies the operator to re-enter their credentials if the maximum number of log-in attempts have not been reached. |
| **UC-SA Tool -006.3** | **Sign-in while the device is on standby state (screen off) and is signed-in to the current operator’s shift** |
| **Modified Pre-Conditions**:   * The SA Tool is on standby due to inactivity |
| The Steps from Main Use Case will be completed as follows:   1. The operator activates the device from standby state by pressing the power on button once 2. The device requires the operator to enter a passcode at the device lock screen (see UC-SA Tool-002 for details) 3. After a valid passcode is entered at the lock screen, the device displays the SA Tool application sign-in screen. 4. Steps 1 - 3 in the Main Use Case. 5. If the operator badge ID and passcode combination are valid, the SA Tool application resumes the operator’s current shift and displays the SA Tool application home screen. |
| **UC-SA Tool -006.4** | **Sign-in the SA Tool with no network connectivity after passcode has been reset** |
| **Modified Pre-Conditions**:   * User is signing on the SA Tool for the first time after passcode has been reset by the operator * SA Tool has no network connectivity (offline, not connected to the Subsystem) |
| The steps from the Main Use Case as follows:   1. Steps 1 – 2 as stated in the Main Use Case. 2. Since the new login credentials will be stored in the SA Tool application after the passcode reset, the operator will be able to log-in to the SA Tool application. 3. Steps 3 – 9 as stated in the Main Use Case. |
| **UC-SA Tool -006.5** | **Operator Enters New Security Questions/Answers and Passcode** |
| **Modified Pre-Conditions**:   * Operator’s security questions/answers and passcode had been reset by a CLIENT Operations user |
| The steps from the Main Use Case as follows:   1. Steps 1 – 2 as stated in the Main Use Case. 2. The SA Tool detects that the Operator’s security questions/answers and passcode had been reset and prompts the Operator to select 2 new security questions and provide a new passcode. 3. Operator selects the update option, and the new security questions/answers and passcode are saved successfully. 4. Steps 3 – 9 as stated in the Main Use Case. |
| **UC-SA Tool -006.6** | **Operator’s Current Passcode Has Expired** |
| **Modified Pre-Conditions**:   * Operator’s passcode has expired |
| The steps from the Main Use Case as follows:   1. Steps 1 – 2 as stated in the Main Use Case. 2. The SA Tool detects that the Operator’s current passcode has expired and prompts the Operator to enter a new passcode. 3. Operator selects Submit, and the new passcode is saved successfully. 4. Steps 3 – 9 as stated in the Main Use Case. |
| **UC-SA Tool -006.7** | **Operator’s Passcode Will Expire in the Future** |
| **Modified Pre-Conditions:**   * Operator’s passcode will expire in the future |
| The steps from the Main Use Case as follows:   1. Step. 1 – 2 as stated in the Main Use Case. 2. The SA Tool defects that the Operator’s passcode will expire in a number of days and prompts the Operator to change their passcode. 3. Operator can choose to change their passcode or dismiss the message. 4. Steps 3 – 9 as stated in the Main Use Case. |
| **UC-SA Tool -006.8** | **Operator toggles to secondary Transit Agency when Open Payments is not enabled for the secondary transit agency** |
| **Modified Pre-Conditions:** Secondary transit agency does not have Open Payments enabled (applicable for GO/DISTANCE BASED TRANSIT SA Tools) |
| The Steps from Main Use Case will be completed as follows:   1. Steps 1 – 9 as stated in the Main Use Case. 2. The application will function only with Farecard taps. Application will not respond to taps from contactless payment cards.   **Note**: Toggling to the secondary SP will not re-load the OP config |
| **UC-SA Tool -006.9** | **Operator toggles to secondary Transit Agency when Open Payments is enabled for the secondary transit agency** |
| **Modified Pre-Conditions:** Secondary transit agency has Open Payments enabled (applicable for GO/DISTANCE BASED TRANSIT SA Tools) |
| The Steps from Main Use Case will be completed as follows:   1. Steps 1 – 9 as stated in the Main Use Case. 2. The application will function for both Farecard s and Open Payment media.   **Note:** Toggling to the secondary SP will not re-load the OP config. |

#### Exception Flow

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| **Exception Flows** | |
| **UC-SA Tool -006.10** | **Temporary Passcode Expires** |
| **Modified Pre-Conditions**:   * Operator had requested a new temporary passcode from CLIENT Operations * Operator’s temporary passcode has expired |
| The steps from the Main Use Case as follows:   1. Steps 1 – 2 as stated in Main Use Case. 2. Operator enters a valid operator badge ID and an expired temporary passcode. 3. The SA Tool application checks that the operator badge ID and passcode combination entered are invalid based on operator credentials stored in the Subsystem. 4. SA Tool informs the operator of an expired temporary passcode and increments the invalid entry counter by one to track the number of invalid sign-ins. The SA Tool clears the passcode field in the sign-in screen. |
| **UC-SA Tool -006.11** | **Operator Enters Incorrect Username or Passcode** |
| **Modified Pre-Conditions**:   * SA Tool is either offline or online |
| The Steps from Main Use Case will be completed as follows:   1. Steps 1 - 2 as stated in Main Use Case. 2. Operator enters an invalid operator badge ID and/or an invalid passcode. 3. The SA Tool application checks that the user ID and/or passcode entered is invalid based on operator credentials stored in the Subsystem or the local cache. 4. SA Tool informs the operator of an invalid operator badge ID and passcode combination, and increments the invalid entry counter by one to track the number of invalid sign-ins. The SA Tool application clears passcode field in the sign-in screen.   **Note**: At this point, the SA Tool would take the user back to Step 1 in the Main Use Case where they would be prompted to input their operator badge ID and passcode again. The counter is reset after any valid passcode entry. |
| **UC-SA Tool -006.12** | **Maximum Number of Log-in Attempts Reached** |
|  | **Modified Pre-Conditions**:   * SA Tool has had multiple unsuccessful sign-in attempts for the same operator badge ID (one attempt less than the configurable maximum number of attempts allowed). |
|  | The SA Tool application records a cumulative number of unsuccessful sign on attempts for a single valid operator badge ID on a specific SA Tool. This counter will be maintained throughout the device reboot. When the number of unsuccessful sign on attempts reaches the maximum sign-on attempts, the SA Tool denies access to that operator until the operator badge ID is unlocked by the CLIENT back-office user or automatically unlocked after a configurable amount of time. The maximum number of allowed sign-in attempts and the auto-lock duration are configurable by CLIENT back-office users.  The Steps from Main Use Case will be completed as follows:   1. Step 1 as stated in Main Use Case. 2. User enters a valid operator badge ID and invalid passcode and reaches the maximum number of attempts allowed. The tracking counter for the number of operator account log-in attempts will be cumulative and will not be reset at any point. 3. The SA Tool application checks and determines that the operator badge ID and passcode combination entered are incorrect, and that the maximum number of sign-in attempts has been reached. 4. The SA Tool application locks the operator user account. 5. The SA Tool application informs the operator that the user account associated with the operator ID is locked and clears the passcode field. 6. The locked user will not be able to sign-in from that SA Tool until the user is unlocked by a CLIENT back-office user or automatically unlocked after a configurable amount of time. If the locked operator attempts to sign-in after the account has been locked, the SA Tool application will display an error message. |
| **UC-SA Tool -006.13** | **Sign-in to SA Tool with no network connectivity and user login credentials are not stored in the local cache** |
| **Modified Pre-Conditions**:   * SA Tool has no network connectivity (offline, not connected to the Subsystem) |
| The Steps from the Main Use Case as follows:   1. Steps 1 – 2 as stated in Main Use Case. 2. The SA Tool checks the local cache and is unable to find the operator badge ID and passcode combination in the local cache. 3. The SA Tool displays an error message and clears the passcode field. |
| **UC-SA Tool -006.14** | **Sign-in to an operator account that has been disabled** |
| **Modified Pre-Conditions**:   * Operator account has been disabled due to inactivity |
| This Use Case describes an operator attempting to sign-in to the SA Tool application with an account that has been disabled. Accounts are disabled after a configurable number of days of inactivity (e.g. 90 days).  The Steps from the Main Use Case as follows:   1. Steps 1 – 2 as stated in the Main Use Case. 2. The SA Tool application checks the Subsystem and detects that the operator account has been disabled. 3. The SA Tool application displays a corresponding error message and clears the passcode field. |
| **UC-SA Tool -006.15** | **Sign-in to a deleted operator account** |
| **Modified Pre-Conditions**:   * Operator account has been deleted due to inactivity or other reasons |
| This Use Case describes an operator attempting to sign-in to the SA Tool application with a deleted account. Accounts are deleted after a configurable number of days of inactivity (e.g. 6 months).  The Steps from the Main Use Case as follows:   1. Steps 1 – 2 as stated in the Main Use Case. 2. The SA Tool application checks the Subsystem and detects that the operator account has been deleted. 3. The SA Tool application displays a corresponding error message and clears the passcode field. |

### Change Passcode

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-007** | | **Change Passcode** |
| **Use Case Description**:  This Use Case describes the procedures for authorized operators to change their passcodes on the SA Tool application. Authorized operators can change their passcode after they have signed-in to the SA Tool application.  In order to change their passcodes, operators have to be signed-in to their operator account on the SA Tool application, and the SA Tool has to be connected to the network. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “in-service” mode * Operator has valid credentials and is logged into the device | | |
| **Main Use Case:** **Change Passcode** | | |
| **Step #** | **Step Description** | |
| 1 | On the SA Tool application home screen, the operator selects settings in the more options menu and then change passcode. | |
| 2 | On the change passcode screen, there are fields for:   1. Entering the operator’s current passcode 2. Entering the operator’s new passcode twice | |
| 3 | The operator enters their current passcode and their new passcode twice and chooses to submit their passcode change. | |
| 4 | 1. SA Tool application validates that the new passcode meets passcode length criteria by connecting to the Subsystem. SA Tool application also validates that the new passcodes that were entered twice match each other.   If the above criteria are valid, the Operator’s passcode is changed to the new passcode. | |
| 5 | 1. SA Tool performs a final account validation.   If the account validation is successful, SA Tool application returns the user to the SA Tool initial tap home screen with a pop-up message confirming successful passcode reset. The pop-up message times out after a duration of time. | |
| 6 | The operator can use the new passcode during their next sign-in. | |

#### Exception Flow

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| **Exception Flows** | |
| **UC-SA Tool-007.1** | **Attempt to change passcode when network connectivity is unavailable** |
| **Modified Pre-Conditions**:   * SA Tool is offline |
| The change passcode option will be invalid in the SA Tool application. The operator will not be able to access this function. |
| **UC-SA Tool-007.2** | **New passcodes do not match** |
| **Modified Pre-Conditions**: N/A |
| The Steps from Main Use Case will be completed as follows:   1. Steps 1 – 3 in the Main Use Case. 2. SA Tool application determines that the new passcodes (entered twice) do not match. 3. SA Tool application notifies the operator that the new passcodes do not match. |
| **UC-SA Tool-007.3** | **Current passcode does not match passcode stored in Subsystem** |
| **Modified Pre-Conditions**: N/A |
| The Steps from Main Use Case will be completed as follows:   1. Steps 1 – 3 in the Main Use Case. 2. SA Tool application connects to the User management service and determines that the operator entered current passcode does not match the current passcode stored in the user management service. 3. SA Tool application notifies the operator of the error. |
| **UC-SA Tool-007.4** | **New passcode is the same as the old passcode** |
| **Modified Pre-Conditions:** N/A |
| The steps from Main Use Case will be completed as follows:   1. Steps 1 - 3 as stated in Main Use Case. 2. SA Tool application detects that the new passcode is the same as the current passcode in the User management service. 3. SA Tool application notifies the operator of the error. |
| **UC-SA Tool-007.5** | **New passcode length does not meet pre-defined criteria** |
| **Modified Pre-Conditions:** N/A |
| The steps from Main Use Case will be completed as follows:   1. Steps 1 – 3 as stated in Main Use Case. 2. SA Tool application will not enable the submit button until the passcode entered is the correct length. |
| **UC-SA Tool-007.6** | **Reach maximum number of change attempts** |
| **Modified Pre-Conditions:**   * User has had multiple unsuccessful change attempts for the same operator ID |
| The SA Tool application records a cumulative number of unsuccessful change passcode attempts for a single valid operator ID on a specific SA Tool. This counter will be maintained throughout the device reboot. When the number of unsuccessful change passcode attempts reaches the maximum change passcode attempts, the SA Tool denies access to that operator until the operator ID is unlocked by the CLIENT Operations user or automatically unlocked after a configurable amount of time. The maximum number of allowed change passcode attempts and the auto-lock duration are configurable by CLIENT back-office users.  The Steps from the Main Use Case as follows:   1. Steps 1 – 3 as stated in Main Use Case. 2. User enters an incorrect current passcode and reaches the maximum number of attempts allowed. The tracking counter for the number of operator change passcode attempts will be cumulative and will only reset after operator successfully signs in or successfully changes their passcode. 3. The SA Tool application checks and determines that the current passcode entered is incorrect, and that the maximum number of change passcode attempts has been reached. 4. The SA Tool application locks the operator user account. 5. The SA Tool application redirects the user to the SA Tool sign-in screen and informs the operator that the user account associated with the operator ID is locked. |
| **UC-SA Tool-007.7** | **Account validation fails after passcode has been reset** |
| **Modified Pre-Conditions:**   * User has entered all fields correctly in the Change Passcode screen and has successfully reset their passcode. |
| The SA Tool application may lose connectivity, or the Operator account may be locked when performing the final account validation after the passcode has been reset.  The Steps from the Main Use Case as follows:   1. Steps 1 – 4 as stated in Main Use Case. 2. The SA Tool application performs the account validation check and fails due to loss of connectivity. 3. The SA Tool application redirects the user to the SA Tool home screen and informs the operator that the passcode has been successfully reset. |

### Forgot Passcode

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-008** | | **Reset Passcode** |
| **Use Case Description**:  This Use Case describes the procedures for authorized operators to reset their passcodes on the SA Tool application when they have forgotten their passcodes. Authorized operators can reset their passcode by clicking on a “Reset Passcode” option on the SA Tool application sign-in screen.  To reset their passcodes, the SA Tool must be connected to the network. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * Operator account is active and valid * Operator is not signing in to the SA Tool application for the first time | | |
| **Main Use Case:** **Reset Passcode** | | |
| **Step #** | **Step Description** | |
| 1 | On the SA Tool application sign-in screen, the operator enters their operator ID and selects the “Forgot Passcode?” option to reset their passcode. | |
| 2 | The SA Tool application checks that the badge ID entered is valid and stored in the User management service. The SA Tool application also checks that the maximum number of sign-in attempts for the badge ID at the device has not been exceeded, and that the operator badge ID does not belong to a first-time user. | |
| 3 | The SA Tool application displays the passcode reset screen. On the passcode reset screen, the operator’s operator ID is pre-populated. The screen also displays the new passcode fields and the security questions setup by operator during first-time sign-in. | |
| 4 | The operator enters their new passcode twice and their answers to the security questions. | |
| 5 | The operator chooses to submit the information entered on the passcode reset screen. | |
| 6 | SA Tool application validates that:   1. The security question answers entered match those stored in the User management service. 2. The new passcodes that were entered twice are same. 3. The new passcode meets passcode length by connecting to the User management service.   If these conditions are met, the Operator passcode is reset. | |
| 7 | SA Tool application performs a final account validation.  If the account validation is successful, the SA Tool application will display the Inspection Parameters Screen and indicate that the passcode was reset successfully. The new passcode associated with the operator account will be stored in the local cache and updated in the User management service. | |

#### Exception Flow

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| Exception Flow | |
| **UC-SA Tool-008.1** | **Reset passcode when network connectivity is unavailable** |
| **Modified Pre-Conditions:**   * SA Tool is offline |
| The Steps from the Main Use Case are as follows:   1. Step 1 as stated in Main Use Case. 2. SA Tool application notifies the operator with a corresponding error message. |
| **UC-SA Tool-008.2** | **Reset Passcode: Operator attempts to reset the passcode to their locked operator account** |
| **Modified Pre-Conditions:**   * Operator has reached the maximum number of operator account log-in attempts and has been locked out * Operator is trying to reset their passcode on any SA Tool |
| The Steps from the Main Use Case are as follows:   1. Step 1 as stated in Main Use Case. 2. SA Tool application detects that operator account has been locked by checking the User management service. 3. SA Tool application notifies the operator with a corresponding error message. |
| **UC-SA Tool-008.3** | **Reset Passcode: Operator enters an invalid operator badge ID when resetting their passcode** |
| **Modified Pre-Conditions:** N/A |
| The Steps from the Main Use Case are as follows:   1. Step 1 as stated in the Main Use Case. 2. SA Tool application checks with the User management service and determines that the operator badge ID is invalid. 3. SA Tool application notifies the operator with a corresponding error message. |
| **UC-SA Tool-008.4** | **Reset Passcode: Operator enters invalid security question answers** |
| **Modified Pre-Conditions:** N/A |
| The Steps from the Main Use Case are as follows:   1. Steps 1 – 5 as stated in the Main Use Case. 2. SA Tool application validates that the security question answers entered do not match those stored in the User management service. 3. SA Tool application notifies the operator with a corresponding error message. |
| **UC-SA Tool-008.5** | **Reset Passcode: Operator enters new passcode twice, but new passcodes do not match** |
| **Modified Pre-Conditions:** N/A |
| The Steps from the Main Use Case are as follows:   1. Steps 1 – 5 as stated in the Main Use Case. 2. SA Tool application validates that the new passcodes that were entered twice are not same. 3. SA Tool application notifies the operator with a corresponding error message. |
| **UC-SA Tool-008.6** | **Reset Passcode: Operator enters new passcode twice, but new passcodes do not meet passcode length criteria** |
| Modified Pre-Conditions: N/A |
| The Steps from the Main Use Case are as follows:   1. Steps 1 – 5 as stated in the Main Use Case. 2. SA Tool application will not enable the submit button until the passcode entered is the correct length. |
| **UC-SA Tool-008.7** | **Reset Passcode: Operator tries to reset passcode but is a first-time user** |
| **Modified Pre-Conditions:**   * Operator is a first-time user (has not signed-in to a SA Tool before) |
| The Steps from the Main Use Case are as follows:   1. Step 1 as stated in the Main Use Case. 2. SA Tool application connects to the User management service and validates that the operator badge ID entered belongs to a first-time user. 3. SA Tool application notifies the operator with a corresponding error message and clears the passcode field. |
| **UC-SA Tool-008.8** | **Reset Passcode: Reach maximum number of forgot passcode attempts** |
| **Modified Pre-Conditions:**   * User has had multiple unsuccessful reset attempts for the same operator ID |
| The SA Tool application records a cumulative number of unsuccessful reset passcode attempts for a single valid operator ID on a specific SA Tool. This counter will be maintained throughout the device reboot. When the number of unsuccessful reset passcode attempts reaches the maximum reset passcode attempts, the SA Tool denies access to that operator until the operator ID is unlocked by the CLIENT back-office user or automatically unlocked after a configurable amount of time. The maximum number of allowed reset passcode attempts and the auto-lock duration are configurable by CLIENT back-office users.   1. Steps 1 – 5 as stated in Main Use Case. 2. User enters invalid security question answers and reaches the maximum number of attempts allowed. The tracking counter for the number of operator reset passcode attempts will be cumulative and will only reset after operator successfully signs in or successfully resets their passcode. 3. The SA Tool application checks and determines that the security question answers are incorrect, and that the maximum number of reset passcode attempts has been reached. 4. The SA Tool application locks the operator user account. 5. The SA Tool application redirects the user to the application sign-in screen and informs the operator that the user account associated with the operator ID is locked. 6. Locked user will not be able to sign-in until the user is unlocked by a CLIENT back-office user or automatically unlocked after a configurable amount of time. If the locked operator attempts to sign-in after the account has been locked, the SA Tool application will display the same message in step 5 to the operator. |
| **UC-SA Tool-008.9** | **Reset Passcode: Account validation fails after passcode has been reset** |
| **Modified Pre-Conditions:**  User has entered all fields correctly in the Reset Passcode screen and has successfully reset their passcode |
| The SA Tool application may lose connectivity, or the Operator account may be locked when performing the final account validation after the passcode has been reset.   1. Steps 1 – 6 as stated in Main Use Case. 2. The SA Tool application performs the account validation check and fails due to loss of connectivity. 3. The SA Tool application redirects the user to the SA Tool sign-in screen and informs the operator that the passcode has been successfully reset. 4. The Operator may try to sign in to the SA Tool application with their new passcode (UC-SA Tool-004) when connectivity is reached, or account is unlocked. |
| **UC-SA Tool-008.10** | **Forgot Passcode - New passcode is the same as the current passcode** |
| **Modified Pre-Conditions:** N/A |
| The steps from Main Use Case will be completed as follows:   1. Steps 1—6 as stated in Main Use Case. 2. SA Tool application detects that the new passcode is the same as the current passcode in the User management service. 3. SA Tool application notifies the operator with a corresponding error message and clears the new passcode fields. 4. SA Tool application increments the invalid answer counter by one to track the number of invalid reset passcode attempts. |

### Operator Sign-Off

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-009** | | **Sign-Off SA Tool** |
| **Use Case Description**:  This Use Case describes the procedures for authorized operators to sign-off the SA Tool application. Operators should sign-off at the end of their shift. Authorized operators can sign-off by selecting sign-off option in the SA Tool application. A shift statistics email will be sent to the established email distribution list once the operator successfully signs-off.  ***Note****: When the operator is signed-off at the end of their shift the language toggle will be reset to the default EN (English). When the SA Tool goes into Standby, the language toggle will be set to the current signed in operator language.* | | |
| **Pre-Conditions**: The following pre-conditions hold true for the Main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * SA Tool is powered on * Operator is signed-in | | |
| **Main Use Case:** **Operator Sign-Off** | | |
| **Step #** | **Step Description** | |
| 1 | Operator selects the sign-off option on the SA Tool. | |
| 2 | SA Tool application requests for a confirmation that the Operator would like to sign-out of their current shift. | |
| 3 | Operator confirms that they would like to sign-out of their current shift. | |
| 4 | SA Tool displays a digital end-of-shift statistics report to the operator. | |
| 5 | Operator selects Done, the report closes and displays the Operator sign-in screen. | |
| 6 | SA Tool application closes off the current shift and automatically prints the statistics report if the printer is connected to the SA Tool. The copy of the statistics report is also sent to the Subsystem based on the store and forward mechanism.  Note: if the printer is not enabled or connected, the statistics report is not printed. | |
| 7 | The shift statistics email is generated and sent to the established email distribution list whenever a shift is closed. The shift status will be set to **closed** in the email and the email generation date and time will bethe **operation sign off date and time**.  The shift statistics email will be addressed as follows:  To: Logged In user’s email address which is coming from user management  CC: Email list | |

### Shift Statistics Email

The following email will be sent to the Operator’s email address stored in the UM Portal and a configurable list of email address in CC when the Operator signs off. This list will be configurable by Transit Agency via config file in the DPT portal. The email will contain CSV file attachments to summarize the sales, inspection, counter, and other shift statistics from an operator’s shift. For more details regarding these attachments, please refer to Subsystem Functional Specification [**R8**].

|  |
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| ***From:*** *Client <Client@accenture.com>* |
| ***Subject:*** *CLIENT SA Tool Shift Statistics {shift status} on {date of the shift starts} for Badge ID {badge id} on Device {device ID} at {TA name}* |
|  |
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| *Hello,*  *Please find attached the SA Tool Shift Statistics for Badge ID: {Badge ID} at {time of email} on {date of shift start}.*  *If you have any questions, please contact the CLIENT Support Team.*  *Sincerely,*  *CLIENT Support Team*    *\*\*\*This is a system generated email.  Do NOT reply to this message\*\*\**  *---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------*  *Bonjour,*    *Veuillez trouver ci-joint les statistiques de quart de travail SA Tool pour l’insigne avec ID : {Badge ID} à {time of email} le {date of shift start}.*  *Si vous avez des questions, veuillez contacter l'équipe de soutien de CLIENT.*    *Cordialement,*  *L’équipe de soutien CLIENT*    *\*\*\*Ce courriel est généré par le système.  Veuillez NE PAS répondre au courriel.* |

#### Alternate Flow

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| **Alternate Flow** | |
| **UC-SA Tool-010.1** | **Device is turned off** **after the operator confirms that they would like to sign-out** |
| **Modified Pre-Conditions**:   * SA Tool low battery threshold is set to 1% * SA Tool reaches 1% level battery after the Operator confirms they would like to sign out |
| The Steps from the Main Use Case are as follows:   1. Steps 1 – 3 in the Main Use Case. 2. SA Tool is turned off after the operator confirms that they would like to sign-out of their current shift. (see Main Use Case in section 7.1.8: Shut Down SA Tool). 3. The SA Tool application closes off the current shift and generates the inspection shift statistics email that is stored on the device. The inspection shift statistics email is stored in store-and-forward memory and will be sent once the SA Tool is powered on and re-establishes connection to the network. 4. Operator powers on the SA Tool. 5. Steps 1 – 6 in the Main Use Case in 7.1.2: Power on SA Tool. 6. The operator’s shift will be closed and the inspection shift statistics email will be sent the next time the device is in-service based on store and forward functionalities.   ***Note:*** *The SA Tool will store a configurable number of* inspection *shift report emails on the device. Once the configurable limit is reached the SA Tool will purge the first record created to replace it with the the latest email.* |
| **UC-SA Tool-0010.2** | **Operator Signs-Off while the SA Tool is Offline** |
| **Modified Pre-Conditions**:   * The SA Tool is Offline |
| The Steps from Main Use Case will be completed as follows:   1. Steps 1 – 3 as stated in the Main Use Case. 2. The SA Tool application closes the current shift and generates the shift statistics email that is stored on the device. The inspection shift statistics email is stored in store-and-forward memory and will be sent once the SA Tool is powered on and re-establishes connection to the network 3. Steps 4 – 7 from the Main Use Case   **Note:** The SA Tool will store a configurable number of shift report emails on the device. Once the configurable limit is reached the SA Tool will purge the first record created to replace it with the the latest email. |
| **UC-SA Tool-0010.3** | **New operator signs into current operator’s shift** |
| **Modified Pre-Conditions**:   * Current Operator is signed in to the SA Tool * SA Tool login screen is displayed due to session timeout |
| The Steps from Main Use Case will be completed as follows:   1. New Operator enters own user ID and passcode and selects Sign In. 2. A message indicates that the current Operator is currently signed in, and asks if the new Operator wants to sign in anyway. 3. New Operator selects Yes. 4. Current Operator is signed off from the SA Tool. |

### Shut Down SA Tool

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-011** | | **Shut-Down SA Tool via Physical Device Button** |
| **Use Case Description**:  This Use Case describes how an operator manually shuts down the SA Tool. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * SA Tool is powered on. | | |
| **Main Use Case:** **Shut-Down SA Tool via Physical Device Button** | | |
| **Step #** | **Step Description** | |
| 1 | Operator presses and holds the physical power button on the SA Tool. | |
| 2 | The SA Tool displays a confirmation message with the following options:   * Power off * Other options (e.g. Reset, Airplane Mode, etc.) which are standard functions from the device’s operating system and cannot be modified. These options are not required for running the SA Tool application and should not be used by the operators. In any case these options are selected, the expected behaviours will be as follows:   + Restart option will restart the device (equivalent of powering on and off the device. See UC-SA Tool-009).   + "Airplane Mode" will disable the network communications. The device will not be able to perform any Inspections, card query and counters. An airplane icon is displayed in the top notification bar when this mode is enabled. To disable the airplane mode, the operator presses and holds the power button, and selects the airplane mode option. The operators should not enable “Airplane mode”.   + Pre-determined sound levels. Device sound levels can be adjusted using the side buttons on the SA Tool. The minimum limit for volume will be configurable. | |
| 3 | Operator selects “Power off” and confirms shut-down. | |
| 4 | SA Tool will ask the operator to confirm the shut-down. | |
| 5 | Operator confirms the shut-down. | |
| 6 | The device will turn off. If the operator shift is open, the operator shift will not be closed. | |

### Reboot SA Tool

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-012** | | **Reboot SA Tool** |
| **Use Case Description**:  This Use Case describes the steps to manually reboot the SA Tool at any time (particularly when the application is not responding and the OS is not able to exit the application). | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * SA Tool is powered on. | | |
| **Main Use Case:** **Reboot SA Tool** | | |
| **Step #** | **Step Description** | |
| 1 | Operator presses and holds the physical power button on the SA Tool. | |
| 2 | The SA Tool displays a confirmation message with the following options:   * Power off * Other options (e.g. Reset, Airplane Mode, etc.) which are standard functions from the device’s operating system and cannot be modified. These options are not required for running the SA Tool application and should not be used by the operators. In any case these options are selected, the expected behaviours will be as follows:   + Restart option will restart the device (equivalent of powering on and off the device.   + "Airplane Mode" will disable the network communications. The device will not be able to perform any inspections, counters and queries. An airplane icon is displayed in the top notification bar when this mode is enabled. To disable the airplane mode, the operator presses and holds the power button, and selects the airplane mode option.   + Pre-determined sound levels. Device sound levels can be adjusted using the side buttons on the SA Tool. The minimum limit for volume will be configurable. | |
| 3 | Operator selects the restart option. | |
| 4 | The device will restart by turning off and powering on (UC-SA Tool-001) | |

### Modify Screen Brightness on SA Tool

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-013** | | **Modify Screen Brightness on SA Tool** |
| **Use Case Description**:  This Use Case describes the steps to adjust the screen brightness on the SA Tool. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exceptions unless explicitly stated otherwise.   * SA Tool is powered on * SA Tool is “in service” * Operator is signed-in to the SA Tool application | | |
| **Main Use Case:** **Modify Screen Brightness on SA Tool** | | |
| **Step #** | **Step Description** | |
| 1 | Operator selects the settings option from the “More options” menu in the SA Tool application. Operator accesses the brightness level control option (settings adjustment) within the settings. The operator will be able to toggle between manual and auto brightness.   * Manual brightness: operator will be able to manually adjust the brightness settings step-wise * Auto brightness: the device will detect the level of light in the environment and adjust the device’s brightness automatically | |
| 2 | The SA Tool application displays the brightness level control option screen, which includes:   * A toggle between manual and auto brightness * A manual adjustment component when manual brightness is selected * An apply button to apply the brightness setting changes | |
| 3 | The operator modifies the brightness by selecting the desired brightness level. The screen brightness changes as the operator makes the adjustment.  The operator can also turn on the auto brightness option. If auto brightness is enabled, the manual adjustment component is disabled.  **Note**: The default brightness level is configured in the Subsystem. Newly provisioned devices will use this configured brightness level until the brightness is modified via the application settings. | |
| 4 | After the desired brightness is set, the operator selects ‘apply’ to activate the change.  The operator can also press the back-arrow button to navigate back to the previous screen without saving the change and reverting to the last saved configuration. | |

### Check Battery Power Level on SA Tool

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-014** | | **Check Battery Power Level on SA Tool** |
| **Use Case Description**:  This Use Case describes the steps to check the battery power level on the SA Tool. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flow and exceptions unless explicitly stated otherwise.   * SA Tool is powered on | | |
| **Main Use Case:** **Check Battery Power Level on SA Tool** | | |
| **Step #** | **Step Description** | |
| 1 | SA Tool displays the battery level icon in the status bar on top of the screen. The battery icon represents the amount of remaining battery power. This status bar is viewable regardless of which screen is displayed on the device. | |
| 2 | Operator views the battery level. | |

### Check SA Tool Information

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-015** | | **Check SA Tool Information** |
| **Use Case Description**:  This Use Case describes the steps to check the device information (device ID, software version, remote list update, Subsystem synchronization time) for the SA Tool. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * SA Tool is powered on * SA Tool is “In-Service” * Operator is logged-in | | |
| **Main Use Case:** **Check SA Tool Information** | | |
| **Step #** | **Step Description** | |
| 1 | The operator selects the more options menu and chooses to view the SA Tool information. | |
| 2 | The operator can view the following information from the device information screen:   * Device ID * Software version * Last remote list update time (for hotlist, action list, load value list, OP deny list) * OP Pilot list (if enabled) * Last Subsystem synchronization time (synchronization of rules, transactions etc.)   The operator can also toggle to the EOD tab to view the EOD files present on the device, both active & future files. | |
| 4 | The operator can return to the previous screen after they have viewed their device information. | |

### Switch SA Tool from Standby to In-Service State

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-015** | | **Switch SA Tool from Standby to In-Service State** |
| **Use Case Description**:  This Use Case describes the steps when an operator switches the SA Tool from standby to in-service state. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * SA Tool is powered on * SA Tool is in “standby” state * Operator has been in “standby” state longer than the configurable threshold value that requires logging in | | |
| **Main Use Case:** **Switch SA Tool from Standby to In-Service State** | | |
| **Step #** | **Step Description** | |
| 1 | The operator presses the physical power button on the device. | |
| 2 | The SA Tool switches on the screen and displays the device lock screen. | |
| 3 | Steps 1 – 2 in Section 7.2.4: Enter Lock Screen Passcode (UC-SA Tool-002). | |
| 4 | Operator signs-in to the SA Tool application as an existing user (UC-SA Tool-004). Upon a successful sign-in, the SA Tool enters the in-service state and displays the shift preferences screen. | |

#### Alternate Flow

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| **Alternate Flows** | |
| **UC-SA Tool-015.1** | **Switch SA Tool from Standby to In-Service State before threshold requiring login** |
| **Modified Pre-Conditions**:   * Operator has not been in “standby” state longer than the configurable threshold value that requires logging in |
| The Steps from Main Use Case will be completed as follows:   1. Steps 1 - 3 as stated in Main Use Case. 2. SA Tool displays the home screen. Signing in and navigating to the home screen (Shift Parameters, Route Parameters, etc.) are not required if the timeout threshold has not been passed. |

### Switch SA Tool from In-Service to Standby State

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| --- | --- | --- |
| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-017** | | **Switch SA Tool from In-Service to Standby State** |
| **Use Case Description**:  This Use Case describes the steps when an operator switches the SA Tool from in-service to standby state. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * SA Tool is powered on * SA Tool is in “in-service” state | | |
| **Main Use Case: Switch SA Tool from In-Service to Standby State** | | |
| **Step #** | **Step Description** | |
| 1 | The operator presses the physical power button on the device once. | |
| 2 | The SA Tool turns off the screen and goes into standby state. | |

#### Alternate Flow

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| **Alternate Flows** | |
|  | **Operator navigates away from the SA Tool Application** |
| **Modified Pre-Conditions**: None |
| The Steps from Main Use Case will be completed as follows:   1. The operator switches to a third party application on SA Tool. For more details refer to UC 7.2.3 2. The SA Tool application runs in the background and therefore goes into standby state. |

#### Exception Flow

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| Exception Flow | |
| **UC-SA Tool-017.1** | **Change SP after switching device from standby to in-service state** |
| **Modified Pre-Conditions:** None |
| The Steps from the Main Use Case are as follows:   1. Steps 1 to 2 as stated in Main Use Case. 2. Operator attempts to change SP on the login screen. 3. SA Tool application notifies the operator with a corresponding error message. |

### In-App Training and FAQ

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-018** | | **In-App Training and FAQs** |
| **Use Case Description**:  This Use Case describes the steps for an operator to access in-app training and frequently asked questions (FAQs). The in-app training and FAQs will assist the operator and answer common questions on CLIENT and CLIENT products, as well as the usage of the application.  Online web search, copy and find features will be disabled in the lockdown browser.  ***Note:*** *The In-App Training and FAQ will be stored locally on the device. Anytime the training material is updated or changed the SA Tool will sync with the device and update the content. If the operator exits the training while on a training sub-page and returns to the tap card screen and re-launches training, the SA Tool will launch the training home page.* | | |
| **Pre-Conditions**: The following pre-conditions hold true for the Main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * SA Tool is powered on * SA Tool is in “in-service” state * Operator is signed-in to their account | | |
| **Main Use Case: In-App Training and FAQs** | | |
| **Step #** | **Step Description** | |
| 1 | Operator opens the more options menu on the SA Tool home screen | |
| 2 | Operator locates the FAQ and Training option from the menu | |
| 3 | Operator selects the FAQ and Training option. The SA Tool applications will launch a lockdown browser and navigate to a web page that is populated with training modules and FAQs and other operator aids.  Note: The content populated on the page is populated by CLIENT. The content is synchronized with SOTI. The size of the content that can be loaded will be limited. | |
| 4 | Once the operator has completed their preferred training the back button located outside of the lockdown browser is tapped. The SA Tool returns to the home screen | |

#### Alternate Flow

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| **Alternate Flows** | |
| **UC-SA Tool-015.1** | **Operator attempts to launch In-App Training and FAQ when SA Tool is Offline** |
| Modified Pre-Conditions   * SA Tool is offline |
| Steps   1. Steps 1-2 from the main use case. 2. Operator selects the FAQ and Training option. The SA Tool launches a lockdown browser. The SA Tool loads and displays the last saved content (homepage) on the device. 3. Step 4 from the Main Use Case. |
| **UC-SA Tool-015.2** | **In-App Training and FAQ is updated while content is being played on the SA Tool** |
| Modified Pre-Conditions: N/A |
| Steps   1. Steps 1-3 from the Main Use Case. 2. The SA Tool receives updated training content. The training being played by the operator will continue to play while the new content is downloaded to the device. 3. Once the download has completed it will be available the next time the In-App Training and FAQ is launched. 4. Step 4 from the Main Use Case. |

#### Exception Flow

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| **Exception Flows** | |
| **UC-SA Tool-015.3** | **In-App Training has not been downloaded to the SA Tool** |
| **Modified pre-conditions:**  N/A |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-2 from the Main Use Case. 2. The SA Tool displays a toast message on the Inspection home screen notifying the operator that there is no content available. |
| **UC-SA Tool-015.4** | **In-App Training has been remotely disabled from the SA Tool after Operator navigates to Help Screen** |
| **Modified pre-conditions:**  N/A |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-2 from the Main Use Case. 2. The SA Tool displays a message on the Help screen notifying the operator that there is no content available. |

### Change Operator Language

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| --- | --- | --- |
| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-019** | | **Change Operator Language on SA Tool application** |
| **Use Case Description**:  This use case describes the steps for an operator to change the language of the SA Tool application. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main use case, alternate flow and exceptions unless explicitly stated otherwise.   * SA Tool is powered on * Operator is signed in | | |
| **Main Use Case:** **Change Operator Language on SA Tool application** | | |
| **Step #** | **Step Description** | |
| 1 | Operator opens the more options menu on the SA Tool home screen and Selects Settings. | |
| 2 | Operator selects the language toggle. | |
| 3 | Operator slides the toggle switch between English and French.  ***Note:*** *When an operator changes the application language, the change is applied in all the application screens immediately and the change will be synchronized with the operator’s user account in the subsystem to reflect the language preference change. The language toggle located in other screens will only change the language of that screen and not affect the operator language.*  ***Note:*** *Line, Trip and Station fields from the Inspection Parameters screens will have short names coming from topology and will not have French equivalents.* | |

#### Alternate Flow

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| --- | --- |
| **Alternate Flows** | |
| **UC-SA Tool-019.1** | **Change Language on SA Tool application while SA Tool is Offline** |
| **Modified Pre-Conditions**:   * SA Tool is offline |
| The Steps from Main Use Case will be completed as follows:   1. Steps 1 – 3 as stated in Main Use Case. 2. The language preference is stored in store-and-forward memory. The language will be updated in the Subsystem when the network connection is re-established. |

### Adjust Audio Tone Volume

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-020** | | **Adjust Audio Tone Volume** |
| **Use Case Description**:  This use case describes the steps for an operator to adjust the audio tone volume of the SA Tool application. The audio tone is used for the CLIENT tones (accepted, warning and declined) tones for Farecard taps. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main use case, alternate flow and exceptions unless explicitly stated otherwise.   * SA Tool is powered on * Operator is signed in | | |
| **Main Use Case:** **Adjust Audio Tone Volume** | | |
| **Step #** | **Step Description** | |
| 1 | Operator opens the Settings screen from the More options menu. | |
| 2 | Operator adjusts the audio tone volume to the desired volume on the SA Tool. As the operator adjusts the tone, the application plays the accepted tone at the newly selected volume. | |
| 3 | If the operator presses the back button on the settings screen, the application reverts to the last saved configuration. If the operator selects done, the desired volume is saved for the shift. The volume is reset to default volume when the operator signs out or a new operator signs in. | |

### Configure Vibration Control

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-021** | | **Operator Configures Vibration Control** |
| **Use Case Description**:  This use case describes the process for an operator to configure vibration control on the SA Tool. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “in-service” mode * Operator has valid credentials and is logged into the device   **Note**: Vibration configuration only affects the duration of the vibration. | | |
| **Main Use Case: Operator Configures Haptic Feedback** | | |
| **Step #** | **Step Description** | |
| 1 | Operator selects Settings option on SA Tool | |
| 2 | Operator configures vibration control by selecting the desired vibration level. | |
| 3 | If the operator presses the back button on the settings screen, the application reverts to the last saved configuration. If the operator selects Apply, the desired vibration control is saved for the shift. The default haptic feedback will be reset when the operator signs out or a new operator signs in. | |

### Select Route Parameters (Route/Line)

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| --- | --- | --- |
| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-022** | | **Operator selects new Route/Line** |
| **Use Case Description**:  This use case describes the process for an operator selecting desired route/lines for inspection purposes on the SA Tool. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device has network connectivity * Android device is charged above the minimum battery threshold * SA Tool application is in “in-service” mode * Operator has valid credentials and is logged into the device * GPS is enabled on the SA Tool (GO/DISTANCE BASED TRANSIT Only)   **Note**: The Trip, Stop, Time fields will be greyed out until Line is selected, and the Stop and Time fields will be greyed out until Line and Trip are selected. The next/apply button will not be enabled until all fields are entered. | | |
| **Main Use Case: Operator Selects New Route/Line** | | |
| **Step #** | **Step Description** | |
| 1 | Operator selects the Settings option on the SA Tool. | |
| 2 | Operator selects Inspection Parameters. | |
| 3 | Operator selects Rail or Bus (If applicable for the TA) depending on their inspection location. | |
| 4 | **For Distance based Transit,** Operator selects desired current route/line. If the operator selects a route/line different than the current route, the trip and stop selections are reset. Operator proceeds to select the desired trip and stop. In case of bus, operator also enters the Vehicle Id.  **For Flat Fare,** Operator selects the desired current route/line and the operator also enters the Vehicle Id . If there is a cross boundary relationship for the flat fare TA- the Operator will also select region  **For DISTANCE BASED TRANSIT,** Operator selects the desired current route/line. If the operator selects a route/line different than the current route, the stop selections are reset. Operator proceeds to select the desired stop.  **Note**: For all fare-by-distance Service Providers, the maximum travel duration can be edited when the Operator selects a new route. For flat-fare service providers, the value of transfer window is taken from the EOD. | |
| 5 | Operator saves the selection. If operator doesn’t select stop, the application auto-selects the first stop/station as the inspection location (GO or DISTANCE BASED TRANSIT). Inspection location is updated to Operator’s selection. | |

#### Alternate Flow

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| --- | --- |
| **Alternate Flows** | |
| **UC-SA Tool-022.1** | **Operator selects a new Line but doesn’t select a trip** |
| **Modified pre-conditions:**   * Operator is either a GO or DISTANCE BASED TRANSIT employee |
| Step 1 – 3 as the main flow:   1. Operator selects desired current line. The selected line is different from the current line and hence, application resets the trip and stop selection. 2. Operator proceeds to save the inspection parameters, but the apply button will be greyed out and Operator won’t be able to save the current inspection parameters. 3. Operator selects the desired trip and stop. 4. In case of bus, operator also enters the vehicle id. 5. Operator saves the selection. If operator doesn’t select stop, the application auto-selects the first stop/station as the inspection location. Inspection location is updated to Operator’s selection. |
| **UC-SA Tool-022.2** | **[FLATFARE BASED Only] FLATFARE BASED SA Tool operator selects new route parameters** |
| **Modified pre-conditions**: Operator is a FLATFARE BASED employee operating a FLATFARE BASED SA Tool |
| 1. Operator selects the Additional Options menu on the SA Tool. 2. Operator selects Route Parameters. 3. Operator selects Surface (Bus / Streetcar) or Subway toggle. Surface will be selected by default. 4. If Surface selected in Step 3, the following options will be displayed:    1. Route ID (mandatory, select from list)    2. Vehicle ID (mandatory, enter up to 4 digits)    3. Stop ID (optional, enter 5-digit value)    4. Region (mandatory, default to FLATFARE BASED) 5. If Station was selected in Step 3, the following options will be displayed:    1. Station 6. Operator saves the selection.   **Note**: The option to save/apply the selection will not be enabled until all of the mandatory fields are filled in.  *For more information on Device HMI and what is displayed when an operator modifies the route parameters, please refer to* ***[R1]****.* |

### Enable auto computation of current location (GO / DISTANCE BASED TRANSIT Only)

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-023** | | **Operator enables auto-positioning for current location** |
| **Use Case Description**:  This use case describes the process for an operator to enable auto-location for route parameters on the SA Tool. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device has network connectivity * Android device is charged above the minimum battery threshold * SA Tool application is in “in-service” mode * Operator has valid credentials and is logged into the device * Operator is inspecting in Distance based Transit or DISTANCE BASED TRANSIT | | |
| **Main Use Case: Operator Enables auto-location GPS Functionality** | | |
| **Step #** | **Step Description** | |
| 1 | Operator selects the Additional Options menu on the SA Tool | |
| 2 | Operator selects Route Parameters | |
| 3 | Operator turns on automatic location | |
| 4 | Operator Selects the desired Line and Trip.  SA Tool will automatically compute the current inspection location. The auto location signal quality indicator on the home screen starts reflecting the auto location signal quality.  Stop ID will update to indicate to the operator the computed location. | |
| 5 | Operator saves the changes. | |

#### Alternate Flow

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| --- | --- |
| **Alternate Flows** | |
| **UC-SA Tool-023.1** | **GPS functionality is remotely enabled/disabled on the SA Tool** |
| **Modified pre-conditions:** N/A |
| The use case will be completed as follows:   1. SA Tool application receives remote configuration. 2. SA Tool application enables/disables the auto location functionality based on the new configuration in background. 3. If the operator had auto location enabled, and the feature was remotely disabled, a greyed out icon will be shown. |
| **UC-SA Tool-023.2** | **Operator disables auto-location functionality** |
| **Modified pre-conditions:** N/A |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 2 as stated in the Main Use Case. 2. Operator turns off auto-location. 3. Operator saves the changes. 4. Location positioning and calculation are disabled. |

### SA Tool auto-computes current Location

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-024** | | **SA Tool auto-computes current location** |
| **Use Case Description**:  This use case describes the process the SA Tool will undergo to auto-compute a location. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device has network connectivity * Android device is charged above the minimum battery threshold * SA Tool application is in “in-service” mode * Operator has valid credentials and is logged into the device * SA Tool has auto-location enabled | | |
| **Main Use Case: Operator Enables GPS Functionality** | | |
| **Step #** | **Step Description** | |
| 1. | SA Tool application is computing the distance from all stops on the selected route and trip at a configurable duration. | |
| 2 | Once within a stop radius, the device will use this stop as the current stop on SA Tool application. | |
| 3 | The device will continue to use this stop as the current stop until a new stop radius is entered.  If the user had selected a new route, the closest stop in the ordered list is selected as the current stop. | |

### GPS Signal quality changes

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-025** | | **GPS signal quality changes** |
| **Use Case Description**:  This use case describes the process the SA Tool will undergo when the GPS signal is lost. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device has network connectivity * Android device is charged above the minimum battery threshold * SA Tool application is in “in-service” mode * Operator has valid credentials and is logged into the device | | |
| **Main Use Case: GPS signal quality changes** | | |
| **Step #** | **Step Description** | |
| 1 | The GPS signal quality changes on the SA Tool. | |
| 2 | The GPS signal quality indicator on the home screen is changed to reflect the same. | |

### CLIENT backend connectivity changes

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-026** | | **CLIENT backend connectivity changes** |
| **Use Case Description**:  This use case describes the process the SA Tool will undergo when it loses connection to the CLIENT backend. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device has network connectivity * Android device is charged above the minimum battery threshold * SA Tool application is in “in-service” mode * Operator has valid credentials and is logged into the device | | |
| **Main Use Case: CLIENT backend connectivity changes** | | |
| **Step #** | **Step Description** | |
| 1 | SA Tool application updates the network icon to reflect the connectivity status with the network which reflects the status with CLIENT backend. | |

### Override automatically selected Inspection Location

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-027** | | **Operator Overrides Selects/Overrides Current Location** |
| **Use Case Description**:  This use case describes the process for an operator selecting/overriding location for inspection / fare payment purposes on the SA Tool. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device has network connectivity * Android device is charged above the minimum battery threshold * SA Tool application is in “in-service” mode * Operator has valid credentials and is logged into the device * Auto location enabled on the SA Tool * Current route/line had been selected previously | | |
| **Main Use Case: Operator Overrides Selects/Overrides Current Route Parameters** | | |
| **Step #** | **Step Description** | |
| 1 | Operator selects the Additional Options menu on the SA Tool. | |
| 2 | Operator selects Route Parameters. | |
| 3 | Operator updates current location. | |
| 4 | The Route Parameters are updated to the operator selected location. | |
| 5 | The Route Parameters are automatically updated to the next station upon arrival at the next station. | |

#### Alternate Flow

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| --- | --- |
| **Alternate Flows** | |
| **UC-SA Tool-027.1** | **Operator Selects/Overrides Location (Manual Mode)** |
| **Modified pre-conditions:**   * Auto-location is disabled on the SA Tool |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 of the Main Use Case. 2. Operator can continue selecting stops within the route from the Tap Card Screen. |

### Switches Device Mode for Current SP (DISTANCE BASED TRANSIT and GO Only)

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| --- | --- | --- |
| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-028** | | **Operator Switches Device Mode for Current SP (DISTANCE BASED TRANSIT and GO Only)** |
| **Use Case Description**:  This use case describes the process for an operator to change device mode between DISTANCE BASED TRANSIT and GO. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “in-service” mode * SA Tool has network connectivity to the CLIENT back-office * Operator has valid credentials to switch between GO and DISTANCE BASED TRANSIT mode on the SA Tool | | |
| **Main Use Case: Operator Switches Device Mode for Current SP (DISTANCE BASED TRANSIT and GO Only)** | | |
| **Step #** | **Step Description** | |
| 1 | Operator selects SP (DISTANCE BASED TRANSIT/GO) on the Login screen. | |
| 2 | Operator enters their login credentials and selects “login”. | |
| 3 | SA Tool application validates credentials and operator is successfully logged in.  **Note**: Per the existing Inspection device behaviour, GO users can sign in when DISTANCE BASED TRANSIT is selected and vice versa. The features they will have access to only depend on the TA selected on the Login screen.   * If a GO/DISTANCE BASED TRANSIT user signs in as GO, they will have access to:   + GO Route Parameters (and thus GO Fare Payments & Inspections)   + GO & DISTANCE BASED TRANSIT Sales * If a GO/DISTANCE BASED TRANSIT user signs in as DISTANCE BASED TRANSIT, they will have access to:   + DISTANCE BASED TRANSIT Route Parameters (and thus DISTANCE BASED TRANSIT Fare Payments & Inspections)   + GO & DISTANCE BASED TRANSIT Sales | |

#### Alternate Flow

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| **Alternate Flows** | |
| **UC-SA Tool-028.1** | **SP Switching is disabled** |
| **Modified pre-conditions:**   * SP Switching is disabled   **Note:** The application would enable / disable the SP switching functionality only if no operator is logged in. If an operator is logged in, the application will allow them to continue inspecting at their selected SP. Once they successfully sign out, they would only be able to inspect at the SP the device was provisioned for, if the switching functionality is disabled. |
| The Steps from the Main Use Case will be completed as follows:   1. Operator taps on the SP icon on login screen to switch between SPs. 2. Operator is displayed a toast message notification notifying SP switching is disabled. |

### Pilot Mode – Adding Media to the Pilot List

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-029** | | **Pilot Mode – Adding/Removing Media from Pilot List** |
| **Use Case Description**:  This use case describes the situation whereby an Operator may add or remove a media from the Pilot list | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “in-service” mode * SA Tool is online and connected to ATS | | |
| **Main Use Case: Adding Media to Pilot List** | | |
| **Step #** | **Step Description** | |
| 1 | Operator selects Additional Options menu button | |
| 2 | If feature state of beta is enabled in ATS, the device displays the pilot menu option. When selected, the operator is taken to the **Add/Remove Media from Pilot Screen.** The screen features a drop-down menu of which phase the Operator would like to add/remove the media from. | |
| 3 | The Operator has the option of selecting either add or remove. The first time the user is taken to this screen, the add button will be selected by default. When the user re-visits the screen, their last preference will be selected. When add is selected, any media tapped on top will be added to the pilot list. The device sends the tap to ATS whereby a confirmation dialogue is presented to the user stating **Contactless Successfully Added** along with the **DPAN.** | |

#### Alternate Flow

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| --- | --- |
| **Alternate Flows** | |
| **UC-SA Tool-029.1** | **Remove Media from Pilot List** |
| * Steps 1 -2 in the main use case. * Step 3 as follows:   + The Operator has the option of selecting either add or remove. When remove is selected any media tapped on top will be removed from the pilot list. The device sends the tap to ATS whereby a confirmation dialogue is presented to the user stating **Contactless Successfully Removed** along with the **DPAN.** |
| **UC-SA Tool-029.2** | **Media is already on the pilot list** |
|  | * Steps 1 -2 in the main use case. * Step 3 as follows:   + The Operator has the option of selecting either add or remove. When add is selected any media tapped on top will be added to the pilot list. The device sends the tap to ATS whereby a confirmation dialogue is presented to the user stating **Notice** and **This card is already on the pilot list.** |
| **UC-SA Tool-029.3** | **Media is not on the Pilot list and user is attempting to remove media** |
|  | * Steps 1 -2 in the main use case. * Step 3 as follows:   + The Operator has the option of selecting either add or remove. When remove is selected any media tapped on top will be removed from the pilot list. The device sends the tap to ATS whereby a confirmation dialogue is presented to the user stating **Contactless Successfully Removed** along with the **DPAN**.   **Note:** ATS will always provide a successful message even if a media that has already been removed is attempted to be removed again. |

#### Exception Flow

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| **Exception Flows** | |
| **UC-SA Tool-029.4** | **Media that has failed ODA check is attempted to be added/removed from the Pilot** |
| * Steps 1 -2 in the main use case. * Step 3 as follows:   + The Operator has the option of selecting either add or remove. The device rejects the tap and a confirmation dialogue is presented to the user stating **Unsuccessful** and **This card is not compatible.** |
| **UC-SA Tool-029.5** | **Media that is expired is attempted to be added/removed from the Pilot** |
|  | * Steps 1 -2 in the main use case. * Step 3 as follows:   + The Operator has the option of selecting either add or remove. The device rejects the tap and a confirmation dialogue is presented to the user stating **Unsuccessful** and **This card is expired.** |
| **UC-SA Tool-029.6** | **Device is Offline and user attempts to add or remove media from pilot** |
|  | * Steps 1 -2 in the main use case. * Step 3 as follows:   + The Operator has the option of selecting either add or remove. When remove is selected any media tapped on top will be removed from the pilot list. The device sends provides a confirmation dialogue that is presented to the user stating **Unsuccessful** and **Please connect to internet.** |
| **UC-SA Tool-029.7** | **Other error has occurred.** |
|  | * Steps 1 -2 in the main use case. * Step 3 as follows:   + The Operator has the option of selecting either add or remove. The device sends the tap to ATS whereby a confirmation dialogue is presented to the user only if an error has occurred stating **Unsuccessful** and **Please try again.** |

### Enable Peripherals – PIN pad

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| **Use Case ID** | |  | **Use Case Name** |
| **UC-SA Tool-030** | |  | **Enable Peripherals - PIN pad** |
|  | | | **Use Case Description**: This Use Case highlights the steps that are taken by the Operator to enable the PIN pad peripheral at the SA Tool device. |
|  | | | **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * SA Tool & PIN pad are online * Operator is signed-in to the SA Tool application in the revenue mode * The PIN pad toggle is set to “disabled” |
|  | | | **Main Use Case: Enable Peripherals - PIN pad** |
| **Step #** |  | **Step Description** | |
| 1 |  | Operator selects the Additional Options menu button. | |
| 2 |  | The device shows the Payment Terminal menu option. When selected, the operator is taken to the PIN Pad Management screen. | |
| 3 |  | The Operator moves the enable/disable toggle to “Enabled”. When enabled, the operator will be required to enter in the PIN pad Serial Number. The SA Tool will automatically remember & populate the last-known PIN pad serial number if one has been previously entered. | |
| 4 |  | The Operator selects “Test” button to test the connection. The SA Tool application will proceed to test the connection with the PIN pad.  **Note**: If the operator did not input a correctly formatted serial number, an error message will be displayed and the operator must rectify the issue before finishing enabling the PIN pad. | |
| 5 |  | The SA Tool provides confirmation of the connection to the PIN pad. The operator presses the “Done” button to confirm changes.  Note: Payment Terminal icon on the SA tool will display the PIN pad’s status to the operator. The payment terminal details will remaine cached, and the SA Tool device will automatically retry to connect to the PIN pad when the sales flow is entered. | |

#### Alternate Flow

For this Main Use Case, the following Common Alternate Flows apply:

* **Required fields not filled out or not valid**

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| **Alternate Flows** | |
| **UC-SA Tool-030.1** | **Unable to connect to PIN pad - PIN pad or SA Tool are offline** |
| * Steps 1 -4 in the main use case. * Step 5 as follows:   + The SA Tool is unable to connect to the PIN pad and provides a corresponding message to the Operator. The operator confirms and returns to the previous flow.   **Note:** The PIN pad details will remaine cached, and the operator device will automatically retry to connect to the PIN pad when the sales flow is entered. |

### Disable Peripherals – PIN pad

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-030.2** | | **Disable Peripherals - PIN pad** |
| **Use Case Description**: This Use Case highlights the steps that are taken by the Operator to disable the PIN pad peripheral at the SA Tool device. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * The PIN pad toggle is set to “enabled” | | |
| **Main Use Case: Disable Peripherals** | | |
| **Step #** | **Step Description** | |
| 1 | Operator selects Additional Options menu button. | |
| 2 | The device shows the Pin Pad menu option. When selected, the operator is taken to the Pin Pad Management screen. | |
| 3 | The Operator moves the enable/disable toggle to “Disabled”. When disabled, the other fields on the screen become disabled. | |
| 4 | The Operator selects “Done” button to confirm changes. The operator will be returned to the previous flow. | |

### Enable Peripheral - Printer

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-031** | | **Enable Peripherals - Printer** |
| **Use Case Description**: This Use Case highlights the steps that are taken by the Operator to enable the Printer peripheral at the SA Tool device. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * SA Tool & Printer are online * Bluetooth is enabled on the printer and the SA Tool and the printer is in pairing mode | | |
| **Main Use Case: Enable Peripherals - PIN pad** | | |
| **Step #** | **Step Description** | |
| 1 | Operator selects the Additional Options menu button. | |
| 2 | The device shows the Printer menu option. When selected, the operator is taken to the Printer Management screen. | |
| 3 | The SA tool searches for available printers within the range of the device and displays a list of all of the available printers. | |
| 4 | The operator selects the desired printer from the list to start the pairing process. | |
| 5 | SA tool displays a relevant success message and the printer icon on the SA tool will display the printer status to the operator | |

#### Alternate Flow

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| **Alternate Flows** | |
| **UC-SA Tool-031.1** | **There is an existing printer saved in the local memory of the SA Tool** |
| **Modified Pre-Condition**: There is already an existing printer paired with the SA tool, but the operator would like to connect to a different printer |
| 1. Steps 1 -2 from the Main Use case 2. The operator can deleted the printer from the cached memory by pressing the delete icon next to paired printer’s name. 3. The main use case resumes from step 3 |
| **UC-SA Tool-031.3** | **Enable printer from within screen flow that requires printer** |
| **Modified Pre-Condiction**: The operator is within a flow that requires the use of the printer (e.g., Sales, Credit Voucher, Service Guarantee, etc.) and on a screen with a Print/Issue button. |
| 1. Operator taps the printer icon from the screen they are on. 2. The SA Tool redirects the operator to the Printer Details page. 3. The operator can re-connect to an existing paired printer, delete a pairing, or pair with a new printer. 4. After the operator has completed their activities, they return to the previous flow by selecting the Done or Back button. |

#### Exception Flow

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| --- | --- |
| **Exception Flows** | |
| **UC-SA Tool-031.2** | **No available printer in the range of SA tool** |
| 1. Steps 1 -2 from the Main Use case 2. The list for the available printers returns no results 3. After scanning for a configured amount of time, the SA tool displays a relevant message to the operator indicating no printers could be found |

### Disable Peripheral – Printer

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-032** | | **Disable Peripherals - Printer** |
| **Use Case Description**: This Use Case highlights the steps that are taken by the Operator to disable the Printer peripheral at the SA Tool device. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * SA tool has enabled a printer in the past and it is saved in the cached memory | | |
| **Main Use Case: Disable Peripherals - Printer** | | |
| **Step #** | **Step Description** | |
| 1 | Operator selects Additional Options menu button. | |
| 2 | The device shows the Printer menu option. When selected, the operator is taken to the Printer Management screen. | |
| 3 | Operator is able to view the name of the paired printer | |
| 4 | Operator taps on the delete icon next to the printer’s name to remove it from the cached memory | |
| 5 | SA tool removes the printer from the cached memory and shows other printers available for connection | |

### Access SA Tool Remote

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-033** | | **Access SA Tool Remote** |
| **Use Case Description**: The use case describes the steps taken for the SA Tool Operator to access the SA Tool Remote. The SA Tool Remote website allows further functionality beyond the SA Tool. The operator will access SA Tool Remote if they want to:   * Perform a Farecard lookup * View more extensive transaction history for a Farecard beyond what is stored physically on the card * View Customer Details * View and modify a Farecard holders Autoload * Search for and view OSR * From within the Farecard lookup, an Operator can Block a Farecard * Online web search, copy and find features will be disabled in the lockdown browser.   **Note**: This feature requires that the existing SA Tool Remote functionality is being extended to the SA Tool. Changes to the actual functionality of these remote features is out of scope. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has SA Tool Remote access as defined in UM Portal permissions | | |
| **Main Use Case: Access SP Remote** | | |
| **Step #** | **Step Description** | |
| 1. 1 | Operator selects Additional Options menu button. | |
| 1. 2 | The device shows the SA Tool Remote menu option. When selected, the operator is taken to the SA Tool Remote screen. | |
| 1. 2 | From the SA Toom Remote screen, operator can select one of the following options:   * Farecard Lookup (From within the Farecard lookup, an Operator can block a Farecard) * Farecard Transaction History * Farecard Customer Details * Farecard Contract Management (Autoload) * Operator Sales Report | |
| 1. 3 | The operator selects the SA Tool Remote webpage they would like to use. | |
| 1. 4 | The SA Tool application opens the SA Tool Remote webpage selected by the Operator. The Operator is able to use all the functionality of SA Tool Remote. | |
| 1. 5 | Once the Operator has completed their actions on SA Tool Remote, the Operator closes the browser. The SA Tool returns to the home screen. | |

#### Exception Flow

For this Main Use Case, the following Common Exception Flows apply:

* **Failure to connect to Internet**

As well, the following flow-specific Exception Flows apply:

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| **Exception Flows** | |
| 7.3.6.1.2.1 | **User does not have privilege to view SA Tool Remote** |
| **Modified pre-conditions:** Operator does not have SA Tool Remote access as defined in UM Portal permissions |
| If the user does not have access to SP Remote (as configured in the user management portal):   1. The Additional Options menu option to select SA Tool Remote will not appear for the user. |

## Core Functions

This section describes the SA Tool core functions that can be accessed and used by the operator to provide CLIENT services such as Sales, Fare Payment and Inspection. In order to use the core functions, the operator must launch the SA Tool application.

### Fare Payments

#### Cardholder Taps-On SA Tool in a Fare-by-Zone TA with Farecard

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-049** | | **Cardholder Taps-On an SA Tool to a Fare-by-Zone TA with Farecard** |
| **Use Case Description**:  This main use case describes the interactions of a Farecard holder as they tap-on at the SA Tool to a Fare-by-Zone TA. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main use case, alternate flow and exceptions unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has selected the “Fare Payment” option from home screen * The Farecard is not in the Hotlist * The Farecard is not in the Load Value List * The Farecard is not in the Action List * The Farecard has no underpayment record | | |
| **‘Main use case: Cardholder Taps-On an SA Tool with Farecard (SA Tool Validation)** | | |
| **Step #** | **Step Description** | |
| 1 | The Cardholder initiates a trip and taps the Farecard on the device Card Reader (CID). | |
| 2 | The device checks that:   * The card is valid (i.e. able to communicate, is a Farecard, not locked, and not blocked) | |
| 3 | The Device calculates the tap-on fare to be charged to the customer and the underpayment fare that will be written to the farecard. Both calculations will include the following fare considerations:   * Loyalty * Transfer Reductions * Concession Co-Efficient * Temporal Class Multiplier   **Note**: For more details on the ticketing logic, please refer to sections 15.5 (Tap-On Processing) and 15.10 (Underpayment Calculation) within **[R6]**. | |
| 4 | The right to travel is conferred to the Cardholder by updating the Farecard ; accordingly, the device provides the appropriate feedback to the Cardholder of a successful transaction.  **Note**: For more details on the feedback provided to the Cardholder, please refer to **[R1]**. Also, while the feedback screen is presented to the Cardholder, the device will still be able to process another Farecard at the same time. | |

##### Alternate Flows

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| 1. Alternate Flows | |
| **UC-SA Tool-049.1** | **Farecard is in the Load Value List or Action List** |
|  | The Device will process the Load Value or Action prior to performing the Fare Validation:   * Step 1 as stated in the Main Use Case * Step 2 as follows:   + The Device processes the Load or Action Transaction prior to continuing the validation Use Case * Step 3 as stated in the Main Use Case * Step 4 as follows:   + The right to travel is conferred to the Cardholder by updating the Farecard ; accordingly, the device provides the appropriate feedback to the Cardholder of a successful transaction in addition to a List Item processing   **Note**: For more details on the feedback provided to the Cardholder in the Case of List Item Processing, please refer to [**R1**]. For more details on the ticketing logic for List Item Processing, please refer to section 5.2-5.5 within [**R6**] |
| **UC-SA Tool-049.2** | **Farecard contains a valid transfer product** |
|  | The Tap-On Fare will differ if a valid transfer product is contained on the Farecard. The steps from the Main Use Case will be completed as follows:   * Steps 1 and 2 as stated in the Main Use case * Step 3 as follows:   + The Tap-On Fare configured on the device as well as the Underpayment Value will be reduced to account for the Transfer Discount * Step 4 as stated in the Main Use Case   **Note**: For more details on the ticketing logic, please refer to sections 15.7 (Fare-by-Zone Transfer Processing) and 15.10 (Underpayment Calculation) within [**R6**]. |
| **UC-SA Tool-049.3** | **Farecard contains a Default O/D and the Customer Taps on at either the Origin or Destination Station** |
|  | The Device will process a full Fare-by-Zone transaction (both tap-on and tap-off) in case of a default O/D on the Farecard:   * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The Device will deduct the Full Fare value for the station-to-station trip accounting for all Fare considerations associated to the trip * Step 4 as stated in the Main Use Case   **Note**: For more details on the ticketing logic, please refer to sections 15.6 (Default O/D Processing) within [**R6**]. |
| **UC-SA Tool-049.4** | **Farecard contains a Default O/D and the Customer Overrides the Default Trip prior to tapping-on** |
|  | The Device will override the default O/D contained on the Farecard and process the tap as a regular tap-on:   * Step 1 as follows:   + Customer requests the override of a Default Trip by interacting with the Device   + Device HMI informs the customer that the Device is prepared to override the Default Trip   + The Cardholder then initiates a trip by presenting the Farecard to the Device CID * Step 2 and 3 as stated in the Main Use Case * Step 4 as follows:   + The right to travel is conferred to the Cardholder by updating the Farecard ; accordingly, the device provides the appropriate feedback to the Cardholder of a successful transaction in addition to notifying the customer that the Default Trip was Overridden   *Note: For more details on the feedback provided to the Cardholder in the case of Overriding the default trip, please refer to [R2].* |
| **UC-SA Tool-049.4** | **Farecard contains Underpayment from a previous trip** |
|  | **Modified Pre-Conditions:** The Farecard has a value contained in the Underpayment Block |
| The Device will deduct the Underpayment Value from the Farecard E-Purse prior to performing the Fare Validation:   * Step 1 as stated in the Main Use Case * Step 2 as follows:   + Device Detects Underpayment on the Farecard from a previously closed trip   + Device reads the Underpayment value from the Farecard and deducts this value from the E-Purse Balance   + Device clears the underpayment field * Steps 3, 4 as stated in the Main Use Case   **Note**: For more details on the ticketing logic, please refer to sections 5.7 (FTP Underpayment Auto-settling) within [**R6**]. |
| **UC-SA Tool-049.4** | **Non-Revenue Farecard is tapped on the Device** |
|  | SA tool will only accept Non-Revenue farecard in the training mode. If the Non-Revenue card is tapped in the revenue mode, the device will display a declined HMI.  For more details, please refer to SA Tool HMI Specifications. |
| **UC-SA Tool-049.5** | **Farecard is tapped on a device during a time period that contains an associated Temporal Class Supplement** |
|  | The Device will contain an HMI reflecting the Temporal Class Supplement, and will process the Tap-On Transaction as a normal tap-on:   * Step 1 as follows:   + The Cardholder initiates a trip and taps the Farecard on the device Card Reader (CID) with the device HMI displaying the Temporal Class * Step 2, 3 and 4 as in the main Use Case   **Note**: For more details on the feedback provided to the Cardholder in the case of Temporal Class Supplements, please refer to [**R1**]. |
| **UC-SA Tool-049.6** | **Farecard with Autoload Enabled is tapped on a device which and the Fare amount crosses the Auto-load threshold** |
|  | If the Fare causes the Farecard E-Purse Balance to cross the Auto-load threshold, the Farecard will have the Autoload amount automatically added to the E-Purse balance:   * Step 1 and 2 as in the main Use Case * Step 3 as follows:   + The Device detects that the Current E-Purse Balance – deducted Fare crosses the Autoload threshold, which triggers the Autoload amount to be added to the Farecard.   + The Device deducts the Fare from the Farecard E-Purse balance * Step 4 as follows:   + The right to travel is conferred to the Cardholder by updating the Farecard ; accordingly, the device provides the appropriate feedback to the Cardholder of a successful transaction in addition to notifying the customer that the autoload was successful   **Note**: For more details on the feedback provided to the Cardholder in the Case of Autoload, please refer to [**R1**]. For more details on the ticketing logic for Autoload Processing, please refer to section 5.11 within [**R6**]. |
| **UC-SA Tool-049.7** | **Farecard does not contain a Default O/D and the Customer Overrides the Default Trip prior to tapping-on** |
|  | If the Farecard with no Default O/D is tapped on while the device is in Override mode, the device will process the tap as a result tap-on   * Step 1 as follows:   + Customer requests the override of a Default Trip by interacting with the Device   + Device HMI informs the customer that the Device is prepared to override the Default Trip   + The Cardholder then initiates a trip by presenting the Farecard to the Device CID * Step 2, 3 as stated in the Main Use Case * Step 4 as follows:   + The right to travel is conferred to the Cardholder by updating the Farecard ; accordingly, the device provides the appropriate feedback to the Cardholder of a successful transaction in addition to notifying the customer that the Default Trip was overridden |
|  | **Cardholder Taps-On an SA Tool to a Fare-by-Zone TA with Farecard – Customer requests Audio Messages** |
| **Modified pre-conditions:** N/A |
| The Steps from the Main Use Case will be completed as follows:   1. The customer asks to pay for the trip with their Farecard and requests audio messages for the fare payment. 2. Steps 1-4 as stated in the Main Use Case 3. Operator enables audio mode. 4. The operator can change the volume level using the physical device buttons at the customer’s discretion or proceed with the use case. While the volume is being adjusted, a volume adjustment bar will appear, and timeout automatically, to indicate the volume level. The volume will return to the device default after the use case is completed. The physical buttons will only support changing the audio messaging volume when accessibility mode is enabled.   **Note:** The minimum volume level and default volume level are configurable.   1. SA Tool displays the fare payment screen to the operator and customer for the duration of the audio message. Corresponding audio message is played to the customer in the default language of their Farecard as seen in the table below.  |  |  | | --- | --- | | **Card Language** | **Audio Language** | | Registered - English | English | | Registered - French | French | | Anonymous - English | English | | Anonymous - French | French |   After the audio message ends, the screen returns to the application Tap Card screen. |

##### Exception Flow

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| 1. Exception Flows | |
| **UC-SA Tool-049.8** | 1. Farecard fails validation checks at Tap-On |
|  | If a Farecard fails the necessary validation checks, the device returns the appropriate feedback, and the right to travel is not conferred.   * Step 1 is as stated in Main Use Case * Step 2 will be as follows:   + The device performs the necessary validation and determines that the Farecard is unable to pass the checks * Step 3 will be as follows:   + The right to travel is not conferred   + The device provides the appropriate feedback to the Cardholder   **Note**: For more details on the feedback provided to the Cardholder in the case of failed validation, please refer to [**R1**]. |
| **UC-SA Tool-049.9** | **Cardholder has already tapped-on** |
|  | This Exception use case describes the interactions of the cardholder taps-on again at an SA Tool at the same station within the SA Tool Tap-on anti-passback Window. The device provides the cardholder with the appropriate feedback   * Step 1 as stated in the Main Use Case * Step 2 will be as follows:   + The device detects that the cardholder has already tapped on at the same station and is within the Tap-on anti-passback Window. * Step 3 will be as follows:   + The device provides the appropriate feedback to the cardholder without updating the Farecard .   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the tap-on anti-passback logic, please refer to sections 15.12 (Tap-on anti-passback Management) within [**R6**]. |
| **UC-SA Tool-049.10** | **Farecard has insufficient E-Purse to cover the Tap-On Fare** |
|  | If a Farecard’s E-Purse balance is less than that of the Tap-On Fare, the right to travel is not conferred.   * Step 1 & 2 as stated in the Main Use Case * Step 3 will be as follows:   + Device calculates that the configured Tap-On Fare is greater than the Farecard E-Purse Balance * Step 4 will be as follows:   + The right to travel is not conferred   + The device provides the appropriate feedback to the Cardholder   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the feedback provided to the Cardholder in the case of insufficient funds, please refer to [**R1**]. |
| **UC-SA Tool-049.11** | **Farecard is blocked** |
|  | **Modified Pre-Condition:** Farecard is blocked |
| If the Farecard is blocked, the right to travel is not conferred.   * Step 1 as stated in the Main Use Case * Step 2 as follows:   + Card reader detects Farecard is block * Step 3 as follows:   + Right to travel is not conferred   + The Device provides the appropriate feedback to the Cardholder   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the feedback provided to the Cardholder in the case of a blocked Farecard, please refer to [**R1**]. |
| **UC-SA Tool-049.12** | **Multiple NFC media are presented to the device at one time** |
|  | If multiple NFC media are presented to the device at one time, the device will block all fare payment functionality:   * Step 1 as follows:   + Customer presents multiple NFC medias to the card reader at once * Step 2 as follows:   + Device blocks all user functionality, presents Anti-Collision toast message to customer   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the feedback provided to the Cardholder in the case of anti-collision, please refer to [**R1**]. |
| **UC-SA Tool-049.13** | **Tap a non-activated Farecard on an SA Tool:** If the Farecard is not activated and is tapped on the device, the transaction is unsuccessful.  Note: non- activated farecard can be activated on CWS or through call center |
|  | **Modified pre-conditions:** Farecard is not activated |
| The steps from the Main use case will be completed as follows:   * Step 1 as stated in Main Use Case * Step 2 as follows: * Device detects that the Farecard is not activated * Step 3 as follows: * The device provides feedback to the Cardholder of an unsuccessful transaction due to inactive farecard * An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on Card Identification Processing, refer to [**R6**]. For more details on the feedback provided to the customer, refer to **[R1].** |
| **UC-SA Tool-049.14** | **Tap a Farecard on an SA Tool and card reading error occurs:** Cardholder taps Farecard on an SA Tool and a Card reading error occurs (e.g. Farecard is immediately removed from the card reader). |
|  | The steps from the Main use case will be completed as follows:   * Step 1 as follows:   + Customer pulls Farecard prior to the transaction completion * Step 2 as follows:   + The device will not provide any feedback and screen remains “In-Service” display   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   The above scenario is applicable for torn transactions in which the farecard is updated but no response is provided from the device (i.e. balance is deducted, and a TrxStatus= 2 transaction is generated). If the customer taps on the same device again within the repair window, a repair transaction will be generated, the customer will not be charged a second time, and will be allowed to travel. However, if the customer taps on to a different device or outside the repair window (regardless of if the tap occurred on the same/different device), it will be considered a new trip.  **Note**: For more details around torn transaction logic, refer to [**R6**]. |
| **UC-SA Tool-049.15** | **Tap a Farecard on an SA Tool and card write error occurs** |
|  | The steps from the Main use case will be completed as follows:   * Step 1 as stated in Main Use Case * Step 2 as follows:   + Device fails to write to the Farecard * Step 3 as follows:   + The device will not provide any feedback and screen remains “In-Service” display   + The device will delete the transaction information   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   The above scenario is applicable for torn transactions in which the farecard is updated but no response is provided from the device (i.e. balance is deducted, and a TrxStatus= 2 transaction is generated). If the customer taps on the same device again within the repair window, a repair transaction will be generated, the customer will not be charged a second time, and will be allowed to travel. However, if the customer taps on to a different device or outside the repair window (regardless of if the tap occurred on the same/different device), it will be considered a new trip.  **Note**: For more details around torn transaction logic, refer to [**R6**]. |
| **UC-SA Tool-049.16** | **Tap a Farecard when SA Tool is in Out-of-Service state.** |
|  | **Modified Pre-Conditions:** Device is in Out-of-Service state. Screen provides appropriate ‘Out-of-Service’ display to customers. |
| The steps from the Main use case will be completed as follows:   * Step 1 as stated in Main Use Case * Step 2 as follows: * Device will not detect the card * Step 3 as follows:   + Device Remains in Out-of-Service State   + Device does not update the farecard   + Device does not initiate a transaction |
| **UC-SA Tool-049.17** | **Tap a hotlisted Farecard on an SA Tool:** If the Farecard is on the Hotlist and is tapped on the device, the device will block the Farecard, and the transaction is unsuccessful. |
|  | **Modified pre-conditions:** Farecard is on the Hotlist |
| The steps from the Main use case will be completed as follows:   * Step 1 as stated in Main Use Case * Step 2 as follows:   + Device detects that Farecard is in the hotlist.   *Note: For more details on Hotlist Processing, refer to [****R3****]*   * Step 3 as follows:   + Farecard Blocking Reason will be set.   + Farecard Hotlist SN is incremented.   + E-Purse Balance **will not** be updated.   + Transaction History **will not** be updated. * Step 4 as follows:   + The device provides feedback to the Cardholder of a blocked Farecard   + Farecard Blocking Event will be generated   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the feedback provided to the Cardholder in the case of a blocked farecard, please refer to [**R1**]. |
| **UC-SA Tool-049.18** | **Farecard has insufficient funds to clear Underpayment** |
|  | **Modified Pre-Condition:** Farecard contains underpayment from a previous trip |
| If the Farecard contains underpayment from a previous trip and has insufficient funds to clear the underpayment, the tap will be declined:   * Step 1 as stated in the Main Use Case * Step 2 as follows:   + Device Detects Underpayment on the Farecard from a previously closed trip   + Device reads the Underpayment value from the Farecard determines that the Farecard has insufficient funds to clear Underpayment * Step 3 as follows:   + Fare Payment is declined   + Insufficient E-Purse HMI displayed to customer   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. |
| **UC-SA Tool-049.19** | **Customers attempts to tap-on immediately after tapping-off at the same station** |
|  | **Modified Pre-Condition:** Farecard has been tapped at the same station within the tap-off anti-passback window: |
| * Step 1 as stated in the Main Use Case * Step 2 will be as follows:   + The device detects that the cardholder has already tapped on at the same station and is within the Tap-off anti-passback Window. * Step 3 will be as follows:   + The device provides the appropriate feedback to the cardholder without updating the Farecard .   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the tap-on anti-passback logic, please refer to sections 15.12 (Tap-on anti-passback Management) within [**R6**]. |
| **UC-SA Tool-049.20** | **Farecard is locked** |
|  | **Modified Pre-Condition:** Farecard is locked |
|  | If the Farecard is locked, the right to travel is not conferred.   * Step 1 as stated in the Main Use Case * Step 2 as follows:   + Card reader detects Farecard is locked * Step 3 as follows:   + Right to travel is not conferred   + The Device provides the appropriate feedback to the Cardholder   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the feedback provided to the Cardholder in the case of a locked Farecard, please refer to [**R1**]. |
| **UC-SA Tool-049.21** | **Non-Recognizable media is tapped on SA Tool** |
|  | 1.User taps a card that is not recognizable to the reader  2. SA Tool displays applicable “Try Another Card” screen |

#### Cardholder Taps-Off on a SA Tool in a Fare-by-Zone TA with Farecard

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-050** | | **Cardholder Taps-Off SA Tool with Farecard** |
| **Use Case Description**:  This main use case describes the interactions of a Farecard holder as they tap-off at the SA Tool. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main use case, alternate flow and exceptions unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has selected the “Fare Payment” option from home screen * The Farecard has no underpayment record * Farecard is able to pass validation checks (i.e. valid Farecard , has sufficient funds, etc.) * The Cardholder has tapped-on * The Farecard is not in the Hotlist * The Farecard is not in the Load Value List * The Farecard is not in the Action List * The Time since tap-on has not exceeded the Max Travel Duration * The Farecard has Underpayment from the Current TA (written from the tap-on transaction) | | |
| **Main use case: Cardholder Taps-Off SA Tool with Farecard (SA Tool Validation)** | | |
| **Step #** | **Step Description** | |
| 1 | The Cardholder ends a trip and taps the Farecard on the device Card Reader (CID). | |
| 2 | The device checks that:   * The card is valid (i.e. able to communicate, is a Farecard, not locked, and not blocked) | |
| 3 | The device deducts the appropriate final configured fare. Validation checks include (but are not limited to):   * Configured fare rules * Cardholder concession * Transfer Products on the Farecard * Loyalty Parameters contained on the Farecard * Temporal Class associated to the current time / route   **Note**: For more details on the ticketing logic, please refer to section 15.8 (Tap-Off Processing) in [**R6**].  **Note** 2: No Variation Flows included for Transfer Products and Loyalty Parameters as they are described in 15.8 within [**R6**]. | |
| 4 | The device provides the appropriate feedback to the Cardholder of a successful transaction and updates the Farecard accordingly.  **Note**: For more details on the feedback provided to the Cardholder, please refer to [**R1**]. Also, while the feedback screen is presented to the Cardholder, the device will still be able to process another Farecard at the same time. | |

##### Alternate Flow

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| 1. Alternate Flows | |
| **UC-SA Tool-050.1** | **Farecard is in the Load Value List or Action List** |
|  | The Device will process the Load Value or Action prior to performing the Fare Validation:   * Step 1 as stated in the Main Use Case * Step 2 as follows:   + The Device processes the Load or Action Transaction prior to continuing the validation Use Case * Step 3 as stated in the Main Use Case * Step 4 as follows:   + The device provides the appropriate feedback to the Cardholder of a successful transaction in addition to the processing of a list item and updates the Farecard accordingly.   **Note**: For more details on the feedback provided to the Cardholder in the Case of List Item Processing, please refer to [**R1**]. For more details on the ticketing logic for List Item Processing, please refer to section 5.2-5.5 within [**R6**]. |
| **UC-SA Tool-050.2** | **Farecard taps off on a Device after the tap-on occurred during a temporal class Supplement time** |
|  | The Device will check the tap-on time associated to the current transaction and process the temporal class supplement in addition to the Base Fare:   * Step 1, 2 as stated in the Main Use Case * Step 3 as follows:   + The Device will read the tap-on date/time contained on the Farecard Transaction History block and pass this information to the CRE, which will then deduct the associated supplemental fare in addition to the Base Fare * Step 4 as follows:   + The device provides the appropriate feedback to the Cardholder of a successful transaction in addition to the Temporal class Supplement and updates the Farecard accordingly |
| **UC-SA Tool-050.3** | **Farecard taps off on a Device with a Temporal class Supplement after tapping-on outside of a Temporal class Supplement Time Profile** |
|  | The Device will contain an HMI reflecting the Temporal class Supplement, and will process the Tap-Off Transaction as a regular fare (no temporal class supplement applied) tap-on:   * Step 1 as follows:   + The Cardholder initiates a trip and taps the Farecard on the device Card Reader (CID) with the device HMI displaying the Temporal class Supplement * Step 2, 3 and 4 as in the main Use Case   As the Temporal class Supplement utilizes the Tap-on time to compare against the CRE, if the Tap-Off is done during a Temporal class time and the Tap-On time was not, no supplemental fare will be charged to the customer |
| **UC-SA Tool-050.4** | **Non-Revenue Farecard is tapped on the Device** |
|  | SA tool will only accept Non-Revenue farecard in the training mode. If the Non-Revenue card is tapped in the revenue mode, the device will display a declined HMI.  For more details, please refer to SA Tool HMI Specifications |
| **UC-SA Tool-050.5** | **Farecard with Autoload Enabled is tapped on a device which and the Fare amount crosses the Auto-load threshold** |
|  | If the Fare causes the Farecard E-Purse Balance to cross the Auto-load threshold, the Farecard will have the Autoload amount automatically added to the E-Purse balance:   * Step 1 and 2 as in the main Use Case * Step 3 as follows:   + The Device detects that the Current E-Purse Balance – deducted Fare crosses the Autoload threshold, which triggers the Autoload amount to be added to the Farecard.   + The Device deducts the appropriate configured Fare from the Farecard E-Purse balance * Step 4 as follows:   + The device provides the appropriate feedback to the Cardholder of a successful transaction in addition to an Autoload transaction and updates the Farecard accordingly   **Note**: For more details on the feedback provided to the Cardholder in the Case of Autoload, please refer to [**R1**]. For more details on the ticketing logic for Autoload Processing, please refer to section 5.11 within [**R6**]. |
| **UC-SA Tool-050.6** | **Farecard with Fare type (either Universal or Specific) other than Default taps-off** |
|  | The Device will display the “Fare Payment with Fare type Discount” HMI and account for the concession discount in the Fare:   * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The Device reads the concession value from the Farecard and passes this information to the CRE. The CRE then utilizes this concession information to determine the appropriate fare and deduct this value from the Farecard E-Purse * Step 4 as follows:   + The device provides the appropriate feedback to the Cardholder of a successful transaction with a fare type discount and updates the Farecard accordingly   **Note**: For more details on the feedback provided to the Cardholder in the Case of fare type discounts, please refer to [**R1**]. |
| **UC-SA Tool-050.7** | **Customer Overrides the Default Trip prior to tapping-off** |
|  | If the tap-off occurs while the device is in Override mode, the device will process the tap as a normal tap-off   * Step 1 as follows:   + Customer requests the override of a Default Trip by interacting with the Device   + Device HMI informs the customer that the Device is prepared to override the Default Trip   + The Cardholder presents Farecard to the Device CID * Step 2, 3 and 4 as stated in the Main Use Case |
| **UC-SA Tool-050.8** | **Cardholder Taps-Off SA Tool with Farecard – Customer requests Audio Messages** |
|  | **Modified pre-conditions:** N/A |
| The Steps from the Main Use Case will be completed as follows:   1. The customer asks to pay for the trip with their Farecard and requests audio messages for the fare payment. 2. Steps 1-4 as stated in the Main Use Case 3. Operator enables audio mode. 4. The operator can change the volume level using the physical device buttons at the customer’s discretion or proceed with the use case. While the volume is being adjusted, a volume adjustment bar will appear, and timeout automatically, to indicate the volume level. The volume will return to the device default after the use case is completed. The physical buttons will only support changing the audio messaging volume when accessibility mode is enabled.   **Note:** The minimum volume level and default volume level are configurable.   1. SA Tool displays the fare payment screen to the operator and customer for the duration of the audio message. Corresponding audio message is played to the customer in the default language of their Farecard as seen in the table below.  |  |  | | --- | --- | | **Card Language** | **Audio Language** | | Registered - English | English | | Registered - French | French | | Anonymous - English | English | | Anonymous - French | French |   After the audio message ends, the screen returns to the application Tap Card screen. |

##### Exception Flow

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| 1. Exception Flows | |
| **UC-SA Tool-050.9** | 1. Farecard fails validation checks at Tap-On |
|  | If a Farecard fails the necessary validation checks, the device returns the appropriate feedback, and the right to travel is not conferred.   * Step 1 is as stated in Main Use Case * Step 2 will be as follows:   + The device performs the necessary validation and determines that the Farecard is unable to pass the checks * Step 3 is skipped * Step 4 will be as follows:   + The device provides the appropriate feedback to the Cardholder   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the feedback provided to the Cardholder in the case of failed validation, please refer to [**R1**]. |
| **UC-SA Tool-050.10** | **Farecard is tapped at the same station as the Tap-On** |
|  | If the Farecard is tapped-off at the same location where tap-on occurred, the device provides the cardholder with the appropriate feedback   * Step 1 as stated in the Main Use Case * Step 2 will be as follows:   + The device detects that the cardholder has already tapped on at the same station and is within the Tap-on anti-passback Window. * Step 3 will be as follows:   + The device provides the appropriate feedback to the cardholder without updating the Farecard .   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the tap-on anti-passback logic, please refer to sections 15.12 (Tap-on anti-passback Management) within [**R6**]. |
| **UC-SA Tool-050.12** | **Farecard is blocked** |
|  | If the Farecard is blocked, the right to travel is not conferred.   * Step 1 as stated in the Main Use Case * Step 2 as follows:   + Card reader detects Farecard is blocked * Step 3 of Main Use Case is skipped * Step 4 as follows:   + Right to travel is not conferred   + The Device provides the appropriate feedback to the Cardholder   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the feedback provided to the Cardholder in the case of a blocked Farecard, please refer to [**R1**]. |
| **UC-SA Tool-050.13** | **Time since Tap-On Exceeds Max Travel Duration** |
|  | If the time since tap-on exceeds the Max Travel Duration, then the Device will auto-settle the Underpayment and open a new trips   * Step 1 as stated in the Main Use Case * Step 2 as follows:   + Device determines that the Tap-On Time + Max Travel Duration < Current Time   + Device Auto-settles the Underpayment and deducts the value from the Farecard E-Purse * Step 3 as follows:   + Enter “Cardholder Taps-On to a SA Tool in a Fare-by-Zone TA with a Farecard” Main Use Case (Section 11.1.2) Step number 2   **Note**: For more details on the Max Travel Duration Expiry and Underpayment Auto-Settling Logic, please refer to Sections 15.1 (Global Validation) and 5.7 (Fare Transaction Processor Underpayment Auto-Settlement) within [**R6**]. |
| **UC-SA Tool-050.14** | **Multiple NFC media are presented to the device at one time** |
|  | If multiple NFC media are presented to the device at one time, the device will block all fare payment functionality:   * Step 1 as follows:   + Customer presents multiple NFC medias to the card reader at once * Step 2 as follows:   + Device blocks all user functionality, presents Anti-Collision HMI to customer   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the feedback provided to the Cardholder in the case of anti-collision, please refer to [**R1**]. |
| **UC-SA Tool-050.15** | **Tap a non-activated Farecard on an SA Tool:** If the Farecard is not activated and is tapped on the device, the transaction is unsuccessful.  Note: non- activated farecard can be activated on CWS or through call center |
|  | **Modified pre-conditions:** Farecard is not activated |
| The steps from the Main use case will be completed as follows:   * Step 1 as stated in Main Use Case * Step 2 as follows: * Device detects that the Farecard is not activated * Step 3 as follows:   + The device provides feedback to the Cardholder of an unsuccessful transaction   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on Card Identification Processing, refer to [**R6**]. For more details on the feedback provided to the customer, refer to **[R1].** |
| **UC-SA Tool-050.16** | **Tap a Farecard on an SA Tool and card reading error occurs:** Cardholder taps Farecard on an SA Tool and a Card reading error occurs (e.g. Farecard is immediately removed from the card reader). |
|  | The steps from the Main use case will be completed as follows:   * Step 1 as follows:   + Customer pulls Farecard prior to the transaction completion * Step 2 as follows:   + The device will not provide any feedback and screen remains “In-Service” display   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   The above scenario is applicable for torn transactions in which the farecard is updated but no response is provided from the device (i.e. balance is deducted, and a TrxStatus= 2 transaction is generated). If the customer taps on the same device again within the repair window, a repair transaction will be generated, the customer will not be charged a second time, and will be allowed to travel. However, if the customer taps on to a different device or outside the repair window (regardless of if the tap occurred on the same/different device), it will be considered a new trip.  **Note**: For more details around torn transaction logic, refer to [**R6**]. |
| **UC-SA Tool-050.17** | **Tap a Farecard on an SA Tool and card write error occurs** |
|  | The steps from the Main use case will be completed as follows:   * Step 1 as stated in Main Use Case * Step 2 as follows:   + Device fails to write to the Farecard * Step 3 as follows:   + The device will not provide any feedback and screen remains “In-Service” display   + The device will update the audit counters   + The device will delete the transaction information   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. |
| **UC-SA Tool-050.18** | **Tap a Farecard when SA Tool is in Out-of-Service state.** |
|  | **Modified Pre-Conditions:** Device is in Out-of-Service state. Screen provides appropriate ‘Out-of-Service’ display to customers. |
| The steps from the Main use case will be completed as follows:   * Step 1 as stated in Main Use Case * Step 2 as follows: * Device will not detect the card * Step 3 as follows:   + Device Remains in Out-of-Service State   + Device does not update the farecard   Device does not initiate a transaction |
| **UC-SA Tool-050.19** | **Tap a hotlisted Farecard on an SA Tool:** If the Farecard is on the Hotlist and is tapped on the device, the device will block the Farecard, and the transaction is unsuccessful. |
|  | **Modified pre-conditions:** Farecard is on the Hotlist |
| The steps from the Main use case will be completed as follows:   * Step 1 as stated in Main Use Case * Step 2 as follows:   + Device detects that Farecard is in the hotlist.   *Note: For more details on Hotlist Processing, refer to [****R3****]*   * Step 3 as follows:   + Farecard Blocking Reason will be set.   + Farecard Hotlist SN is incremented.   + E-Purse Balance **will not** be updated.   + Transaction History **will not** be updated. * Step 4 as follows:   + The device provides feedback to the Cardholder of a blocked Farecard   + Farecard Blocking Event will be generated   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the feedback provided to the Cardholder in the case of a blocked farecard, please refer to [**R1**]. |
| **UC-SA Tool-050.20** | **Farecard is locked** |
|  | If the Farecard is locked, the right to travel is not conferred.   * Step 1 as stated in the Main Use Case * Step 2 as follows:   + Card reader detects Farecard is locked * Step 3 of Main Use Case is skipped * Step 4 as follows:   + Right to travel is not conferred   + The Device provides the appropriate feedback to the Cardholder   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the feedback provided to the Cardholder in the case of a locked Farecard, please refer to [**R1**]. |
| **UC-SA Tool-050.21** | **Non-Recognizable media is tapped on SA Tool** |
|  | 1.User taps a card that is not recognizable to the reader  2. SA Tool displays applicable “Try Another Card” screen |

#### Accepting Fare Payment from a Farecard using ePurse Balance – Flat Fare TA

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-051** | | **Accepting Fare Payment from a Farecard using ePurse Balance** |
| **Use Case Description**:  This use case describes the steps for an operator to accept a fare payment from a Farecard using ePurse balance. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main use case, alternate flows and exceptions unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has selected the “Payment” option from home screen * Customer’s Farecard is active * Customer’s Farecard has a positive ePurse Balance greater than the fare amount * Customer’s Farecard does not have a valid period pass for the Transit Agency they are utilizing * Customer’s Farecard does not have a valid transfer product * Customer’s Farecard ’s concession is Adult or one of the current Discreet concessions (refer to **[R6]**) | | |
| **Main Use Case: Accepting Fare Payment from a Farecard using ePurse Balance** | | |
| **Step #** | **Step Description** | |
| 1 | The customer asks to pay for the trip with their Farecard | |
| 2 | The operator selects the payment function on the SA Tool application home screen. | |
| 3 | SA Tool displays a prompt to tap the Farecard . The customer taps their Farecard on the NFC card reader on the SA Tool. | |
| 4 | The SA Tool reads the Farecard information and performs all the necessary validation checks.  **Note:** For more information on the detailed processes of fare validations and list processing (including the order of validation steps), refer to **[R6]**. During card identification, the audio button and volume controls will be disabled. | |
| 5 | The device computes the value to be deducted from the e-Purse and deducts the fare accordingly. If enabled, loyalty is taken into account in the fare calculation. | |
| 6 | The SA Tool updates the Farecard accordingly.  **Note**: For more information on the detailed processes of card updates, refer to [**R6**]. | |
| 7 | The SA Tool displays the successful fare payment screen. | |
| 8 | The SA Tool Device plays the successful fare payment audio tone. | |
| 9 | After a configurable timeout, the screen returns to the application Tap Card screen. | |

##### Alternate Flow

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| **Alternate Flows** | |
| **UC-SA Tool-051.1** | **Accepting Fare Payment from a Farecard using ePurse Balance - Customer’s Farecard is Unreadable** |
| **Modified pre-conditions:**   * SA Tool application detects the Farecard and fails to read it correctly |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 3 as stated in the Main Use Case 2. The SA Tool NFC reader detects the Farecard but is unable to read it. SA Tool application will indicate to the operator that the Farecard is unreadable.   **Note**: An error will still be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   1. The customer will tap on the NFC reader again. If the tap is successful, steps 4 – 9 will be conducted. If the tap is unsuccessful, the SA Tool application will indicate to the operator that the Farecard is unreadable. |
| **UC-SA Tool-051.2** | **Accepting Fare Payment from a Farecard using ePurse Balance - Customer has a Concession other than Adult, Child, or Discreet Concessions on their Farecard** |
| **Modified pre-conditions:**   * Customer’s Farecard has a Valid Non-Adult, Non-Child, non-discreet concessions |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case. 2. A valid Non-Adult, Non-Child, Non-discreet concession is found. 3. The SA Tool deducts the correct Non-Adult, Non-Child, Non-discreet Concessions. 4. Steps 6-7 as stated in the Main Use Case. 5. The SA Tool plays the successful fare payment audio tone for a concession other than Adult, Child, or Discreet Concessions. 6. Step 9 as stated in the Main Use Case. |
| **UC-SA Tool-051.3** | **Accepting Fare Payment from a Farecard using ePurse Balance - Customer Has a Registered Farecard with Positive ePurse Balance Less Than the Fare Amount** |
| **Modified pre-conditions:**   * Customer’s ePurse balance is less than the fare amount  **Note:** Balance is ≥ 0 but < fare amount |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-5 as stated in the Main Use Case 2. Customer’s Farecard is put into overdraft (negative balance) 3. Steps 6-9 as stated in the Main Use Case |
| **UC-SA Tool-051.4** | **Accepting Fare Payment from a Farecard using ePurse Balance - Transaction is within Intra-agency Transfer window** |
| **Modified pre-conditions:**   * Customer’s Farecard has a valid transfer product |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. A valid transfer product is found. 3. The SA Tool computes the free transfer.   **Note**: For more details on Transfer Product Processing, refer to [**R6**]   1. Steps 6-9 as stated in the Main Use Case. |
| **UC-SA Tool-051.5** | **Accepting Fare Payment from a Farecard using ePurse Balance - Transaction is within Inter-agency Transfer window** |
| **Modified pre-conditions:**   * Customer’s Farecard has a valid transfer product from other transit agency * A transfer agreement between the transit agencies has been established |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case. 2. A valid transfer product is found. 3. The SA Tool computes the fare based on the transfer product on the Farecard and the transfer agreement between the transit agencies.   **Note:** For more details on Transfer Product Processing, refer to [**R6**].   1. The SA Tool deducts the appropriate fare, if applicable. 2. Steps 6-9 as stated in the Main Use Case. |
| **UC-SA Tool-051.6** | **Accepting Fare Payment from a Farecard using ePurse Balance - Autoload Threshold is met** |
| **Modified pre-conditions:**   * Customer’s Farecard has Autoload enabled * Customer’s Farecard meets or drops below Autoload Threshold |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The SA Tool checks that the ePurse balance (after deducting the travel fare) is under the Autoload threshold. 3. The SA Tool adds the Autoload amount to the ePurse balance.   **Note**: For more details on fare deduction and Autoload application processing, refer to [**R6**]   1. Steps 6-9 as stated in the Main Use Case |
| **UC-SA Tool-051.7** | **Accepting Fare Payment from a Farecard using ePurse Balance - Customer’s Farecard is on the Action or Load Value List** |
| **Modified pre-conditions:**   * Customer’s Farecard is on the Action or Load Value list |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case 2. The SA Tool verifies that the Farecard is on the Action or Load Value List and updates the Farecard accordingly.   **Note:** For more information on list processing, refer to **[R6]**.   1. Step 5 - 9 as stated in the Main Use Case. |
| **UC-SA Tool-051.8** | **Accepting Fare Payment from a Farecard using ePurse Balance – Customer requests Audio Messages** |
| **Modified pre-conditions:** N/A |
| The Steps from the Main Use Case will be completed as follows:   1. The customer asks to pay for the trip with their Farecard and requests audio messages for the fare payment. 2. Steps 2-8 as stated in the Main Use Case 3. Operator enables audio mode. 4. The operator can change the volume level using the physical device buttons at the customer’s discretion or proceed with the use case. While the volume is being adjusted, a volume adjustment bar will appear, and timeout automatically, to indicate the volume level. The volume will return to the device default after the use case is completed. The physical buttons will only support changing the audio messaging volume when accessibility mode is enabled.   **Note:** The minimum volume level and default volume level are configurable.   1. SA Tool displays the fare payment screen to the operator and customer for the duration of the audio message. Corresponding audio message is played to the customer in the default language of their Farecard as seen in the table below.  |  |  | | --- | --- | | **Card Language** | **Audio Language** | | Registered - English | English | | Registered - French | French | | Anonymous - English | English | | Anonymous - French | French |  1. After the audio message ends, the screen returns to the application Tap Card screen. |
| **UC-SA Tool-051.9** | **Accepting Fare Payment from a Farecard using ePurse Balance – Daily Cap Reached outside of Transfer window on SA Tool** |
| **Modified pre-conditions:**   * The fare payment is being made on the SA Tool * Farecard has reached Daily Cap Limit * Farecard is out of transfer window |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The SA Tool deducts no fare since the Daily Cap is reached. 3. Step 6-9 as stated in the Main Use Case |
| **UC-SA Tool-051.10** | **Accepting Fare Payment from a Farecard using ePurse Balance – Premium Service or Special Route/Location on SA Tool**  A tap on a premium service or special route/location results in a fare payment for the premium or special event fare amount and Transfer Product creation for the Premium Service or special event Class (Txn 14, ZoneRadius = 1 or 2) |
| **Modified pre-conditions:**   * The fare payment is being made on the SA Tool * Service Class is Premium or Special Event |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The SA Tool computes and deducts the Premium or Special Event fare. 3. Step 6-9 as stated in the Main Use Case |
| **UC-SA Tool-051.11** | **Accepting Fare Payment from a Farecard using ePurse Balance – Premium Service or Special Route/Location with Fare Upgrade on SA Tool**  A tap on a premium service or special event route/location after previously riding on a regular service route (within the transfer window) results in a fare upgrade (Txn 14, ZoneRadius = 1 or 2) |
| **Modified pre-conditions:**   * The fare payment is being made on the SA Tool * Service Class is Premium or Special Event * Farecard has a valid Regular Service Transfer Product * Tap is within Transfer Window |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The SA Tool computes and deducts the Upgrade fare. 3. Step 6-9 as stated in the Main Use Case   **Note:** The SA Tool sets the POP Print Flag to 0 to ensure that the device accurately displays the transfer print status if the farecard is queried |
| **UC-SA Tool-051.12** | **Accepting Fare Payment from a Farecard using ePurse Balance – Payment during Peak hours after reaching Off Peak Daily Cap outside of Transfer Window on SA Tool**  A tap on peak hours after previously reaching off peak daily cap (outside the transfer window) results in a fare payment (Txn 14) |
| **Modified pre-conditions:**   * The fare payment is being made on the SA Tool * Farecard has reached off peak Daily Cap Limit * Farecard has not reached Peak Daily Cap limit * Farecard is out of transfer window |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The SA Tool computes and deducts the Upgrade fare. 3. Step 6-9 as stated in the Main Use Case   **Note:** The SA Tool sets the POP Print Flag to 0 to ensure that the device accurately displays the transfer print status if the farecard is queried |
| **UC-SA Tool-051.13** | **Accepting Fare Payment from a Farecard using ePurse Balance – Premium Service Route with Transfer where the Premium fare is higher than the Special Event fare on SA Tool**  A tap on a premium service route/location after previously riding on a Special Event service route (within the transfer window) results in a fare upgrade (Txn 14, ZoneRadius = 1). |
| **Modified pre-conditions:**   * The fare payment is being made on the SA Tool * Service Class is Premium * Farecard has a valid Special Event Transfer Product * Tap is within Transfer Window |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The SA Tool computes and deducts the Upgrade fare. 3. Step 6-9 as stated in the Main Use Case   **Note:** The SA Tool sets the POP Print Flag to 0 to ensure that the device accurately displays the transfer print status if the farecard is queried |
| **UC-SA Tool-051.14** | **Accepting Fare Payment from a Farecard using ePurse Balance – Premium Service Route with Transfer where the Premium fare is lower than the Special Event fare on SA Tool**  A tap on a premium service route/location after previously riding on a Special Event service route (within the transfer window) results in a free transfer (Txn 14, ZoneRadius = 1). |
| **Modified pre-conditions:**   * The fare payment is being made on the SA Tool * Service Class is Premium * Farecard has a valid Special Event Transfer Product * Tap is within Transfer Window |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The SA Tool computes the free transfer. 3. Step 6-9 as stated in the Main Use Case   **Note:** The SA Tool sets the POP Print Flag to 0 to ensure that the device accurately displays the transfer print status if the farecard is queried |
| **UC-SA Tool-051.14** | **Accepting Fare Payment from a Farecard using ePurse Balance - Customer has a Valid Child Concession on their Farecard** |
| **Modified pre-conditions:**  Customer’s Farecard has a Valid Child concession |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. A valid Child Concession is found 3. The SA Tool deducts the correct Child Concession fare 4. Step 6 as stated in the Main Use Case 5. The SA Tool displays the successful Child fare payment screen. 6. The SA Tool plays the successful fare payment audio tone for Child concession. 7. Step 9 as stated in the Main Use Case |
| **UC-SA Tool-051.15** | **Accepting Fare Payment from a Farecard using ePurse Balance – Fare Payment Resulting from Failed Inspection** |
| **Modified pre-conditions:** None |
| The Steps from the Main Use Case will be completed as follows:   1. The operator inspects a customer’s farecard and determines that they have not paid a fare. 2. The operator selects the payment function on the SA Tool inspection results screen. 3. Steps 3-9 as stated in the Main Use Case. 4. The SA Tool records both the fare payment and inspection transactions. 5. SA Tool application returns to the Tap Card screen. A toast notification is displayed of the corresponding inspection action. |

##### Exception Flow

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| **Exception Flows** | |
| **UC-SA Tool-051.16** | **Accepting Fare Payment from a Farecard using ePurse Balance - Customer Has an Anonymous Farecard with an ePurse Balance Less than the Fare Amount** |
| **Modified pre-conditions:**   * Customer’s ePurse balance is less than the fare amount * Customer has an anonymous Farecard |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 - 4 as stated in the Main Use Case 2. SA Tool detects the Card is Anonymous and the ePurse Balance is less than the fare amount. 3. The SA Tool application will display a declined message to the customer. The transaction is not conducted. 4. The SA Tool plays the declined audio tone. 5. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |
| **UC-SA Tool-051.17** | **Accepting Fare Payment from a Farecard using ePurse Balance - Customer has an Overdraft on their Registered Farecard** |
| **Modified pre-conditions:**   * Customer’s Farecard is in overdraft |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case 2. The SA Tool application detects that the Farecard is in overdraft. 3. The SA Tool application will display a declined message to the customer. The transaction is not conducted. 4. The SA Tool plays the declined audio tone. 5. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |
| **UC-SA Tool-051.18** | **Accepting Fare Payment from a Farecard using ePurse Balance - Customer’s Farecard is Blocked** |
| **Modified pre-conditions:**   * Customer’s Farecard is blocked |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case 2. The SA Tool application detects that the Farecard is blocked. 3. The SA Tool application will display a declined message to the customer. The transaction is not conducted. 4. The SA Tool plays the declined audio tone. 5. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |
| **UC-SA Tool-051.19** | **Accepting Fare Payment from a Farecard using ePurse Balance - Customer’s Farecard is on the Hotlist** |
| **Modified pre-conditions:**   * Customer’s Farecard is on the hotlist |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case 2. The SA Tool application detects that the Farecard is on the hotlist. 3. The SA Tool application updates the card’s status to blocked.   **Note:** For more information on list processing, refer to **[R6]**.   1. The SA Tool application will display a declined message the customer. The transaction is not conducted. 2. The SA Tool plays the declined audio tone. 3. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |
| **UC-SA Tool-051.20** | **Accepting Fare Payment from a Farecard using ePurse Balance - Battery goes below the low battery threshold during payment** |
| **Modified pre-conditions:**   * The low battery threshold is high enough that the remote lists can be processed even after the SA Tool battery goes below the low battery threshold during a successful Farecard tap. |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case. 2. If the low battery threshold is reached before Step 5, the application switches to “Out of Service” mode. Else, the customers fare payment is processed as per Step 5. The application then switches to “Out of Service” mode. |
| **UC-SA Tool-051.21** | **Accepting Fare Payment from a Farecard using ePurse Balance – Customer taps a card that is not a Farecard** |
| **Modified pre-conditions:**   * Customer’s card is not a Farecard |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 3 in the main Use Case. 2. The SA Tool displays the “Card Read Error” toast message for a short period of time. |
| **UC-SA Tool-051.22** | **Accepting Fare Payment from a Farecard using ePurse Balance – Customer’s Farecard is within the Anti-Passback Window** |
| **Modified pre-conditions:**   * Customer’s card is within the Anti-Passback Window |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The device detects that the Farecard fails the Anti-Passback checks.   **Note**: For more details on the order of validation steps, refer to [**R6**].   1. The SA Tool application will display a declined message the customer. The transaction is not conducted. 2. The SA Tool plays the declined audio tone. 3. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |
| **UC-SA Tool-051.23** | **Accepting Fare Payment from a Farecard using ePurse Balance – Customer taps a non-activated card** |
| **Modified pre-conditions:**   * Customer’s card is not activated * Customer’s card is not on the action list available on the device |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The device detects that the Farecard is not activated. 3. The SA Tool application will display a declined message the customer. The transaction is not conducted. 4. The SA Tool plays the declined audio tone. 5. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |
| **UC-SA Tool-051.24** | **Farecard is locked** |
| **Modified pre-conditions**: Farecard is currently locked. |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-3 as stated in the Main Use Case. 2. SA Tool reads the Farecard and determines that it is locked. The device displays a declined screen to the operator and does not proceed with the inspection. |

#### Accepting Fare Payment from a Farecard using Period Pass

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-052** | | **Accepting Fare Payment from a Farecard using Period Pass** |
| **Use Case Description**:  This use case describes the steps for an operator to accept a fare payment from a Farecard using a Period Pass. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main use case, alternate flows and exceptions unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has selected the “Payment” option from home screen * Customer’s Farecard is active * Customer’s Farecard has valid period pass for the transit agency they are utilizing * Customer’s Farecard ’s concession is Adult or one of the current Discreet concessions (refer to **[R6]**) | | |
| **Main Use Case: Accepting Fare Payment from a Farecard using Period Pass** | | |
| **Step #** | **Step Description** | |
| 1 | The customer asks to pay for the trip with their Farecard | |
| 2 | The operator selects the payment function on the SA Tool application home screen. | |
| 3 | SA Tool displays a prompt to tap the Farecard . The customer taps their Farecard on the NFC card reader on the SA Tool. | |
| 4 | The SA Tool reads the Farecard information and performs all the necessary validation checks.  **Note:** For more information on the detailed processes of fare validations and list processing (including the order of validation steps), refer to **[R6]**. During card identification, the audio button and volume controls will be disabled. | |
| 5 | The device computes that the Farecard has a valid period pass and accepts the fare. | |
| 6 | The SA Tool updates the Farecard accordingly.  **Note**: For more information on the detailed processes of card updates, refer to **[R6]**. | |
| 7 | The SA Tool displays the successful fare payment screen. | |
| 8 | The SA Tool plays the successful fare payment audio tone. | |
| 9 | After a configurable timeout, the screen returns to the application Tap Card screen. | |

##### Alternate Flow

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| **Alternate Flows** | |
| **UC-SA Tool-052.1** | **Accepting Fare Payment from a Farecard using Period Pass - Customer’s Farecard is Unreadable** |
| **Modified pre-conditions:**   * SA Tool application detects the Farecard and fails to read it correctly |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 3 as stated in the Main Use Case 2. The SA Tool NFC reader detects the Farecard but is unable to read it. SA Tool application will indicate to the operator that the Farecard is unreadable.   Note: An error will still be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   1. The customer will tap on the NFC reader again. If the tap is successful, steps 4 – 9 will be conducted. If the tap is unsuccessful, the SA Tool application will indicate to the operator that the Farecard is unreadable. |
| **UC-SA Tool-052.2** | **Accepting Fare Payment from a Farecard using Period Pass - Customer’s Farecard Has Sufficient ePurse Balance and an Expired Period Pass** |
| **Modified pre-conditions:**   * Customer’s Farecard has an expired period pass * Customer’s ePurse balance is more than the fare amount |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The SA Tool detects that the Period Pass has expired, computes the value to be deducted from the e-Purse, and deducts the fare accordingly. If enabled, loyalty is taken into account in the fare calculation. 3. Steps 6-9 as stated in the Main Use Case |
| **UC-SA Tool-052.3** | **Accepting Fare Payment from a Farecard using Period Pass - Customer Has a Registered Farecard with Positive ePurse Balance Less Than the Fare Amount and an Expired Period Pass** |
| **Modified pre-conditions:**   * Customer’s ePurse balance is less than the fare amount ***Note:*** *Balance is ≥ 0 but < fare amount* * Customer’s Farecard has an expired period pass |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The SA Tool detects that the Period Pass has expired, computes the value to be deducted from the e-Purse, and deducts the fare accordingly. If enabled, loyalty is taken into account in the fare calculation. 3. Customer’s Farecard is put into overdraft (negative balance) 4. Steps 6-9 as stated in the Main Use Case |
| **UC-SA Tool-052.4** | **Accepting Fare Payment from a Farecard using Period Pass - Transaction is within Inter-agency Transfer window** |
| **Modified pre-conditions:**   * Customer’s Farecard has a valid transfer product from other transit agency * A transfer agreement between the transit agencies has been established |
| The Steps from the Main Use Case will be completed as follows:   * Steps 1-4 as stated in the Main Use Case * A valid transfer product is found * The SA Tool computes that the Farecard has a valid period pass.   **Note**: For more details on Transfer Product Processing, refer to [**R6**]   * Steps 6-9 as stated in the Main Use Case |
| **UC-SA Tool-052.5** | **Accepting Fare Payment from a Farecard using Period Pass - Customer’s Farecard is on the Action or Load Value List** |
| **Modified pre-conditions:**   * Customer’s Farecard is on the Action or Load Value list |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case 2. The SA Tool verifies that the Farecard is on the Action or Load Value List and updates the Farecard accordingly.   **Note:** For more information on list processing, refer to **[R6]**.   1. Step 5 - 9 as stated in the Main Use Case. |
| **UC-SA Tool-052.6** | **Accepting Fare Payment from a Farecard using Period Pass – Customer requests Audio Messages** |
| **Modified pre-conditions:** N/A |
| The Steps from the Main Use Case will be completed as follows:   1. The customer asks to pay for the trip with their Farecard and requests audio messages for the fare payment. 2. Steps 2-8 as stated in the Main Use Case 3. Operator enables audio mode. 4. The operator can change the volume level using the physical device buttons at the customer’s discretion or proceed with the use case. While the volume is being adjusted, a volume adjustment bar will appear, and timeout automatically, to indicate the volume level. The volume will return to the device default after the use case is completed. The physical buttons will only support changing the audio messaging volume when accessibility mode is enabled.   **Note:** The minimum volume level and default volume level are configurable.   1. SA Tool displays the fare payment screen to the operator and customer for the duration of the audio message. Corresponding audio message is played to the customer in the default language of their Farecard as seen in the table below.  |  |  | | --- | --- | | **Card Language** | **Audio Language** | | Registered - English | English | | Registered - French | French | | Anonymous - English | English | | Anonymous - French | French |  1. After the audio message ends, the screen returns to the application Tap Card screen. |
| **UC-SA Tool-052.7** | **Accepting Fare Payment from a Farecard using Period Pass – MDP Termination Pending on FLATFARE BASED SA Tool**  If the Farecard has a pending Termination, the device will proceed with the action prior to deducting the fare value via ePurse. |
| **Modified pre-conditions:**   * The fare payment is being made on the FLATFARE BASED SA Tool * Farecard has a Termination on the action list |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The MDP Termination is processed. 3. If the terminated pass is still valid, the payment will be processed as a period pass payment. If the pass is invalid, an ePurse fare payment will be processed. 4. Step 6-9 as stated in the Main Use Case |
| **UC-SA Tool-052.8** | **Accepting Fare Payment from a Farecardusing Period Pass – Service Class Route/Location which is higher fare value than the Period Pass Service Class fare on SA Tool**  Farecard has a valid Period Pass where the Service class fare value is lower than the current route/location Service Class fare value (Txn 14) |
| **Modified pre-conditions:**   * The fare payment is being made on the SA Tool * Farecard has a valid Period Pass where the Service class fare value is lower than the current route/location Service Class fare value (e.g. the user has a regular Period Pass and the current tap is on a Premium route/location) |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The SA Tool computes and deducts the Upgrade fare. 3. Step 6-9 as stated in the Main Use Case   **Note:** The SA Tool sets the POP Print Flag to 0 to ensure that the device accurately displays the transfer print status if the farecard is queried |
| **UC-SA Tool-052.9** | **Accepting Fare Payment from a Farecardusing Period Pass – Service Class Route/Location which is lower fare value than the Period Pass Service Class fare on SA Tool**  Farecard has a valid Period Pass where the Service class fare value is greater than the current route/location Service Class fare value (Txn 15) |
| **Modified pre-conditions:**   * The fare payment is being made on the SA Tool * Farecard has a valid Period Pass where the Service class fare value is greater than the current route/location Service Class fare value (For e.g. the user has a Premium Period Pass and the current tap is on a Regular route/location) |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The SA Tool identifies that the customer’s Period Pass is valid and accepts the period pass fare payment. 3. Step 6-9 as stated in the Main Use Case |
| **UC-SA Tool-052.10** | **Accepting Fare Payment from a Farecard using Period Pass – Limited Period Pass**  Farecard has a valid Limited Period Pass and the current time is within the limits of the product |
| **Modified pre-conditions:**   * The farecard has a valid Limited Period Pass product on it * The time at tap is occurring within the time limit of the Limited Period Pass Product |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-9 as stated in the Main Use Case |
| **UC-SA Tool-052.11** | **Accepting Fare Payment from a Farecard using Period Pass – Limited Period Pass outside of valid time with sufficient e-Purse balance**  Farecard has a valid Limited Period Pass and the current time is outside the time limits of the product, but the farecard has sufficient e-Purse balance to cover the transaction |
| **Modified pre-conditions:**   * The farecard has a valid Limited Period Pass product on it * The time at tap is occurring outside of the time limit of the Limited Period Pass Product |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The SA Tool detects that the Limited Period Pass is not valid at the current time, computes the value to be deducted from the e-Purse, and deducts the fare. 3. Steps 6-9 are as stated in the Main Use Case |
| **UC-SA Tool-052.12** | **Accepting Fare Payment from a Farecard using Period Pass - Customer has a Valid Child Concession on their Farecard** |
| **Modified pre-conditions:**  Customer’s Farecard has a Valid Child concession |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-6 as stated in the Main Use Case 2. The SA Tool displays the successful Child Transit Pass fare payment screen. 3. The SA Tool plays the successful fare payment audio tone for Child concession. 4. Step 9 as stated in the Main Use Case |
| **UC-SA Tool-052.13** | **Accepting Fare Payment from a Farecard using Period Pass – Fare Payment Resulting from Failed Inspection** |
| **Modified pre-conditions:** None |
| The Steps from the Main Use Case will be completed as follows:   1. The operator inspects a customer’s farecard and determines that they have not paid a fare. 2. The operator selects the payment function on the SA Tool inspection results screen. 3. Steps 3-9 as stated in the Main Use Case. 4. The SA Tool records both the fare payment and inspection transactions. 5. SA Tool application returns to the Tap Card screen. A toast notification is displayed of the corresponding inspection action. |

##### Exception Flow

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| **Exception Flows** | |
| **UC-SA Tool-052.14** | **Accepting Fare Payment from a Farecard using Period Pass - Customer has an Anonymous Farecard with an Expired Period Pass and ePurse Balance Less than the Fare Amount** |
| **Modified pre-conditions:**   * Customer has an expired period pass * Customer’s ePurse balance is less than the fare amount * Customer has an anonymous Farecard |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 - 4 as stated in the Main Use Case 2. The SA Tool application detects the Card is Anonymous and the ePurse Balance is less than the fare amount. 3. The SA Tool application will display a declined message to the customer. The transaction is not conducted. 4. The SA Tool plays the declined audio tone. 5. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |
| **UC-SA Tool-052.14** | **Accepting Fare Payment from a Farecard using Period Pass - Customer’s Farecard is Blocked** |
| **Modified pre-conditions:**   * Customer’s Farecard is blocked |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case 2. The SA Tool application detects that the Farecard is blocked. 3. The SA Tool application will display a declined message to the customer. The transaction is not conducted. 4. The SA Tool plays the declined audio tone. 5. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |
| **UC-SA Tool-052.15** | **Accepting Fare Payment from a Farecard using Period Pass - Customer’s Farecard is on the Hotlist** |
| **Modified pre-conditions:**   * Customer’s Farecard is on the hotlist |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case 2. The SA Tool application detects that the Farecard is on the hotlist. 3. The SA Tool application updates the card’s status to blocked.   ***Note:*** *For more information on list processing, refer to* ***[R14]****.*   1. The SA Tool application will display a declined message the customer. The transaction is not conducted. 2. The SA Tool plays the declined audio tone. 3. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |
| **UC-SA Tool-052.16** | **Accepting Fare Payment from a Farecard using Period Pass - Battery goes below the low battery threshold during payment** |
| **Modified pre-conditions:**   * The low battery threshold is high enough that the remote lists can be processed even after the SA Tool battery goes below the low battery threshold during a successful Farecard tap. |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case. 2. If the low battery threshold is reached before Step 5, the application switches to “Out of Service” mode. Else, the customers fare payment is processed as per Step 5. The application then switches to “Out of Service” mode. |
| **UC-SA Tool-052.17** | **Accepting Fare Payment from a Farecard using Period Pass – Customer taps a card that is not a Farecard** |
| **Modified pre-conditions:**   * Customer’s card is not a Farecard |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 3 in the main Use Case. 2. The SA Tool displays the “Card Read Error” toast message for a short period of time. |
| **UC-SA Tool-052.18** | **Accepting Fare Payment from a Farecard using Period Pass – Customer’s Farecard is within the Anti-Passback Window** |
| **Modified pre-conditions:**   * Customer’s card is within the Anti-Passback Window |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-3 as stated in the Main Use Case 2. The device detects that the Farecard fails the Anti-Passback checks.   **Note:** For more details on the order of validation steps, refer to [**R6**]   1. The SA Tool application will display a declined message the customer. The transaction is not conducted. 2. The SA Tool plays the declined audio tone. 3. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |
| **UC-SA Tool-052.19** | **Accepting Fare Payment from a Farecard using Period Pass – Customer taps a non-activated card** |
| **Modified pre-conditions:**   * Customer’s card is not activated * Customer’s card is not on the action list available on the device |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The device detects that the Farecard is not activated. 3. The SA Tool application will display a declined message the customer. The transaction is not conducted. 4. The SA Tool plays the declined audio tone. 5. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |
| **UC-SA Tool-052.20** | **Accepting Fare Payment from a Farecard using Period Pass – Limited Period Pass outside of valid time while card is in overdraft**  Farecard has a valid Limited Period Pass and the current time is outside the time limits of the product, and the farecard is in overdraft |
| **Modified pre-conditions:**   * The farecard has a valid Limited Period Pass product on it * The time at tap is occurring outside of the time limit of the Limited Period Pass Product * The farecard is in overdraft |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The SA Tool detects that the Limited Period Pass is not valid at the current time, computes the value to be deducted from the e-Purse, and detects that farecard is in overdraft. 3. The SA Tool application will display a declined message to the customer. The transaction is not conducted. 4. The SA Tool plays the declined audio tone. 5. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |
| UC-SA Tool-052.21 | **Farecard is locked** |
| **Modified pre-conditions**: Farecard is currently locked. |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-3 as stated in the Main Use Case. 2. SA Tool reads the Farecard and determines that it is locked. The device displays a declined screen to the operator and does not proceed with the inspection. |

#### Accepting Fare Payment from a TICKET (LUM) using Ride Balance

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-053** | | **Accepting Fare Payment from a CLIENT LUM using Ride Balance** |
| **Use Case Description**:  This use case describes the steps for an operator to accept a fare payment from a TICKET (LUM) using ride balance. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main use case, alternate flows and exceptions unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has selected the “Payment” option from home screen * Customer’s TICKET is active * Customer’s TICKET has a positive ride balance * Customer’s TICKET does not have a valid FLATFARE BASED period pass product * Customer’s TICKET does not have a valid transfer product * Customer’s CLIENT Ticket’s concession is Adult | | |
| **Main Use Case: Accepting Fare Payment from a TICKET using Ride Balance** | | |
| **Step #** | **Step Description** | |
| 1 | The customer asks to pay for the trip with their CLIENT Ticket | |
| 2 | The operator selects the payment function on the SA Tool application home screen. | |
| 3 | SA Tool displays a prompt to tap the Farecard . The customer taps their TICKET on the NFC card reader on the SA Tool. | |
| 4 | The SA Tool reads the TICKET information and performs all the necessary validation checks.  **Note:** For more information on the detailed processes of fare validations and list processing (including the order of validation steps), refer to **[R6]**. During card identification, the audio button and volume controls will be disabled. | |
| 5 | The device computes the value to be deducted from the ride balance and deducts the ride accordingly. | |
| 6 | The SA Tool updates the TICKET accordingly.  **Note**: For more information on the detailed processes of card updates, refer to [**R6**]. | |
| 7 | The SA Tool displays the successful fare payment screen. | |
| 8 | The SA Tool plays the successful fare payment audio tone. | |
| 9 | After a configurable timeout, the screen returns to the application Tap Card screen. | |

##### Alternate Flow

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| **Alternate Flows** | |
| **UC-SA Tool-053.1** | **Accepting Fare Payment from a CLIENT LUM using Ride Balance - Customer’s TICKET is Unreadable** |
| **Modified pre-conditions:**   * SA Tool application detects the TICKET and fails to read it correctly |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 3 as stated in the Main Use Case 2. The SA Tool NFC reader detects the TICKET but is unable to read it. SA Tool application will indicate to the operator that the TICKET is unreadable.   Note: An error will still be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   1. The customer will tap on the NFC reader again. If the tap is successful, steps 4 – 9 will be conducted. If the tap is unsuccessful, the SA Tool application will indicate to the operator that the TICKET is unreadable. |
| **UC-SA Tool-053.2** | **Accepting Fare Payment from a TICKET using Ride Balance - Customer has a Valid concession other than Adult or Child on their CLIENT Ticket** |
| **Modified pre-conditions:**   * Customer’s TICKET has a Valid Non-Adult, Non-Child concession |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. A Valid Non-Adult, Non-Child Concession is found 3. Steps 5-7 as stated in the Main Use Case 4. The SA Tool plays the successful fare payment audio tone for a concession other than Adult or Child. 5. Step 9 as stated in the Main Use Case |
| **UC-SA Tool-053.3** | **Accepting Fare Payment from a TICKET using Ride Balance - Transaction is within Intra-agency Transfer window** |
| **Modified pre-conditions:**   * Customer’s TICKET has a valid transfer product |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. A valid transfer product is found 3. The SA Tool computes the free transfer   **Note**: For more details on Transfer Product Processing, refer to [**R6**]   1. Steps 6-9 as stated in the Main Use Case |
| **UC-SA Tool-053.4** | **Accepting Fare Payment from a TICKET using Ride Balance – Customer requests Audio Messages** |
| **Modified pre-conditions:** N/A |
| The Steps from the Main Use Case will be completed as follows:   1. The customer asks to pay for the trip with their TICKET and requests audio messages for the fare payment. 2. Steps 2-8 as stated in the Main Use Case 3. Operator enables audio mode. 4. The operator can change the volume level using the physical device buttons at the customer’s discretion or proceed with the use case. While the volume is being adjusted, a volume adjustment bar will appear, and timeout automatically, to indicate the volume level. The volume will return to the device default after the use case is completed. The physical buttons will only support changing the audio messaging volume when accessibility mode is enabled.   **Note:** The minimum volume level and default volume level are configurable.   1. SA Tool displays the TICKET fare payment screen to the operator and customer for the duration of the audio message. Corresponding audio message is played to the customer in the default language of their Farecard as seen in the table below.  |  |  | | --- | --- | | **Card Language** | **Audio Language** | | Registered - English | English | | Registered - French | French | | Anonymous - English | English | | Anonymous - French | French |  1. After the audio message ends, the screen returns to the application Tap Card screen. |
| **UC-SA Tool-053.5** | **Accepting Fare Payment from a TICKET using Ride Balance – Premium Service or Special Route/Location on FLATFARE BASED SA Tool**  A Fixed Ride Ticket tap on a premium service or special route/location results in a regular ride balance fare payment and Transfer Product creation.  Premium and other non-regular service class Ticket products are out of scope and the device will not differentiate between service class for CLIENT Ticket. |
| **Modified pre-conditions:**   * The fare payment is being made on the FLATFARE BASED SA Tool * Service Class is Premium or Special Event |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-9 as stated in the Main Use Case |
| **UC-SA Tool-053.6** | **Accepting Fare Payment from a TICKET using Ride Balance – Premium Service or Special Route/Location with Fare Upgrade on FLATFARE BASED SA Tool**  A Ticket tap on a premium service or special event route/location after previously riding on a regular, premium, or special event route results in a free transfer.  Premium and other non-regular service class Ticket products are out of scope and the device will not differentiate between service class for CLIENT Ticket. |
| **Modified pre-conditions:**   * The fare payment is being made on the FLATFARE BASED SA Tool * Service Class is Premium or Special Event * Ticket has a valid Transfer Product * Tap is within Transfer Window |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The SA Tool computes the free transfer. 3. Step 6-9 as stated in the Main Use Case |
| **UC-SA Tool-053.7** | **Accepting Fare Payment from a TICKET using Ride Balance - Customer has a Valid Child Concession on their CLIENT Ticket** |
| **Modified pre-conditions:**  Customer’s TICKET has a Valid Child concession |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. A Valid Child Concession is found 3. Steps 5-6 as stated in the Main Use Case 4. The SA Tool displays the successful Child fare payment screen. 5. The SA Tool plays the successful fare payment audio tone for Child concession. 6. Step 9 as stated in the Main Use Case |
| **UC-SA Tool-053.8** | **Accepting Fare Payment from a TICKET using Ride Balance – Fare Payment Resulting from Failed Inspection** |
| **Modified pre-conditions:** None |
| The Steps from the Main Use Case will be completed as follows:   1. The operator inspects a customer’s TICKET and determines that they have not paid a fare. 2. The operator selects the payment function on the SA Tool inspection results screen. 3. Steps 3-9 as stated in the Main Use Case. 4. The SA Tool records both the fare payment and inspection transactions. 5. SA Tool application returns to the Tap Card screen. A toast notification is displayed of the corresponding inspection action. |

##### Exception Flow

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| **Exception Flows** | |
| **UC-SA Tool-053.9** | **Accepting Fare Payment from a TICKET using Ride Balance - Customer has a TICKET with no Ride Balance remaining** |
| **Modified pre-conditions:**   * Customer’s ride balance is empty |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 - 4 as stated in the Main Use Case 2. SA Tool detects the Ride Balance is empty. 3. The SA Tool application will display a declined message to the customer. The transaction is not conducted. 4. The SA Tool plays the declined audio tone. 5. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |
| **UC-SA Tool-053.10** | **Accepting Fare Payment from a TICKET using Ride Balance - Battery goes below the low battery threshold during payment** |
| **Modified pre-conditions:**   * The low battery threshold is high enough that the remote lists can be processed even after the SA Tool device battery goes below the low battery threshold during a successful TICKET tap. |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case. 2. If the low battery threshold is reached before Step 5, the application switches to “Out of Service” mode. Else, the customers fare payment is processed as per Step 5. The application then switches to “Out of Service” mode. |
| **UC-SA Tool-053.11** | **Accepting Fare Payment from a TICKET using Ride Balance – Customer taps a card that is not CLIENT media** |
| **Modified pre-conditions:**   * Customer’s card is not CLIENT media |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 3 in the main Use Case. 2. The SA Tool application does not respond, but the device error message “Card Read Error” is displayed for a short period of time. |
| **UC-SA Tool-053.12** | **Accepting Fare Payment from a TICKET using Ride Balance – Customer’s TICKET is within the Anti-Passback Window** |
| **Modified pre-conditions:**   * Customer’s Ticket is within the Anti-Passback Window |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The device detects that the TICKET fails the Anti-Passback checks.   **Note**: For more details on the order of validation steps, refer to [**R6**]   1. The SA Tool application will display a declined message the customer. The transaction is not conducted. 2. The SA Tool plays the declined audio tone. 3. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |
| **UC-SA Tool-053.12** | **Accepting Fare Payment from a TICKET using Ride Balance – Customer taps a non-activated Ticket** |
| **Modified pre-conditions:**   * Customer’s Ticket is not activated |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The device detects that the TICKET is not activated. 3. The SA Tool application will display a declined message the customer. The transaction is not conducted. 4. The SA Tool plays the declined audio tone. 5. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |
| **UC-SA Tool-053.13** | **Accepting Fare Payment from a TICKET using Ride Balance – Customer taps an expired Ticket** |
| **Modified pre-conditions:**  Customer’s Ticket is expired |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The device detects that the TICKET is expired. 3. The SA Tool application will display a declined message the customer. The transaction is not conducted. 4. The SA Tool plays the declined audio tone. 5. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |

#### Accepting Fare Payment from a TICKET using Period Pass

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-054** | | **Accepting Fare Payment from a TICKET using Period Pass** |
| **Use Case Description**:  This use case describes the steps for a SP operator to accept a fare payment from a TICKET using a Period Pass. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main use case, alternate flows and exceptions unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has selected the “Payment” option from home screen * Customer’s TICKET is active * Customer’s TICKET has valid FLATFARE BASED period pass * Customer’s CLIENT Ticket’s concession is Adult | | |
| **Main Use Case: Accepting Fare Payment from a TICKET using Period Pass** | | |
| **Step #** | **Step Description** | |
| 1 | The customer asks to pay for the trip with their CLIENT Ticket | |
| 2 | The operator selects the payment function on the SA Tool application home screen. | |
| 3 | SA Tool displays a prompt to tap the CLIENT media. The customer taps their TICKET on the NFC card reader on the SA Tool. | |
| 4 | The SA Tool reads the TICKET information and performs all the necessary validation checks.  **Note:** For more information on the detailed processes of fare validations and list processing (including the order of validation steps), refer to **[R6]**. During card identification, the audio button and volume controls will be disabled. | |
| 5 | The device computes that the TICKET has a valid period pass and accepts the fare. | |
| 6 | The SA Tool updates the TICKET accordingly.  **Note**: For more information on the detailed processes of card updates, refer to **[R6]**. | |
| 7 | The SA Tool displays the successful fare payment screen. | |
| 8 | The SA Tool plays the successful fare payment audio tone. | |
| 9 | After a configurable timeout, the screen returns to the application Tap Card screen. | |

##### Alternate Flow

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| **Alternate Flows** | |
| **UC-SA Tool-054.1** | **Accepting Fare Payment from a TICKET using Period Pass - Customer’s TICKET is Unreadable** |
| **Modified pre-conditions:**   * SA Tool application detects the TICKET and fails to read it correctly |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 3 as stated in the Main Use Case 2. The SA Tool NFC reader detects the TICKET but is unable to read it. SA Tool application will indicate to the operator that the TICKET is unreadable.   Note: An error will still be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   1. The customer will tap on the NFC reader again. If the tap is successful, steps 4 – 9 will be conducted. If the tap is unsuccessful, the SA Tool application will indicate to the operator that the TICKET is unreadable. |
| **UC-SA Tool-054.2** | **Accepting Fare Payment from a TICKET using Period Pass – Customer requests Audio Messages** |
| **Modified pre-conditions:** N/A |
| The Steps from the Main Use Case will be completed as follows:   1. The customer asks to pay for the trip with their TICKET and requests audio messages for the fare payment. 2. Steps 2-8 as stated in the Main Use Case 3. Operator enables audio mode. 4. The operator can change the volume level using the physical device buttons at the customer’s discretion or proceed with the use case. While the volume is being adjusted, a volume adjustment bar will appear, and timeout automatically, to indicate the volume level. The volume will return to the device default after the use case is completed. The physical buttons will only support changing the audio messaging volume when accessibility mode is enabled.   **Note:** The minimum volume level and default volume level are configurable.   1. SA Tool displays the TICKET fare payment screen to the operator and customer for the duration of the audio message. Corresponding audio message is played to the customer in the default language of their Farecard as seen in the table below.  |  |  | | --- | --- | | **Card Language** | **Audio Language** | | Registered - English | English | | Registered - French | French | | Anonymous - English | English | | Anonymous - French | French |  1. After the audio message ends, the screen returns to the application Tap Card screen. |
| **UC-SA Tool-054.3** | **Accepting Fare Payment from a TICKET using Period Pass – Premium or Special Event Service Class Route/Location on FLATFARE BASED SA Tool**  Ticket has a valid Period Pass and is tapped on route/location with Premium or Special Event Service Class.  Premium and other non-regular service class Ticket products are out of scope and the device will not differentiate between service class for Tickets. |
| **Modified pre-conditions:**   * The fare payment is being made on the FLATFARE BASED SA Tool * Ticket has a valid Period Pass |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The SA Tool identifies that the customer’s Period Pass is valid and accepts the period pass fare payment. 3. Step 6-9 as stated in the Main Use Case |
| **UC-SA Tool-054.4** | **Accepting Fare Payment from a TICKET using Period Pass - Customer has a Valid Child Concession on their CLIENT Ticket** |
| **Modified pre-conditions:**  Customer’s TICKET has a Valid Child concession |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. A Valid Child Concession is found 3. Steps 5-6 as stated in the Main Use Case 4. The SA Tool displays the successful Child fare payment screen. 5. The SA Tool plays the successful fare payment audio tone for Child concession. 6. Step 9 as stated in the Main Use Case |
| **UC-SA Tool-054.5** | **Accepting Fare Payment from a TICKET using Period Pass – Fare Payment Resulting from Failed Inspection** |
| **Modified pre-conditions:** None |
| The Steps from the Main Use Case will be completed as follows:   1. The operator inspects a customer’s TICKET and determines that they have not paid a fare. 2. The operator selects the payment function on the SA Tool inspection results screen. 3. Steps 3-9 as stated in the Main Use Case. 4. The SA Tool records both the fare payment and inspection transactions. 5. SA Tool application returns to the Tap Card screen. A toast notification is displayed of the corresponding inspection action. |

##### Exception Flow

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| **Exception Flows** | |
| **UC-SA Tool-054.5** | **Accepting Fare Payment from a TICKET using Period Pass – Customer’s TICKET Period Pass is not valid on the current date** |
| **Modified pre-conditions:**   * Customer has a period pass Ticket that is outside the validity period |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case 2. The SA Tool application detects that the TICKET Period Pass is not valid on the current date. 3. The SA Tool application will display a declined message to the customer. The transaction is not conducted. 4. The SA Tool plays the declined audio tone. 5. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |
| **UC-SA Tool-054.6** | **Accepting Fare Payment from a TICKET using Period Pass - Battery goes below the low battery threshold during payment** |
| **Modified pre-conditions:**   * The low battery threshold is high enough that the remote lists can be processed even after the SA Tool device battery goes below the low battery threshold during a successful TICKET tap. |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case. 2. If the low battery threshold is reached before Step 5, the application switches to “Out of Service” mode. Else, the customers fare payment is processed as per Step 5. The application then switches to “Out of Service” mode. |
| **UC-SA Tool-054.7** | **Accepting Fare Payment from a TICKET using Period Pass – Customer taps a card that is not CLIENT media** |
| **Modified pre-conditions:**   * Customer’s card is not CLIENT media |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 3 in the main Use Case. 2. The SA Tool application does not respond, but the device error message “Card Read Error” is displayed for a short period of time. |
| **UC-SA Tool-054.8** | **Accepting Fare Payment from a TICKET using Period Pass – Customer’s TICKET is within the Anti-Passback Window** |
| **Modified pre-conditions:**   * Customer’s card is within the Anti-Passback Window |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-3 as stated in the Main Use Case 2. The device detects that the TICKET fails the Anti-Passback checks.   **Note:** For more details on the order of validation steps, refer to [**R6**]   1. The SA Tool application will display a declined message the customer. The transaction is not conducted. 2. The SA Tool plays the declined audio tone. 3. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |
| **UC-SA Tool-054.9** | **Accepting Fare Payment from a TICKET using Period Pass – Customer taps a non-activated CLIENT Ticket** |
| **Modified pre-conditions:**   * Customer’s Ticket is not activated |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The device detects that the TICKET is not activated. 3. The SA Tool application will display a declined message the customer. The transaction is not conducted. 4. The SA Tool plays the declined audio tone. 5. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |
| **UC-SA Tool-054.10** | **Accepting Fare Payment from a TICKET using Period Pass – Customer taps an expired Ticket** |
| **Modified pre-conditions:**  Customer’s Ticket is expired |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. The device detects that the TICKET is expired. 3. The SA Tool application will display a declined message the customer. The transaction is not conducted. 4. The SA Tool plays the declined audio tone. 5. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |

#### Accepting Fare Payment with Open Payments Media – Flat Fare

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-055** | | **Cardholder Taps-On an Online SA Tool to a Flat Fare TA with Open Payments Media** |
| **Use Case Description**:  This main use case describes the interactions of an Open Payments Cardholder as they tap-on at a SA Tool that is online and connected to ATS for a Flat Fare TA. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main use case, alternate flows and exceptions unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has selected the “Payment” option from home screen * The device is online and connected to the Accenture Ticketing Services * The Open Payments Media is not on the deny list * Open Payments capability is enabled on the device * The Media passes the BIN check, if applicable. * The Media passes the ODA check, if applicable. Note: non-ODA Interac cards are allowed to travel. * The Media card brand / payment type is not disabled. | | |
| **‘Main use case: Cardholder Taps-On a SA Tool with Open Payments Media (SA Tool Validation)** | | |
| **Step #** | **Step Description** | |
| 1 | The Cardholder taps the Open Payments Media on the device Card Reader (CID). The device detects the Open Payments media. | |
| 2 | The device reads the open payments media and completes the following reader checks:   * ODA Verification – The device checks if the media presented is a valid type supported by one of the compatible brands. - Note: non-ODA Interac cards are allowed to travel. * Expiry Check – The device checks if the media tapped is not expired (i.e., valid) * BIN Blocking – The device checks if the BIN of the media presented is in the BIN Blocking list. | |
| 3 | The device sends the tap to Accenture Ticketing Services for processing. ATS checks the online deny list and completes the fare processing. (Note, if the media is found to be on the Open Payments Accepted Whitelist, skip to step 4).  **Note**: For more details on the ticketing logic, please refer to [R6]. | |
| 4 | The right to travel is conferred to the Cardholder by updating the HMI of the SA Tool. The **Open Payment Accepted Screen** is provided to the cardholder.  **Note**: For more details on the feedback provided to the Cardholder, please refer to [**R1**]. Also, while the feedback screen is presented to the Cardholder, the device will still be able to process another media at the same time. | |

##### Alternate Flow

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| 1. Alternate flows | |
| **UC-SA Tool-055.1** | 1. Tap on a SA Tool with Open Payments Media – Device is offline and not connected to Accenture Ticketing Services |
|  | 1. Modified Pre-Condition: The device is offline and not connected to Accenture Ticketing Services |
|  | 1. If the SA Tool is not online and not connected to ATS, the following steps will be completed as follows 2. Steps 1 and 2 are as stated in the Main use case 3. Step 3 as follows: 4. The device checks the local deny list if the media is on the local deny list. The latent transaction processor stores the tap till the device goes back online and connects to Accenture Ticketing Services. The tap is then rated in ATS. 5. Step 4 as stated in the Main Use Case 6. Note: For more details on the ticketing logic, please refer to [R6]. Note: For more details on the feedback provided to the Cardholder, please refer to [R1]. Also, while the feedback screen is presented to the Cardholder, the device will still be able to process another media at the same time. |
| **UC-SA Tool-055.2** | 1. Tap on SA Tool with Open Payments Media – Customer requests audio messages |
|  | The Steps from the Main Use Case will be completed as follows:   1. Customer requests audio messages for fare payment. 2. Steps 1-4 as stated in the Main Use Case 3. Operator enables audio mode. 4. The operator can change the volume level using the physical device buttons at the customer’s discretion or proceed with the use case. While the volume is being adjusted, a volume adjustment bar will appear, and timeout automatically, to indicate the volume level. The volume will return to the device default after the use case is completed. The physical buttons will only support changing the audio messaging volume when accessibility mode is enabled.   **Note:** The minimum volume level and default volume level are configurable.   1. SA Tool displays the fare payment screen to the operator and customer for the duration of the audio message. The language preference on the media will dictate which language the audio message will be played in. If the card language tag (5F2D ISO 639 – Language Code; under EMV specifications) is EN or FR-CA, the appropriate language will be used. Otherwise, English will be used as the default language. |
| **UC-SA Tool-055.5** | **Accepting Fare Payment with Open Payments Media – Fare Payment Resulting from Failed Inspection** |
|  | **Modified pre-conditions:** None |
| The Steps from the Main Use Case will be completed as follows:   1. The operator inspects a customer’s OP card and determines that they have not paid a fare. 2. The operator selects the payment function on the SA Tool inspection results screen. 3. Steps 1-4 as stated in the Main Use Case. 4. The SA Tool records both the fare payment and inspection transactions. The option selected is sent to ATS along with the inspection result for event creation. 5. SA Tool application returns to the Tap Card screen. A toast notification is displayed of the corresponding inspection action. |

##### Exception Flow

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| 1. Exceptions | |
| **UC-SA Tool-055.6** | **Open Payments Media fails ODA check Note: Non-ODA Interac cards are allowed to travel** |
|  | If an Open Payments Media fails the ODA check, the device returns the appropriate feedback.   * Step 1 is as stated in Main Use Case * Step 2 will be as follows:   + The device performs the necessary validation and determines that the Open Payments Media is unable to pass the checks * Step 3 will be as follows:   + The **Declined – Try Another Card (Failed ODA Check**) screen is provided to the cardholder. * Step 4 will be as follows:   + The declined tap is sent to ATS   **Note**: For more details on the feedback provided to the Cardholder, please refer to [**R1**]*.* |
| **UC-SA Tool-055.6** | **Open Payments Media Fails Expiry Check during Fare Payment** |
|  | If an Open Payments Media fails the Expiry Check, the device returns the appropriate feedback.   * Step 1 is as stated in Main Use Case * Step 2 will be as follows:   + The device performs the necessary validation and determines that the Open Payments Media is unable to pass the expiry check * Step 3 will be as follows:   + The **Declined – Card Expired** **Screen** is provided to the cardholder. * Step 4 will be as follows:   + The declined tap is sent to ATS.   **Note**: For more details on the feedback provided to the Cardholder in the case of failed validation, please refer to **[R1]**. |
| **UC-SA Tool-055.7** | **Open Payments Media is on the ATS deny list and the SA Tool is online** |
|  | **Modified Pre-Condition:** Open Payments Media is on the deny list |
| If the Open Payments Media is on the deny list, the right to travel is not conferred.   * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device sends the tap to ATS and returns a response that the media is on the deny list * Step 3 as follows:   + Right to travel is not conferred   + The **Declined – Unpaid Fares (Suspended: Unpaid Fares) screen** is provided to the cardholder or the **Declined – Try Another Card (Suspended: Other**) **screen** is provided to the cardholder.   **Note**: For more details on the feedback provided to the Cardholder in the case of a blocked Open Payments Media, please refer to [**R1**]. |
| **UC-SA Tool-055.8** | **Open Payments Media is on the local deny list and the SA Tool is offline** |
|  | **Modified Pre-Condition:** Open Payments Media is on the local deny list |
| If the Open Payments Media is on the local deny list, the right to travel is not conferred.   * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device checks the local deny list and returns a response that the media is denied * Step 3 as follows:   + Right to travel is not conferred   + The **Declined – Unpaid Fares (Suspended: Unpaid Fares) screen** is provided to the cardholder or the **Declined – Try Another Card (Suspended: Other**) **screen** is provided to the cardholder. * Step 4 as follows:   + The declined tap is sent to ATS   **Note**: For more details on the feedback provided to the Cardholder in the case of a blocked Open Payments Media, please refer to [**R1**]. |
| **UC-SA Tool-055.9** | **Multiple NFC media are presented to the device at one time in Fare Payment mode** |
|  | If multiple NFC media are presented to the device at one time, the device will block all fare payment functionality:   * Step 1 as follows:   + Customer presents multiple NFC media to the card reader at once * Step 2 as follows:   + The device displays an error toast message. |
| **UC-SA Tool-055.10** | **Tap an Open Payments Media when SA Tool is in Out-of-Service state.** |
|  | **Modified Pre-Conditions:** Device is in Out-of-Service state. Screen provides appropriate ‘Out-of-Service’ display to customers. |
| The steps from the Main use case will be replaced as follows:   * Step 1: The device displays the **Not in Service screen** to the cardholder. Customer attempts to tap their Open Payments Media on the card reader. * Step 2 as follows: * Device will not detect the media * Step 3 as follows:   + Device Remains in Out-of-Service State |
| **UC-SA Tool-055.11** | **Customer attempts to tap on and an error has occurred** |
|  | This use-case occurs when an error has occurred on the device that does not cover the exception cases above.   * Steps 1 and 2 as stated in Main Use Case * Step 3 will be as follows:   + The device records the tap * Step 4 will be as follows   + The **Declined – Please Contact Customer Service screen** is provided to the cardholder. * Step 5 will be as follows:   + The declined tap is sent to ATS |
| **UC-SA Tool-055.12** | **Customer attempts to tap an Open Payments media not on the approved media list while the device is in Pilot mode** |
|  | This use-case occurs when the device is provisioned in beta mode and an Open Payments media that is not on the approved media list is tapped on the device.   * Steps 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device checks the approved media list. If the media is not found on the approved media list, the **Declined – Not Accepted, Tap Farecard** screen is provided to the cardholder. If the media is on the approved media list while the device is in beta mode, the steps continue as stated in the main use case. * Step 4 as follows:   + The declined tap is sent to ATS |
| **UC-SA Tool-055.13** | **Customer’s Open Payments Media is on the BIN Blocking List** |
|  | The Steps from the Main Use Case will be completed as follows:   * Steps 1 – 2 as stated in the Main Use Case. * Device checks its local BIN Blocking list. The card’s BIN is found to be on the BIN Blocking List. The device plays the decline audio tone and displays the **Declined – Try Another Card (BIN Blocked)** screen. If the media passes the BIN check, the steps continue as stated in the main use case. * Step 4 as follows:   + The decline is sent to ATS. |
| **UC-SA Tool-055.14** | **Customer is travelling with an Interac Card, and ATS returns a decline response due to Media In Debt** |
|  | * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device sends the tap to ATS and returns a response that the Interac media is on the deny list * Step 4 as follows:   + Right to travel is not conferred   + The **Declined – Tap Again (in X Seconds) screen (Interac – Trying to Pay Unpaid Fares)** screen is provided to the cardholder.   **Note**: For more details on the feedback provided to the Cardholder in the case of an Interac card with unpaid fares being tapped while the device is online, please refer to [**R1**]. If the configuration is set to a value above 0, the “Tap Again in X Seconds” screen will display instead of the “Tap Again” screen. Additional details regarding this configuration can be found in the ATS Configuration Specification [**R7**]. |
| **UC-SA Tool-055.15** | **Customer is travelling with an Interac Card, device is offline, and Interac media is on the local deny list due to Media In Debt** |
|  | * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device is offline. Instead of sending the tap to ATS, it checks the local deny list.   + The media is on the local deny list due to reason Media in Debt. * Step 4 as follows:   + Right to travel is not conferred   + The **Declined – Tap Again (in X Seconds) screen (Interac – Trying to Pay Unpaid Fares)** screen is provided to the cardholder.   **Note**: For more details on the feedback provided to the Cardholder in the case of an Interac card with unpaid fares being tapped while the device is online, please refer to [**R1**]. |
| **UC-SA Tool-055.16** | **Customer taps Interac Card while Interac is disabled on SA Tool** |
|  | * Step 1 as follows:   + The Cardholder taps the Interac media on the device Card Reader (CID). The device detects the Interac media. * Step 2 as follows:   + The device determines that the media tapped is not supported and displays an error message.   + The right to travel is not conferred. A transaction is not recorded.   **Note**: For more details on the feedback provided to the Cardholder in the case of an Interac card being tapped while Interac is not supported on the SA Tool, please refer to [**R1**]. |
| **UC-SA Tool-055.17** | **Customer taps Open Payment Card while Open Payments are disabled on SA Tool** |
|  | * Step 1 as stated in the Main Use Case * Step 2 as follows:   + The device determines that the media tapped is not supported and displays an error message.   + The right to travel is not conferred. A transaction is not recorded.   **Note**: For more details on the feedback provided to the Cardholder in the case of an OP card being tapped while OP is not supported on the SA Tool, please refer to [**R1**]. |
| **UC-SA Tool-055.18** | **Customer taps Open Payment Card while corresponding payment method / card brand is disabled on SA Tool** |
|  | * Step 1 as stated in the Main Use Case * Step 2 as follows:   + The device determines that the media tapped is not supported and displays an error message.   + The right to travel is not conferred. A transaction is not recorded.   **Note**: For more details on the feedback provided to the Cardholder in the case of a card being tapped while the corresponding card brand is disabled on the SA Tool, please refer to [**R1**]. |
| **UC-SA Tool-055.4** | **Open Payments Media is tapped within anti-passback window using an Offline SA Tool** |
|  | This Variation use case describes the interaction when the cardholder taps within the anti-passback window on an offline SA Tool. The device provides the cardholder with the appropriate feedback.   * Steps 1 and 2 are as stated in the Main Use Case * Step 3 will be as follows:   + The device accepts the tap and checks the latent transaction processor on the same device for a previous tap within the anti-passback window. The tap is stored on the device till it is connected to ATS where the transactions will be reconciled. * Step 4 will be as follows:   + The**Declined – Already Tapped Screen** is provided to the cardholder.   **Note**: The customer is not charged twice. For more details on the anti-passback logic, please refer to [**R6**]. |

#### Cardholder Tap-On an Online SA Tool to a Fare-by-Zone TA with Open Payments Media

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-056** | | **Cardholder Taps-On an Online SA Tool to a Fare-by-Zone TA with Open Payments Media** |
| **Use Case Description**:  This main use case describes the interactions of an Open Payments Cardholder as they tap-on at a SA Tool that is online and connected to ATS for a Fare-by-Zone TA. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main use case, alternate flows and exceptions unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has selected the “Payment” option from home screen * The device is online and connected to the Accenture Ticketing Services * The Open Payments Media is not on the deny list * Open Payments capability is enabled on the device * The Media passes the BIN check, if applicable. * The Media passes the ODA check, if applicable. Note: non-ODA Interac cards are allowed to travel. | | |
| **‘Main use case: Cardholder Taps-On an SA Tool with Open Payments Media (SA Tool Validation)** | | |
| **Step #** | **Step Description** | |
| 1 | The Cardholder initiates a trip and taps the Open Payments Media on the device Card Reader (CID). The device detects the Open Payments media. | |
| 2 | The device reads the open payments media and completes the following reader checks:   * ODA Verification – The device checks if the media presented is a valid type supported by one of the compatible brands. - Note: non-ODA Interac cards are allowed to travel. * Expiry Check – The device checks if the media tapped is not expired (i.e. valid) * BIN Blocking – The device checks if the BIN of the media presented is in the BIN Blocking list. | |
| 3 | The device sends the tap to Accenture Ticketing Services for processing. ATS checks the online deny list and completes the fare processing. (Note, if the media is found to be on the Open Payments Accepted list, skip to step 4).  **Note**: For more details on the ticketing logic, please refer to [**R6**]. | |
| 4 | The right to travel is conferred to the Cardholder by updating the HMI of the SA Tool. The **FPS – Open Payments Accepted Screen** is provided to the cardholder.  **Note**: For more details on the feedback provided to the Cardholder, please refer to [R1]. Also, while the feedback screen is presented to the Cardholder, the device will still be able to process another media at the same time. | |

##### Alternate Flow

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| 1. Alternate Flows | |
| **UC-SA Tool-056.1** | 1. Tap-On an SA Tool with Open Payments Media – Device is offline and not connected to Accenture Ticketing Services |
|  | 1. Modified Pre-Condition: The device is offline and not connected to Accenture Ticketing Services |
| 1. If the SA Tool is not online and not connected to ATS, the following steps will be completed as follows 2. Steps 1 and 2 are as stated in the Main use case 3. Step 3 as follows: 4. The device checks the local deny list if the media is on the local deny list. The latent transaction processor stores the tap till the device goes back online and connects to Accenture Ticketing Services. The tap is then rated in ATS. 5. Step 4 as stated in the Main Use Case 6. Note: For more details on the ticketing logic, please refer to [R6]. Note: For more details on the feedback provided to the Cardholder, please refer to [R1]. Also, while the feedback screen is presented to the Cardholder, the device will still be able to process another media at the same time. |
| **UC-SA Tool-056.2** | 1. Tap-On an SA Tool with Open Payments Media – Customer uses audio jack to hear instructions |
|  | The user will listen to the instructions through the headphones. The steps from Main Use Case will be completed as follows:   * Step 1 as follows:   + Customer inserts headphones into the Audio jack which automatically switches the device into audio assist mode   + Audio instructions detail how to adjust the volume by pressing the volume button and then prompt the user to tap their media (in both French and English). The default volume level is set to Medium and the volume levels can be rotated through Low – Medium – High * Step 2, 3 and 4 as stated in the Main Use Case   **Note**: Customer will hear prompts and feedback regarding the tap through the headphones. The language preference on the media will dictate which language the audio message will be played in. If the card language tag (5F2D ISO 639 – Language Code; under EMV specifications) is EN or FR-CA, the appropriate language will be used. Otherwise, English will be used as the default language. |
| **UC-SA Tool-056.4** | **Open Payments Media contains a Default O/D and the Customer Taps on at either the Origin or Destination Status** |
|  | The device will process a full Fare-by-Zone transaction (both tap-on and tap-off) in case of a default O/D on the Farecard:   * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + ATS will deduct the Full Fare value for the station-to-station trip accounting for all Fare considerations associated to the trip.   + Default trip will use PAR as the card identifier * Step 4 as stated in the Main Use Case. |
| **UC-SA Tool-056.5** | **Open Payments Media Contains a Default O/D and the Customer Overrides the Default Trip prior to tapping-on** |
|  | The device will override the default O/D contained on the Open Payments Media and process the tap as a regular tap-on:   * Step 1 as follows:   + Customer requests the override of a Default Trip by interacting with the Device   + Device HMI informs the customer that the Device is prepared to override the Default Trip   + The Cardholder then initiates a trip by presenting the Farecard to the Device CID * Step 2 and 4 as stated in the Main Use Case |
| **UC-SA Tool-056.6** | **Tap-On an SA Tool with Open Payments Media – Customer is eligible for capping discount** |
|  | **Modified Pre-Condition:**   * The customer has met any capping discount criteria * Capping has been configured |
| When capping is configured, and the customer has met any of the capping criteria (Daily, Weekly, Monthly) the following steps will occur:   * Steps 1 and 2 as in Main Use Case * Step 3   + The device sends the tap to Accenture Ticketing Services for processing. ATS checks the online deny list and completes the fare processing.   + ATS will calculate the capping discount and apply to the fare calculation * Step 4 as in main use case. |
| UC-SA Tool-056.7 | **Tap-On an SA Tool with Open Payments Media – Customer is eligible for multiple capping discounts** |
|  | **Modified Pre-Condition:**   * The customer has met multiple capping discount criteria * Capping has been configured |
| When capping is configured, and the customer has met a combination of multiple capping criteria (Daily, Weekly, Monthly) the following steps will occur:   * Steps 1 and 2 as in Main Use Case * Step 3   + The device sends the tap to Accenture Ticketing Services for processing. ATS checks the online deny list and completes the fare processing.   + ATS will calculate the capping discount and apply to the fare calculation. When multiple caps are met ATS will take whatever Capping program which is of highest precedence (set in RE) and apply that discount to the fare. Precedence will be set by TA/Business rules and all logic when selecting a discount will go by this. * Step 4 as in main use case. |
| UC-SA Tool-056.8 | **Tap-On an SA Tool with Open Payments Media – Customer is eligible for Capping discount; Device is offline and not connected to Accenture Ticketing Services** |
|  | **Modified Pre-Condition:**   * The device is offline and not connected to Accenture Ticketing Services * The customer has met any capping discount criteria * Capping has been configured |
| 1. If the SA Tool is not online and not connected to ATS, the following steps will be completed as follows 2. Steps 1 and 2 are as stated in the Main use case 3. Step 3 as follows: 4. The device checks the local deny list if the media is on the local deny list. The latent transaction processor stores the tap till the device goes back online and connects to Accenture Ticketing Services. The tap is then rated in ATS. 5. Capping rules will follow use-case logic outlined in ticketing use cases   Step 4 as stated in the Main Use Case |

##### Exceptions

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| 1. Exceptions | |
| **UC-SA Tool-056.8** | **Open Payments Media fails ODA check Note: Non-ODA Interac cards are allowed to travel.** |
|  | If an Open Payments Media fails the ODA check, the device returns the appropriate feedback.   * Step 1 is as stated in Main Use Case * Step 2 will be as follows:   + The device performs the necessary validation and determines that the Open Payments Media is unable to pass the checks * Step 3 will be as follows:   + The **Declined – Failed ODA Check** screen is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 4 will be as follows:   + The declined tap is sent to ATS   **Note**: For more details on the feedback provided to the Cardholder, please refer to [**R1**]. |
| **UC-SA Tool-056.9** | **Open Payments Media Fails Expiry Check** |
|  | If an Open Payments Media fails the Expiry Check, the device returns the appropriate feedback.   * Step 1 is as stated in Main Use Case * Step 2 will be as follows:   + The device performs the necessary validation and determines that the Open Payments Media is unable to pass the expiry check * Step 3 will be as follows:   + The **Declined – Card Expired** **Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 4 will be as follows:   + The declined tap is sent to ATS.   **Note**: For more details on the feedback provided to the Cardholder in the case of failed validation, please refer to **[R1]**. |
| **UC-SA Tool-056.10** | **Open Payments Media has already tapped-on using an Online Device** |
|  | This Exception use case describes the interactions of the cardholder taps-on again at an SA Tool at the same station within the SA Tool Tap-on anti-passback Window, whereby the initial device and secondary device tapped on were both online. The device provides the cardholder with the appropriate feedback.   * Steps 1 and 2 are as stated in the Main Use Case * Step 3 will be as follows:   + The device sends the tap to ATS and returns a response that the cardholder has already tapped on at the same station and is within the Tap-on anti-passback Window. * Step 4 will be as follows:   + The **Declined – Already Tapped Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the anti-passback logic, please refer to [**R6**]. |
| **UC-SA Tool-056.11** | **Open Payments Media has already tapped-on using an Offline Device (Anti-passback)** |
|  | This Exception use case describes the interactions of the cardholder taps-on again at an SA Tool at the same station within the SA Tool Tap-on anti-passback Window whereby the initial device tapped, and secondary device(s) is the same device and is offline. The device provides the cardholder with the appropriate feedback.   * Steps 1 and 2 are as stated in the Main Use Case * Step 3 will be as follows:   + The device accepts the tap and checks the latent transaction processor on the same device for a previous tap within the anti-passback window. The tap is stored on the device till it is connected to ATS where the transactions will be reconciled. * Step 4 will be as follows:   + The **Declined – Already Tapped Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: The customer is not charged twice. For more details on the anti-passback logic, please refer to [**R6**]. |
| **UC-SA Tool-056.12** | **Open Payments Media is on the ATS deny list and the SA Tool is online** |
|  | **Modified Pre-Condition:** Open Payments Media is on the deny list |
| If the Open Payments Media is on the deny list, the right to travel is not conferred.   * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device sends the tap to ATS and returns a response that the media is on the deny list * Step 3 as follows:   + Right to travel is not conferred   + The **Declined – Suspended: Unpaid Fares Screen** is provided to the cardholder or the **Declined – Suspended: Other** **Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the feedback provided to the Cardholder in the case of a blocked Open Payments Media, please refer to [**R1**]. |
| **UC-SA Tool-056.13** | **Open Payments Media is on the local deny list and device is offline** |
|  | **Modified Pre-Condition:** Open Payments Media is on the local deny list |
| If the Open Payments Media is on the local deny list, the right to travel is not conferred.   * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device checks the local deny list and returns a response that the media is denied * Step 3 as follows:   + Right to travel is not conferred   + The **Declined – Suspended: Unpaid Fares Screen** is provided to the cardholder or the **Declined – Suspended: Other** **Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 4 as follows:   + The declined tap is sent to ATS   **Note**: For more details on the feedback provided to the Cardholder in the case of a blocked Open Payments Media, please refer to [**R1**]. |
| **UC-SA Tool-056.14** | **Multiple NFC media are presented to the device at one time** |
|  | If multiple NFC media are presented to the device at one time, the device will block all fare payment functionality:   * Step 1 as follows:   + Customer presents multiple NFC media to the card reader at once * Step 2 as follows:   + The **Anti-Collision Error Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 3 as follows:   + The declined tap is sent to ATS   **Note**: For more details on the feedback provided to the Cardholder in the case of anti-collision, please refer to **[R1]**. |
| **UC-SA Tool-056.15** | **Tap an Open Payments Media when SA Tool is in Out-of-Service state.** |
|  | **Modified Pre-Conditions:** Device is in Out-of-Service state. Screen provides appropriate ‘Out-of-Service’ display to customers. |
|  | The steps from the Main use case will be replaced as follows:   * Step 1: The device displays the **Not in Service screen** to the cardholder. Customer attempts to tap their Open Payments Media on the card reader. * Step 2 as follows: * Device will not detect the media * Step 3 as follows:   + Device Remains in Out-of-Service State |
| **UC-SA Tool-056.16** | **Customers attempts to tap-on immediately after tapping-off at the same station and the device is online (Anti-passback)** |
|  | This Exception use case describes the interactions of the cardholder taps-on again at an SA Tool after just tapping-off at the same station within the SA Tool Tap-on anti-passback Window. The device provides the cardholder with the appropriate feedback.   * Steps 1 and 2 are as stated in the Main Use Case * Step 3 will be as follows:   + The device sends the tap to ATS and returns a response that the cardholder has already tapped on at the same station and is within the Tap-on anti-passback Window. * Step 4 will be as follows:   + The **Declined – Already Tapped Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: The user has the option to reverse the tap should they decide to continue travelling. For more details on the anti-passback logic, please refer to [**R6**]. |
| **UC-SA Tool-056.17** | **Customers attempts to tap-on immediately after tapping-off at the same station and the device is offline (anti-passback)** |
|  | This Exception use case describes the interactions of the cardholder taps-on again at an SA Tool after just tapping-off at the same station within the SA Tool tap-on anti-passback Window whereby the customer has tapped-on again at the same offline device. The device provides the cardholder with the appropriate feedback.   * Steps 1 and 2 are as stated in the Main Use Case * Step 3 will be as follows:   + The device accepts the tap and checks the latent transaction processor on the same device for a previous tap within the anti-passback window. The tap is stored on the device till it is connected to ATS where the tap will be reconciled. * Step 4 will be as follows:   + The **Declined – Already Tapped Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 5 will be as follows:   + The declined tap is sent to ATS   **Note**: For more details on the anti-passback logic, please refer to [**R6**]. |
| **UC-SA Tool-056.18** | **Customer attempts to tap on and an error has occurred** |
|  | This use-case occurs when an error has occurred on the device that does not cover the exception cases above.   * Steps 1 and 2 as stated in Main Use Case * Step 3 will be as follows:   + The device records the tap * Step 4 will be as follows   + The **Declined – See Customer Service Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 5 will be as follows:   + The declined tap is sent to ATS |
| **UC-SA Tool-056.19** | **Customer attempts to tap an Open Payments media not on the approved media list while the device is in beta mode** |
|  | This use-case occurs when the device is provisioned in beta mode and an Open Payments media that is not on the approved media list is tapped on the device.   * Steps 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device checks the approved media list. If the media is not found on the approved media list, the **Declined – Tap Farecard Screen** is provided to the cardholder. If the media is on the approved media list while the device is in beta mode, the steps continue as stated in the main use case.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 4 as follows:   + The declined tap is sent to ATS |
| **UC-SA Tool-056.20** | **Customer’s Open Payments Media is on the BIN Blocking List** |
|  | The Steps from the Main Use Case will be completed as follows:   * Steps 1 – 2 as stated in the Main Use Case. * Device checks its local BIN Blocking list. The card’s BIN is found to be on the BIN Blocking List. The device plays the decline audio tone and displays the **Declined – BIN Blocked** screen. If the media passes the BIN check, the steps continue as stated in the main use case.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 4 as follows:   + The decline is sent to ATS. |
| **UC-SA Tool-056.21** | **Customer is travelling with an Interac Card, and ATS returns a decline response due to Media In Debt** |
|  | * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device sends the tap to ATS and returns a response that the Interac media is on the deny list * Step 4 as follows:   + Right to travel is not conferred   + The **Declined – Interac Unpaid Fares Online Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. |
| **UC-SA Tool-056.22** | **Customer is travelling with an Interac Card, device is offline, and Interac media is on the local deny list due to Media in Debt** |
|  | * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device is offline. Instead of sending the tap to ATS, it checks the local deny list.   + The media is on the local deny list due to reason Media in Debt. * Step 4 as follows:   + Right to travel is not conferred   + The **Declined – Interac Unpaid Fares Offline Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. |

#### Cardholder Taps-Off an Online SA Tool to a Fare-by-Zone TA with Open Payments Media

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-057** | | **Cardholder Taps-Off SA Tool with Open Payments Media** |
| **Use Case Description**:  This main use case describes the interactions of an Open Payments Cardholder as they tap-off at the SA Tool. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main use case, alternate flows and exceptions unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has selected the “Payment” option from home screen * The device is online and connected to the Accenture Ticketing Services * Open Payments Media is able to pass validation checks (i.e. valid card) * The Cardholder has tapped-on * The Open Payments Media is not on the deny list * The Media passes the BIN check, if applicable. * The Media passes the ODA check, if applicable. Note: non-ODA Interac cards are allowed to travel. | | |
| **Main use case: Cardholder Taps-Off SA Tool with Open Payments Media** | | |
| **Step #** | **Step Description** | |
| 1 | The Cardholder ends a trip and taps the Open Payments Media on the device Card Reader (CID). | |
| 2 | The device reads the open payments media and completes the following checks:   * ODA Verification – The device checks if the media presented is a valid type supported by one of the compatible brands. - Note: non-ODA Interac cards are allowed to travel. * Expiry Check – The device checks if the media tapped is not expired (i.e. valid)   BIN Blocking – The device checks if the BIN of the media presented is in the BIN Blocking list. | |
| 3 | The device sends the tap to the Accenture Ticketing Services. ATS checks the online deny list and completes the fare processing. (Note, if the media is found to be on the Open Payments Accepted list, skip to step 4).  **Note**: For more details on the ticketing logic, please refer to **[R6]**. | |
| 4 | The device provides the appropriate feedback to the Cardholder of a successful tap. The **FPS – Open Payments Accepted Screen** is provided to the cardholder.  **Note**: For more details on the feedback provided to the Cardholder, please refer to **[R1]**. Also, while the feedback screen is presented to the Cardholder, the device will still be able to process another media at the same time. | |

##### Alternate Flow

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| 1. Alternate flows | |
| **UC-SA Tool-057.1** | 1. Tap-Off an SA Tool with Open Payments Media – Device is offline and not connected to Accenture Ticketing Services |
|  | 1. Modified Pre-Condition: The device is offline and not connected to Accenture Ticketing Services |
| 1. If the SA Tool is not online and connected to ATS, the following steps will be completed as follows 2. Steps 1 and 2 are as stated in the Main use case 3. Step 3 as follows: 4. The device checks the local deny list if the media is on the local deny list. The latent transaction processor stores the tap till the device goes back online and connects to Accenture Ticketing Services. The tap is then rated in ATS. 5. Step 4 as stated in the Main Use Case 6. Note: For more details on the ticketing logic, please refer to [R6]. Note: For more details on the feedback provided to the Cardholder, please refer to [R1]. Also, while the feedback screen is presented to the Cardholder, the device will still be able to process another media at the same time. |
| **UC-SA Tool-057.2** | 1. Tap-Off SA Tool with Open Payments Media – Customer uses audio jack to hear instructions |
|  | The user will listen to the instructions through the headphones. The steps from Main Use Case will be completed as follows:   * Step 1 as follows:   + Customer inserts headphones into the Audio jack which automatically switches the device into audio assist mode   + Audio instructions detail how to adjust the volume by pressing the volume button and then prompt the user to tap their media (in both French and English). The default volume level is set to Medium and the volume levels can be rotated through Low – Medium – High   (For more information on audio instructions, refer to [R6])   * Step 1, 2, 3 and 4 as stated in Main Use Case   **Note**: Customer will hear prompts and feedback regarding the tap through the headphones. The language preference on the media will dictate which language the audio message will be played in. If the card language tag (5F2D ISO 639 – Language Code; under EMV specifications) is EN or FR-CA, the appropriate language will be used. Otherwise, English will be used as the default language. |
| **UC-SA Tool-057.4** | **Customer Overrides the Default Trip prior to Tapping-off** |
|  | If the tap-off occurs while the device is in Override mode, the device will process the tap as a normal tap-off   * Step 1 as follows:   + Customer requests the override of a Default Trip by interacting with the Device   + Device HMI informs the customer that the Device is prepared to override the Default Trip   + The Cardholder presents Farecard to the Device CID * Step 2, 3 and 4 as stated in the Main Use Case |
| **UC-SA Tool-057.5** | **Tap-Off an SA Tool with Open Payments Media – Customer is eligible for capping discount** |
|  | **Modified Pre-Condition:**   * The customer has met any capping discount criteria * Capping has been configured |
| When capping is configured, and the customer has met any of the capping criteria (Daily, Weekly, Monthly) the following steps will occur:   * Steps 1 and 2 as in Main Use Case * Step 3   + The device sends the tap to Accenture Ticketing Services for processing. ATS checks the online deny list and completes the fare processing.   + ATS will calculate the capping discount and apply to the fare calculation * Step 4 as in main use case. |
| **UC-SA Tool-057.6** | **Tap-Off an SA Tool with Open Payments Media – Customer is eligible for multiple capping discounts** |
|  | **Modified Pre-Condition:**   * The customer has met multiple capping discount criteria   Capping has been configured |
|  | When capping is configured, and the customer has met a combination of multiple capping criteria (Daily, Weekly, Monthly) the following steps will occur:   * Steps 1 and 2 as in Main Use Case * Step 3:   + The device sends the tap to Accenture Ticketing Services for processing. ATS checks the online deny list and completes the fare processing.   + ATS will calculate the capping discount and apply to the fare calculation. When multiple caps are met ATS will take whatever Capping program which is of highest precedence (set in RE) and apply that discount to the fare. Precedence will be set by TA/Business rules and all logic when selecting a discount will go by this.   Step 4 as in main use case. |
| **UC-SA Tool-057.7** | **Tap-On an SA Tool with Open Payments Media – Customer is eligible for Capping discount; Device is offline and not connected to Accenture Ticketing Services** |
|  | **Modified Pre-Condition:**   * The device is offline and not connected to Accenture Ticketing Services * The customer has met any capping discount criteria * Capping has been configured |
| 1. If the SA Tool is not online and not connected to ATS, the following steps will be completed as follows 2. Steps 1 and 2 are as stated in the Main use case 3. Step 3 as follows: 4. The device checks the local deny list if the media is on the local deny list. The latent transaction processor stores the tap till the device goes back online and connects to Accenture Ticketing Services. The tap is then rated in ATS. 5. Capping rules will follow use-case logic outlined in [R1]  * Step 4 as stated in the Main Use Case |

##### Exception Flow

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| 1. Exception Flows | |
| **UC-SA Tool-057.8** | **Open Payments Media fails ODA check. Note: ODA Interac cards are allowed to travel.** |
|  | If an Open Payments Media fails the ODA check, the device returns the appropriate feedback.   * Step 1 is as stated in Main Use Case * Step 2 will be as follows:   + The device performs the necessary validation and determines that the Open Payments Media is unable to pass the checks * Step 3 will be as follows:   + The **Declined – Failed ODA Check** **Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 4 will be as follows:   + The declined tap is sent to ATS |
| **UC-SA Tool-057.9** | **Open Payments Media Fails Expiry Check** |
|  | If an Open Payments Media fails the Expiry Check, the device returns the appropriate feedback.   * Step 1 is as stated in Main Use Case * Step 2 will be as follows:   + The device performs the necessary validation and determines that the Open Payments Media is unable to pass the expiry check * Step 3 will be as follows:   + The **Declined – Card Expired** **Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 4 will be as follows:   + The declined tap is sent to ATS   **Note**: For more details on the feedback provided to the Cardholder in the case of failed validation, please refer to **[R1]**. |
| **UC-SA Tool-057.10** | **Open Payments Media has already tapped-on using an Online Device within Anti-Passback Window** |
|  | This Exception use case describes the interactions of the cardholder taps-on again at an SA Tool at the same station within the SA Tool Tap-on anti-passback Window, whereby the initial device and secondary device(s) tapped on were all online. The device provides the cardholder with the appropriate feedback.   * Steps 1 and 2 are as stated in the Main Use Case * Step 3 will be as follows:   + The device sends the tap to ATS and returns a response that the cardholder has already tapped on at the same station and is within the Tap-on anti-passback Window. * Step 4 will be as follows:   + The **Declined – Already Tapped** **Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the anti-passback logic, please refer to [**R6**]. |
| **UC-SA Tool-057.11** | **Open Payments Media has already tapped-on using an Offline Device** |
|  | This Exception use case describes the interactions of the cardholder taps-on again at an SA Tool at the same station within the SA Tool Tap-on anti-passback Window whereby the initial device tapped, and secondary device(s) is the same device and is offline. The device provides the cardholder with the appropriate feedback.   * Steps 1 and 2 are as stated in the Main Use Case * Step 3 will be as follows:   + The device accepts the tap and checks the latent transaction processor on the same device for a previous tap within the anti-passback window. The tap is stored on the device till it is connected to ATS where the transactions will be reconciled. * Step 4 will be as follows   + The **Declined – Already Tapped** **Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. |
| **UC-SA Tool-057.12** | **Open Payments Media is on the ATS deny list and the SA Tool is online** |
|  | **Modified Pre-Condition:** Open Payments Media is on the deny list |
| If the Open Payments Media is on the deny list, the right to travel is not conferred.   * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device sends the tap to ATS and returns a response that the media is on the deny list * Step 3 as follows:   + The **Declined – Suspended: Unpaid Fares Screen** or **Declined – Suspended: Other Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the feedback provided to the Cardholder in the case of a blocked Open Payments Media, please refer to [**R1**]. |
| **UC-SA Tool-057.13** | **Open Payments Media is on the local deny list and device is offline** |
|  | **Modified Pre-Condition:** Open Payments Media is on the local deny list |
| If the Open Payments Media is on the local deny list, the right to travel is not conferred.   * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device checks the local deny list and returns a response that the media is denied * Step 3 as follows:   + The **Declined – Suspended: Unpaid Fares Screen** or **Declined – Suspended: Other Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 4 as follows:   + The declined tap is sent to ATS   **Note**: For more details on the feedback provided to the Cardholder in the case of a blocked Open Payments Media, please refer to [**R1**]. |
| **UC-SA Tool-057.14** | **Multiple NFC media are presented to the device at one time** |
|  | If multiple NFC media are presented to the device at one time, the device will block all fare payment functionality:   * Step 1 as follows:   + Customer presents multiple NFC media to the card reader at once * Step 2 as follows:   + The **Anti-Collision Error Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 3 as follows:   + The declined tap is sent to ATS   **Note**: For more details on the feedback provided to the Cardholder in the case of anti-collision, please refer to **[R1]**. |
| **UC-SA Tool-057.15** | **Tap an Open Payments Media when SA Tool is in Out-of-Service state.** |
|  | **Modified Pre-Conditions:** Device is in Out-of-Service state. Screen provides appropriate ‘Out-of-Service’ display to customers. |
| The steps from the Main use case will be replaced as follows:   * Step 1: The **Not In Service Screen** is provided to the cardholder. Customer attempts to tap their Open Payments Media on the card reader. * Step 2 as follows: * Device will not detect the media * Step 3 as follows:   + Device Remains in Out-of-Service State |
| **UC-SA Tool-057.16** | **Customer attempts to tap on and an error has occurred** |
|  | This use-case occurs when an error has occurred on the device that does not cover the exception cases above.   * Steps 1 and 2 as stated in Main Use Case * Step 3 will be as follows:   + The device records the tap * Step 4 will be as follows   + The **Declined – See Customer Service Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 5 will be as follows:   + The declined tap is sent to ATS |
| **UC-SA Tool-057.17** | **Customer attempts to tap an Open Payments media not on the approved media list while the device is in beta mode** |
|  | This use-case occurs when the device is provisioned in beta mode and an Open Payments media that is not on the approved media list is tapped on the device.   * Steps 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device checks the approved media list. If the media is not found on the approved media list, the **Declined – Tap Farecard Screen** is provided to the cardholder. If the media is on the approved media list while the device is in beta mode, the steps continue as stated in the main use case.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 4 as follows:   The declined tap is sent to ATS |
| **UC-SA Tool-057.18** | **Customer’s Open Payments Media is on the BIN Blocking List** |
|  | The Steps from the Main Use Case will be completed as follows:   * Steps 1 – 2 as stated in the Main Use Case. * Device checks its local BIN Blocking list. The card’s BIN is found to be on the BIN Blocking List. The device plays the decline audio tone and displays the **Declined – BIN Blocked** screen. If the media passes the BIN check, the steps continue as stated in the main use case. * An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 4 as follows:   + The decline is sent to ATS. |
| **UC-SA Tool-057.19** | **Customer is travelling with an Interac Card, and ATS returns a decline response due to Media In Debt** |
|  | * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device sends the tap to ATS and returns a response that the Interac media is on the deny list * Step 4 as follows:   + Right to travel is not conferred   + The **Declined – Interac Unpaid Fares Online Screen** is provided to the cardholder. |
| **UC-SA Tool-057.20** | **Customer is travelling with an Interac Card, device is offline, and Interac media is on the local deny list due to Media In Debt** |
|  | * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device is offline. Instead of sending the tap to ATS, it checks the local deny list.   + The media is on the local deny list due to reason Media in Debt. * Step 4 as follows:   + Right to travel is not conferred   + The **Declined – Interac Unpaid Fares Offline Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   + The decline is sent to ATS. |

#### Accepting Fare Payment on an Online SA Tool from a Virtual Card using ePurse Balance

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-058** | | **Accepting Fare Payment on an Online SA Tool from a Virtual Card using ePurse Balance** |
| **Use Case Description**:  This use case describes the steps for a SP operator to accept a fare payment on an online SA Tool from a Virtual Card using ePurse balance. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main use case, alternate flows and exceptions unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has selected the “Payment” option from home screen * SA Tool is online and connected to ATS * Customer’s Virtual Card is active * Customer’s Virtual Card has a positive ePurse Balance greater than the fare amount * Customer’s Virtual Card does not have a valid period pass for the SP transit service they are utilizing * Customer’s Virtual Card does not have a valid transfer product * Customer’s Virtual Card’s concession is Adult or Discreet Concessions (for list of discreet concessions, refer to the ticketing spec appendix) * The reader is configured to support Virtual Farecard s * Customer’s Virtual Card is below Tap Counter limit | | |
| **Main Use Case: Accepting Fare Payment from a Virtual Card using ePurse Balance** | | |
| **Step #** | **Step Description** | |
| 1 | The customer asks to pay for the trip with their Virtual Card | |
| 2 | The operator selects the payment function on the SA Tool application home screen. | |
| 3 | SA Tool displays a prompt to tap the CLIENT (Virtual) Card. The customer taps their Virtual Card on the NFC card reader on the SA Tool.  Note: There will not be a distinction in the HMI between Virtual and Physical Farecard s | |
| 4 | The SA Tool reads the Virtual Card and performs the necessary validation checks:   * Card Authentication Verification – The device checks if the media presented is a valid Virtual Card * The card is valid (i.e. able to communicate, is a Virtual Card, etc.)   **Note:** For more information on the detailed processes of fare validations and list processing (including the order of validation steps), refer to **[R6]**. During card identification, the audio button and volume controls will be disabled. | |
| 5 | The device sends the tap to ATS for processing. ATS checks the card status and completes the fare processing. ATS then sends the tap-on success result back to the device via API.  **Note:** For more details on the ticketing logic, please refer to [**R6**]. | |
| 6 | The SA Tool displays the successful fare payment screen and plays the successful payment audio tone.  The tap counter is rest to 0 if it is not already at 0 and the Scratchpad on the Virtual Card is updated.  **Note**: For more details on the feedback provided to the Cardholder, please refer to [**R1**]. Also, while the feedback screen is presented to the Cardholder, the device will still be able to process another Farecard at the same time. | |
| 7 | After a configurable timeout, the SA Tool screen returns to the application Tap Card screen. | |

##### Alternate Flows

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| **Alternate Flows** | |
| **UC-SA Tool-058.1** | **Accepting Fare Payment from a Virtual Card using ePurse Balance - Customer’s Virtual Card is Unreadable** |
| **Modified pre-conditions:**   * SA Tool application detects the Virtual Card and fails to read it correctly |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 3 as stated in the Main Use Case 2. The SA Tool NFC reader detects the Virtual Card but is unable to read it. SA Tool application will indicate to the operator that the Virtual Card is unreadable. 3. The customer will tap on the NFC reader again. If the tap is successful, steps 4 – 7 will be conducted. If the tap is unsuccessful, the SA Tool application will indicate to the operator that the CLIENT (Virtual) Card is unreadable.   **Note**: There will be no difference in HMI between physical and virtual Farecard s. |
| **UC-SA Tool-058.2** | **Accepting Fare Payment from a Farecard using ePurse Balance - Customer has a Concession other than Adult, Child, or Discreet Concessions on their Virtual Card** |
| **Modified pre-conditions:**   * Customer’s Virtual Card has a Valid Non-Adult, Non-Child, non-discreet concessions |
| The Steps from the Main Use Case will be completed as follows:   * Steps 1-5 as stated in the Main Use Case * Step 6 will be as follows:   1. The SA Tool shows the successful fare payment screen for non-adult concession, plays the successful fare payment audio tone for a concession other than Adult, Child, or Discreet Concessions. * Step 7 as stated in the Main Use Case |
| **UC-SA Tool-058.3** | **Accepting Fare Payment from a Virtual Card using ePurse Balance - Customer Has a Registered Virtual Card with Positive ePurse Balance Less Than the Fare Amount** |
| **Modified pre-conditions:**   * Customer’s ePurse balance is less than the fare amount  **Note:** Balance is ≥ 0 but < fare amount |
| The Steps from the Main Use Case will be completed as follows:   * Steps 1-4 as stated in the Main Use Case * Step 5 will be as follows:   + The device sends the tap to ATS for processing. ATS checks the online hotlist and completes the fare processing. ATS removes the fare from the Virtual Card e-Purse and puts the card into overdraft. * Step 6 will be as follows:   + The right to travel is conferred to the Cardholder by updating the Virtual Card accordingly. The device provides the appropriate feedback to the Cardholder of a successful transaction. * Steps 7 as stated in the Main Use Case |
| **UC-SA Tool-058.4** | **Accepting Fare Payment from a Virtual Card using ePurse Balance - Transaction is within Intra-SP Transfer window** |
| **Modified pre-conditions:**   * Customer’s Virtual Card has a valid transfer product |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. Step 5 will be as follows:    1. ATS will read that the Virtual Card contains a valid intra-agency transfer product and deduct $0 from the Virtual Card E-Purse    2. This will be communicated back to the device    3. **Note**: For more details on Transfer Product Processing, refer to [**R6**] 3. Step 6 will be as follows:    1. The right to travel is conferred to the Cardholder by updating the Virtual Card, the device provides the appropriate feedback to the Cardholder of a successful transaction with a transfer 4. Step 7 as stated in the Main Use Case |
| **UC-SA Tool-058.5** | **Accepting Fare Payment from a Virtual Card using ePurse Balance - Transaction is within Inter-SP Transfer window** |
| **Modified pre-conditions:**   * Customer’s Virtual Card has a valid transfer product from other service provider * A transfer agreement between the service providers has been established |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. Step 5 will be as follows:    1. ATS will read that the Virtual Card contains a valid inter-agency transfer product and deduct $0 from the Virtual Card E-Purse    2. This will be communicated back to the device    3. **Note**: For more details on Transfer Product Processing, refer to [**R6**] 3. Step 6 will be as follows:    1. The right to travel is conferred to the Cardholder by updating the Virtual Card; the device provides the appropriate feedback to the Cardholder of a successful transaction with a transfer 4. Step 7 as stated in the Main Use Case |
| **UC-SA Tool-058.6** | **Accepting Fare Payment from a Farecard using ePurse Balance – Customer requests Audio Messages** |
| **Modified pre-conditions:** N/A |
| The Steps from the Main Use Case will be completed as follows:   1. The customer asks to pay for the trip with their Virtual Card and requests audio messages for fare payment. 2. Steps 2-6 as stated in the Main Use Case 3. Operator enables audio mode. 4. The operator can change the volume level using the physical device buttons at the customer’s discretion or proceed with the use case. While the volume is being adjusted, a volume adjustment bar will appear, and timeout automatically, to indicate the volume level. The volume will return to the device default after the use case is completed. The physical buttons will only support changing the audio messaging volume when accessibility mode is enabled.   **Note:** The minimum volume level and default volume level are configurable.   1. SA Tool displays the fare payment screen to the operator and customer for the duration of the audio message. Corresponding audio message is played to the customer in the default language of their Farecard as seen in the table below.  |  |  | | --- | --- | | **Card Language** | **Audio Language** | | Registered - English | English | | Registered - French | French | | Anonymous - English | English | | Anonymous - French | French |  1. After the audio ends, the SA Tool screen returns to the application Tap Card screen. |
| **UC-SA Tool-058.7** | **Accepting Fare Payment from a Farecard using ePurse Balance – Daily Cap Reached outside of Transfer window on SA Tool** |
| **Modified pre-conditions:**   * The fare payment is being made on the SA Tool * Farecard has reached Daily Cap Limit * Farecard is out of transfer window |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. Step 5 will be as follows:    1. ATS deducts no fare since the Daily Cap is reached. 3. Step 6-7 as stated in the Main Use Case |
| **UC-SA Tool-058.8** | **Accepting Fare Payment from a Virtual Card using ePurse Balance – Premium Service or Special Route/Location on SA Tool**  A tap on a premium service or special route/location results in a fare payment for the premium or special event fare amount and Transfer Product creation for the Premium Service or special event Class (Txn 14, ZoneRadius = 1 or 2) |
| **Modified pre-conditions:**   * The fare payment is being made on the SA Tool * Service Class is Premium or Special Event |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. Step 5 will be as follows:    1. ATS will compute the fare and deduct the amount from the Virtual Card E-Purse    2. This will be communicated back to the SA Tool 3. Step 6 and 7 as stated in the Main Use Case |
| **UC-SA Tool-058.9** | **Accepting Fare Payment from a Farecard using ePurse Balance – Premium Service or Special Route/Location with Fare Upgrade on SA Tool**  A tap on a premium service or special event route/location after previously riding on a regular service route (within the transfer window) results in a fare upgrade (Txn 14, ZoneRadius = 1 or 2) |
| **Modified pre-conditions:**   * The fare payment is being made on the SA Tool * Service Class is Premium or Special Event * Farecard has a valid Regular Service Transfer Product * Tap is within Transfer Window |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. Step 5 will be as follows:    1. ATS will compute the fare and deduct the amount from the Virtual Card E-Purse    2. This will be communicated back to the SA Tool 3. Step 6 and 7 as stated in the Main Use Case |
| **UC-SA Tool-058.10** | **Accepting Fare Payment from a Farecard using ePurse Balance – Payment during Peak hours after reaching Off Peak Daily Cap outside of Transfer Window on SA Tool**  A tap on peak hours after previously reaching off peak daily cap (outside the transfer window) results in a fare payment (Txn 14) |
| **Modified pre-conditions:**   * The fare payment is being made on the SA Tool * Farecard has reached off peak Daily Cap Limit * Farecard has not reached Peak Daily Cap limit * Farecard is out of transfer window |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. Step 5 will be as follows:    1. ATS will compute the fare and deduct the amount from the Virtual Card E-Purse    2. This will be communicated back to the SA Tool 3. Step 6 and 7 as stated in the Main Use Case   **Note:** The SA Tool sets the POP Print Flag to 0 to ensure that the device accurately displays the transfer print status if the farecard is queried |
| **UC-SA Tool-058.11** | **Accepting Fare Payment from a Farecard using ePurse Balance – Premium Service Route with Transfer where the Premium fare is higher than the Special Event fare on SA Tool**  A tap on a premium service route/location after previously riding on a Special Event service route (within the transfer window) results in a fare upgrade (Txn 14, ZoneRadius = 1). |
| **Modified pre-conditions:**   * The fare payment is being made on the SA Tool * Service Class is Premium * Farecard has a valid Special Event Transfer Product * Tap is within Transfer Window |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. Step 5 will be as follows:    1. ATS will compute the fare and deduct the amount from the Virtual Card E-Purse    2. This will be communicated back to the SA Tool 3. Steps 6 and 7 as stated in the Main Use Case   **Note:** The SA Tool sets the POP Print Flag to 0 to ensure that the device accurately displays the transfer print status if the farecard is queried |
| **UC-SA Tool-058.12** | **Accepting Fare Payment from a Farecard using ePurse Balance – Premium Service Route with Transfer where the Premium fare is lower than the Special Event fare on SA Tool**  A tap on a premium service route/location after previously riding on a Special Event service route (within the transfer window) results in a free transfer (Txn 14, ZoneRadius = 1). |
| **Modified pre-conditions:**   * The fare payment is being made on the SA Tool * Service Class is Premium * Farecard has a valid Special Event Transfer Product * Tap is within Transfer Window |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. Step 5 will be as follows:    1. ATS will compute the fare and deduct the amount from the Virtual Card E-Purse    2. This will be communicated back to the SA Tool 3. Steps 6 and 7 as stated in the Main Use Case   **Note:** The SA Tool sets the POP Print Flag to 0 to ensure that the device accurately displays the transfer print status if the farecard is queried |
| **UC-SA Tool-058.13** | **Accepting Fare Payment from a Farecard using ePurse Balance - Customer has a Valid Non-Adult Concession on their Farecard** |
| **Modified pre-conditions:**  Customer’s Farecard has a Valid Non-Adult concession |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. Step 5 will be as follows:    1. A valid Non-Adult Concession is found    2. The device sends the tap to ATS for processing. ATS will compute the fare and deduct the amount from the Virtual Card e-purse. 3. Step 6 will be as follows:    1. The SA Tool displays the successful Non-Adult Concession fare payment screen and plays the successful fare payment audio tone for Non-Adult concession.    2. The tap counter is reset to 0 if it is not already 0. 4. Step 7 as stated in the Main Use Case |

##### Exception Flows

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| **Exception Flows** | |
| **UC-SA Tool-058.14** | **Accepting Fare Payment from a Virtual Card using ePurse Balance - Customer Has an Anonymous Virtual Card with an ePurse Balance Less than the Fare Amount** |
| **Modified pre-conditions:**   * Customer’s ePurse balance is less than the fare amount * Customer has an anonymous Farecard |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 - 4 as stated in the Main Use Case 2. Step 5 is as follows:    1. The device sends the transaction to ATS for processing. ATS detects the card is Anonymous and the ePurse Balance is less than the fare amount.    2. ATS will return a declined result back to the SA Tool. 3. Step 6 as follows:    1. The SA Tool application will display a declined message to the customer. The transaction is not conducted.    2. The SA Tool plays the declined audio tone.    3. The Scratchpad is updated accordingly. 4. Step 7 as stated in the Main Use Case. |
| **UC-SA Tool-058.15** | **Accepting Fare Payment from a Virtual Card using ePurse Balance - Customer has an Overdraft on their Registered Virtual Card** |
| **Modified pre-conditions:**   * Customer’s Virtual Card is in overdraft |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case 2. Step 5 is as follows:    1. The device sends the transaction to ATS for processing. ATS detects the card is in overdraft.    2. ATS will return a declined result back to the SA Tool. 3. Step 6 as follows:    1. The SA Tool application will display a declined message to the customer. The transaction is not conducted.    2. The SA Tool plays the declined audio tone.    3. The Scratchpad is updated accordingly. 4. Step 7 as stated in the Main Use Case. |
| **UC-SA Tool-058.16** | **Accepting Fare Payment from a Virtual Card using ePurse Balance - Customer’s Virtual Card is Blocked** |
| **Modified pre-conditions:**   * Customer’s Virtual Card is blocked |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case 2. Step 5 is as follows:    1. The device sends the transaction to ATS for processing. ATS detects the card is blocked.    2. ATS will return a declined result back to the SA Tool. 3. Step 6 as follows:    1. The SA Tool application will display a declined message to the customer. The transaction is not conducted.    2. The SA Tool plays the declined audio tone.    3. The Scratchpad is updated accordingly. 4. Step 7 as stated in the Main Use Case. |
| **UC-SA Tool-058.17** | **Accepting Fare Payment from a Farecard using ePurse Balance - Customer’s Farecard is on the Deny List** |
| **Modified pre-conditions:**   * Customer’s Virtual Card is on the Deny List |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case 2. Step 5 is as follows:    1. The device sends the transaction to ATS for processing. ATS detects the card is on the Deny List    2. ATS will remove the card from the Deny List and set it to blocked.    3. ATS will return a declined result back to the SA Tool.   **Note:** For more information on list processing, refer to **[R6].**   1. Step 6 as follows:    1. The SA Tool application will display a declined message to the customer. The transaction is not conducted.    2. The SA Tool plays the declined audio tone.    3. The Scratchpad is updated accordingly. 2. Step 7 as stated in the Main Use Case. |
| **UC-SA Tool-058.18** | **Accepting Fare Payment from a Virtual Card using ePurse Balance - Battery goes below the low battery threshold during payment** |
| **Modified pre-conditions:**   * The low battery threshold is high enough that the remote lists can be processed even after the SA Tool battery goes below the low battery threshold during a successful Farecard tap. |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case. 2. If the low battery threshold is reached before Step 5, the application switches to “Out of Service” mode. Else, the customers fare payment is processed as per Step 5. The application then switches to “Out of Service” mode. |
| **UC-SA Tool-058.19** | **Accepting Fare Payment from a Virtual Card using ePurse Balance – Customer taps a card that is not a Farecard** |
| **Modified pre-conditions:**   * Customer’s card is not a Farecard |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 3 in the main Use Case. 2. The SA Tool application does not respond, but the device error message “Card Read Error” is displayed for a short period of time. |
| **UC-SA Tool-058.20** | **Accepting Fare Payment from a Virtual Card using ePurse Balance – Customer’s Farecard is within the Anti-Passback Window** |
| **Modified pre-conditions:**   * Customer’s card is within the Anti-Passback Window |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. Step 5 will be as follows:    1. ATS detects that the Farecard fails the Anti-Passback checks.   **Note**: For more details on the order of validation steps, refer to **[R6].**   1. Step 6 will be as follows:    1. The SA Tool application will display a declined message the customer. The transaction is not conducted.    2. The SA Tool plays the declined audio tone. 2. Step 7 as stated in Main Use Case |

#### Accepting Fare Payment on an Offline SA Tool from a Virtual Card - Flat Fare

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-059** | | **Accepting Fare Payment on an Offline SA Tool from a Virtual Card** |
| **Use Case Description**:  This use case describes the steps for a SP operator to accept a fare payment on an offline SA Tool from a Virtual Card. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main use case, alternate flows and exceptions unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has selected the “Payment” option from home screen * SA Tool is offline * Operator is signed-in * Customer’s Virtual Card is active * The reader is configured to support Virtual Farecard s * Customer’s Virtual Card is below Tap Counter limit | | |
| **Main Use Case: Accepting Fare Payment on an Offline SA Tool from a Virtual Card** | | |
| **Step #** | **Step Description** | |
| 1 | The customer asks to pay for the trip with their Virtual Card | |
| 2 | The operator selects the payment function on the SA Tool application home screen. | |
| 3 | SA Tool displays a prompt to tap the CLIENT (Virtual) Card. The customer taps their Virtual Card on the NFC card reader on the SA Tool.  **Note**: There will not be a distinction in the HMI between Virtual and Physical Farecard s | |
| 4 | The SA Tool reads the Virtual Card and performs the necessary validation checks:   * Card Authentication Verification – The device checks if the media presented is a valid Virtual Card * The card is valid (i.e. able to communicate, is a Virtual Card, and not blocked)   **Note:** For more information on the detailed processes of fare validations and list processing (including the order of validation steps), refer to **[R6].** During card identification, the audio button and volume controls will be disabled. | |
| 5 | The SA Tool performs the following checks on the Virtual Card   * Checks the card against the local Deny List * Checks the Scratchpad to determine if the card status is Blocked and/or the Offline Tap Counter is exceeded * Checks the local anti-passback | |
| 6 | The SA Tool displays the successful fare payment screen and plays the successful payment audio tone.  The Scratch pad is updated for offline fare payment.  The SA Tool stores the fare/pay request to be uploaded to ATS when the device comes back online.  **Note**: For more details on the feedback provided to the Cardholder, please refer to [**R1**]. Also, while the feedback screen is presented to the Cardholder, the device will still be able to process another Farecard at the same time. | |
| 7 | After a configurable timeout, the SA Tool screen returns to the application Tap Card screen. | |
| 8 | When SA Tool comes back online, the device will bulk upload transaction logs to ATS to be processed accordingly. | |

##### Alternate Flows

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| **Alternate Flows** | |
| **UC-SA Tool-059.1** | **Accepting Fare Payment from a Virtual Card – Customer requests Audio Messages** |
| **Modified pre-conditions:** N/A |
| The Steps from the Main Use Case will be completed as follows:   * The customer asks to pay for the trip with their Virtual Card and requests audio messages for fare payment. * Steps 2-6 as stated in the Main Use Case * Operator enables audio mode. * The operator can change the volume level using the physical device buttons at the customer’s discretion or proceed with the use case. While the volume is being adjusted, a volume adjustment bar will appear, and timeout automatically, to indicate the volume level. The volume will return to the device default after the use case is completed. The physical buttons will only support changing the audio messaging volume when accessibility mode is enabled.   **Note:** The minimum volume level and default volume level are configurable.   * SA Tool displays the fare payment screen to the operator and customer for the duration of the audio message. Corresponding audio message is played to the customer in the default language of their Farecard as seen in the table below.  |  |  | | --- | --- | | **Card Language** | **Audio Language** | | Registered - English | English | | Registered - French | French | | Anonymous - English | English | | Anonymous - French | French |  * After the audio ends, the SA Tool screen returns to the application Tap Card screen. |

##### Exception Flows

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| **Exception Flows** | |
| **UC-SA Tool-059.2** | **Accepting Fare Payment from a Virtual Card - Customer’s Virtual Card is Blocked** |
| **Modified pre-conditions:**   * Customer’s Virtual Card is blocked |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case 2. Step 5 as follows:    1. The SA Tool application reads Scratchpad and detects that the Farecard is blocked. 3. Step 6 as follows:    1. The SA Tool application will display a declined message to the customer. The transaction is not conducted.    2. The SA Tool plays the declined audio tone. 4. Step 7 and 8 as stated in Main Use Case |
| **UC-SA Tool-059.3** | **Accepting Fare Payment from a Farecard - Customer’s Farecard is on the Deny List** |
| **Modified pre-conditions:**   * Customer’s Virtual Card is on the Deny List |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case 2. Step 5 is as follows:    1. The device reads the Scratchpad and detects the Virtual Card is on the local Deny List.   **Note:** For more information on list processing, refer to **[R6].**   1. Step 6 as follows:    1. The SA Tool application will display a declined message to the customer. The transaction is not conducted.    2. The SA Tool plays the declined audio tone.    3. The Scratchpad is updated accordingly. 2. Step 7 and 8 as stated in the Main Use Case. |
| **UC-SA Tool-059.4** | **Accepting Fare Payment from a Virtual Card - Battery goes below the low battery threshold during payment** |
| **Modified pre-conditions:**   * The low battery threshold is high enough that the remote lists can be processed even after the SA Tool battery goes below the low battery threshold during a successful Farecard tap. |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case. 2. If the low battery threshold is reached before Step 5, the application switches to “Out of Service” mode. Else, the customers fare payment is processed as per Step 5. The application then switches to “Out of Service” mode. |
| **UC-SA Tool-059.5** | **Accepting Fare Payment from a Virtual Card– Customer taps a card that is not a Farecard** |
| **Modified pre-conditions:**   * Customer’s card is not a Farecard |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 3 in the main Use Case. 2. The SA Tool application does not respond, but the device error message “Card Read Error” is displayed for a short period of time. |
| **UC-SA Tool-059.6** | **Accepting Fare Payment from a Virtual Card – Customer’s Farecard is within the Anti-Passback Window** |
| **Modified pre-conditions:**   * Customer’s card is within the Anti-Passback Window |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. Step 5 is as follows:    1. The device reads the Scratchpad details and detects that the Farecard fails the local Anti-Passback checks   **Note**: For more details on the order of validation steps, refer to **[R6].**   1. Step 6 as follows:    1. The SA Tool application will display a declined message to the customer. The transaction is not conducted.    2. The SA Tool plays the declined audio tone.    3. The Scratchpad is updated accordingly. 2. Step 7 and 8 as stated in the Main Use Case. |
| **UC-SA Tool-059.7** | **Accepting Fare Payment from a Virtual Card – Tap counter is at limit** |
| **Modified pre-conditions:**   1. Tap counter is at the configured limit |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case 2. Step 5 is as follows:    1. SA Tool detects tap counter is at the limit   **Note**: For more details on the order of validation steps, refer to [**R6**].   1. Step 6 as follows:    1. The SA Tool application will display a declined message to the customer. The transaction is not conducted.    2. The SA Tool plays the declined audio tone.    3. The Scratchpad is updated accordingly. 2. Step 7 and 8 as stated in the Main Use Case. |
| **UC-SA Tool-059.7** | **Accepting Fare Payment from a Virtual Card – Tap counter is at limit** |
| **Modified pre-conditions:**  Tap counter is at the configured limit |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case 2. Step 5 is as follows:    1. SA Tool detects tap counter is at the limit   **Note**: For more details on the order of validation steps, refer to [**R6**].   1. Step 6 as follows:    1. The SA Tool application will display a declined message to the customer. The transaction is not conducted.    2. The SA Tool plays the declined audio tone.    3. The Scratchpad is updated accordingly. 2. Step 7 and 8 as stated in the Main Use Case. |

#### Accepting Fare Payment on an Online SA Tool from a Virtual Card using Period Pass

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-060** | | **Accepting Fare Payment on an Online SA Tool from a Virtual Card using Period Pass** |
| **Use Case Description**:  This use case describes the steps for a SP operator to accept a fare payment from a Virtual Card using a Period Pass. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main use case, alternate flows and exceptions unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has selected the “Payment” option from home screen * Customer’s Virtual Card is active * Customer’s Virtual Card has valid period pass for the SP transit service they are utilizing | | |
| **Main Use Case: Accepting Fare Payment on an Online SA Tool from a Virtual Card using Period Pass** | | |
| **Step #** | **Step Description** | |
| 1 | The customer asks to pay for the trip with their Virtual Card | |
| 2 | The operator selects the payment function on the SA Tool application home screen. | |
| 3 | SA Tool displays a prompt to tap the CLIENT (Virtual) Card. The customer taps their Virtual Card on the NFC card reader on the SA Tool.  **Note**: There will not be a distinction in the HMI between Virtual and Physical Farecard s | |
| 4 | The SA Tool reads the Virtual Card and performs the necessary validation checks:   * Card Authentication Verification – The device checks if the media presented is a valid Virtual Card * The card is valid (i.e. able to communicate, is a Virtual Card, etc.)   **Note:** For more information on the detailed processes of fare validations and list processing (including the order of validation steps), refer to **[R6]**. During card identification, the audio button and volume controls will be disabled. | |
| 5 | The device sends the tap to ATS for processing. ATS checks the card status, checks for a valid Period Pass and completes the fare processing. ATS then sends the tap-on success result back to the device via API.  ***Note:*** For a Period Pass on an Offline SA Tool, the logic will follow UC-SA Tool-036 and ATS will reconcile the transaction once device comes back online.  **Note:** For more details on the ticketing logic, please refer to [**R6**]. | |
| 6 | The SA Tool displays the successful fare payment screen and plays the successful payment audio tone.  The tap counter is rest to 0 if it is not already at 0 and the Scratchpad on the Virtual Card is updated.  **Note:** For more details on the feedback provided to the Cardholder, please refer to [**R1**]. Also, while the feedback screen is presented to the Cardholder, the device will still be able to process another Farecard at the same time. | |
| 7 | After a configurable timeout, the screen returns to the application Tap Card screen. | |

##### Alternate Flows

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| **Alternate Flows** | |
| **UC-SA Tool-060.1** | **Accepting Fare Payment on an Online SA Tool from a Virtual Card using Period Pass - Customer’s Farecard is Unreadable** |
| **Modified pre-conditions:**   * SA Tool application detects the Virtual Card and fails to read it correctly |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 3 as stated in the Main Use Case 2. The SA Tool NFC reader detects the Virtual Card but is unable to read it. SA Tool application will indicate to the operator that the Virtual Card is unreadable. 3. The customer will tap on the NFC reader again. If the tap is successful, steps 4 – 7 will be conducted. If the tap is unsuccessful, the SA Tool application will indicate to the operator that the Virtual Card is unreadable. |
| **UC-SA Tool-060.2** | **Accepting Fare Payment on an Online SA Tool from a Virtual Card using Period Pass - Customer’s Virtual Card Has Sufficient ePurse Balance and an Expired Period Pass** |
| **Modified pre-conditions:**   * Customer’s Virtual Card has an expired period pass * Customer’s ePurse balance is more than the fare amount |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. Step 5 will be as follows:    1. ATS detects that the Period Pass has expired, computes the value to be deducted from the e-Purse, and deducts the fare accordingly. If enabled, loyalty is taken into account in the fare calculation. 3. Steps 6-7 as stated in the Main Use Case |
| **UC-SA Tool-060.3** | **Accepting Fare Payment on an Online SA Tool from a Virtual Card using Period Pass - Customer Has a Registered Farecard with Positive ePurse Balance Less Than the Fare Amount and an Expired Period Pass** |
| **Modified pre-conditions:**   * Customer’s ePurse balance is less than the fare amount **Note:** Balance is ≥ 0 but < fare amount * Customer’s Virtual Card has an expired period pass |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. Step 5 will be as follows:    1. ATS detects that the Period Pass has expired, computes the value to be deducted from the e-Purse, and deducts the fare accordingly. If enabled, loyalty is taken into account in the fare calculation.    2. Customer’s Virtual Card is put into overdraft (negative balance) 3. Steps 6-7 as stated in the Main Use Case |
| **UC-SA Tool-060.4** | **Accepting Fare Payment on an Online SA Tool from a Farecard using Period Pass - Transaction is within Inter-SP Transfer window** |
| **Modified pre-conditions:**   * Customer’s Virtual Card has a valid transfer product from other service provider * A transfer agreement between the service providers has been established |
| The Steps from the Main Use Case will be completed as follows:   * Steps 1-4 as stated in the Main Use Case * Step 5 will be as follows:   + ATS will read that the Virtual Card contains a valid inter-agency transfer product and has a valid period pass   + **Note**: For more details on Transfer Product Processing, refer to [**R6**]. * Step 6 will be as follows:   + The right to travel is conferred to the Cardholder by updating the Virtual Card; the device provides the appropriate feedback to the Cardholder of a successful transaction with a transfer * Step 7 as stated in Main Use Case |
| **UC-SA Tool-060.5** | **Accepting Fare Payment on an Online SA Tool from a Farecard using Period Pass – Customer requests Audio Messages** |
| **Modified pre-conditions:** N/A |
| The Steps from the Main Use Case will be completed as follows:   1. The customer asks to pay for the trip with their Virtual Card and requests audio messages for fare payment. 2. Steps 2-6 as stated in the Main Use Case 3. Operator enables audio mode. 4. The operator can change the volume level using the physical device buttons at the customer’s discretion or proceed with the use case. While the volume is being adjusted, a volume adjustment bar will appear, and timeout automatically, to indicate the volume level. The volume will return to the device default after the use case is completed. The physical buttons will only support changing the audio messaging volume when accessibility mode is enabled.   **Note:** The minimum volume level and default volume level are configurable   1. The SA Tool displays the fare payment screen to the operator and customer for the duration of the audio message. Corresponding audio message is played to the customer in the default language of their Farecard as seen in the table below.  |  |  | | --- | --- | | **Card Language** | **Audio Language** | | Registered - English | English | | Registered - French | French | | Anonymous - English | English | | Anonymous - French | French |  1. After the audio ends, the SA Tool screen returns to the application Tap Card screen. |
| **UC-SA Tool-060.7** | **Accepting Fare Payment on an Online SA Tool from a Virtual Card using Period Pass – Service Class Route/Location which is higher fare value than the Period Pass Service Class fare on SA Tool**  Farecard has a valid Period Pass where the Service class fare value is lower than the current route/location Service Class fare value (Txn 14) |
| **Modified pre-conditions:**   * The fare payment is being made on the SA Tool * Farecard has a valid Period Pass where the Service class fare value is lower than the current route/location Service Class fare value (For e.g. the user has a regular Period Pass and the current tap is on a Premium route/location) |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. Step 5 will be as follows:    1. ATS computes and deducts the Upgrade fare. 3. Step 6-7 as stated in the Main Use Case   **Note:** The SA Tool sets the POP Print Flag to 0 to ensure that the device accurately displays the transfer print status if the farecard is queried |
| **UC-SA Tool-060.8** | **Accepting Fare Payment on an Online SA Tool from a Virtual Card using Period Pass – Service Class Route/Location which is lower fare value than the Period Pass Service Class fare on SA Tool**  Farecard has a valid Period Pass where the Service class fare value is greater than the current route/location Service Class fare value (Txn 15) |
| **Modified pre-conditions:**   * The fare payment is being made on the SA Tool * Farecard has a valid Period Pass where the Service class fare value is greater than the current route/location Service Class fare value (For e.g. the user has a Premium Period Pass and the current tap is on a Regular route/location) |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. Step 5 will be as follows:    1. ATS identifies that the customer’s Period Pass is valid and accepts the period pass fare payment. 3. Step 6-7 as stated in the Main Use Case |
| **UC-SA Tool-060.9** | **Accepting Fare Payment on an Online SA Tool from a Virtual Card using Period Pass – Limited Period Pass**  Farecard has a valid Limited Period Pass and the current time is within the limits of the product |
| **Modified pre-conditions:**   * The farecard has a valid Limited Period Pass product on it * The time at tap is occurring within the time limit of the Limited Period Pass Product |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-7 as stated in the Main Use Case |
| **UC-SA Tool-060.10** | **Accepting Fare Payment on an Online SA Tool from a Virtual Card using Period Pass – Limited Period Pass outside of valid time with sufficient e-Purse balance**  Farecard has a valid Limited Period Pass and the current time is outside the time limits of the product, but the farecard has sufficient e-Purse balance to cover the transaction |
| **Modified pre-conditions:**   * The farecard has a valid Limited Period Pass product on it * The time at tap is occurring outside of the time limit of the Limited Period Pass Product |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. Step 5 will be as follows:    1. ATS detects that the Limited Period Pass is not valid at the current time, computes the value to be deducted from the e-Purse, and deducts the fare. 3. Steps 6-7 are as stated in the Main Use Case |

##### Exception Flows

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| **Exception Flows** | |
| **UC-SA Tool-060.11** | **Accepting Fare Payment on an Online SA Tool from a Virtual Card using Period Pass - Customer has an Anonymous Farecard with an Expired Period Pass and ePurse Balance Less than the Fare Amount** |
| **Modified pre-conditions:**   * Customer has an expired period pass * Customer’s ePurse balance is less than the fare amount * Customer has an anonymous Virtual Card |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 - 4 as stated in the Main Use Case 2. Step 5 is as follows:    1. The device sends the transaction to ATS for processing. ATS detects the card is Anonymous and the ePurse Balance is less than the fare amount.    2. ATS will return a declined result back to the SA Tool. 3. Step 6 as follows:    1. The SA Tool application will display a declined message to the customer. The transaction is not conducted.    2. The SA Tool plays the declined audio tone.    3. The Scratchpad is updated accordingly. 4. Step 7 as stated in the Main Use Case. |
| **UC-SA Tool-060.12** | **Accepting Fare Payment on an Online SA Tool from a Virtual Card using Period Pass - Customer’s Virtual Card is Blocked** |
| **Modified pre-conditions:**   * Customer’s Farecard is blocked |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case 2. Step 5 is as follows:    1. The device sends the transaction to ATS for processing. ATS detects the card is blocked.    2. ATS will return a declined result back to the SA Tool. 3. Step 6 as follows:    1. The SA Tool application will display a declined message to the customer. The transaction is not conducted.    2. The SA Tool plays the declined audio tone.    3. The Scratchpad is updated accordingly. 4. Step 7 as stated in the Main Use Case. |
| **UC-SA Tool-060.13** | **Accepting Fare Payment on an Online SA Tool from a Virtual Card using Period Pass - Customer’s Virtual Card is on the Deny List** |
| **Modified pre-conditions:**   * Customer’s Virtual Card is on the Deny List. |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case 2. Step 5 is as follows:    1. The device sends the transaction to ATS for processing. ATS detects the card is on the Deny List.    2. ATS will remove the card from the Deny List and set it to blocked.    3. ATS will return a declined result back to the SA Tool.   **Note:** For more information on list processing, refer to **[R6].**   1. Step 6 as follows:    1. The SA Tool application will display a declined message to the customer. The transaction is not conducted.    2. The SA Tool plays the declined audio tone.    3. The Scratchpad is updated accordingly. 2. Step 7 as stated in the Main Use Case. |
| **UC-SA Tool-060.14** | **Accepting Fare Payment on an Online SA Tool from a Virtual Card using Period Pass - Battery goes below the low battery threshold during payment** |
| **Modified pre-conditions:**   * The low battery threshold is high enough that the remote lists can be processed even after the SA Tool battery goes below the low battery threshold during a successful Farecard tap. |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 4 as stated in the Main Use Case. 2. If the low battery threshold is reached before Step 5, the application switches to “Out of Service” mode. Else, the customers fare payment is processed as per Step 5. The application then switches to “Out of Service” mode. |
| **UC-SA Tool-060.15** | **Accepting Fare Payment on an Online SA Tool from a Virtual Card using Period Pass – Customer taps a card that is not a Farecard** |
| **Modified pre-conditions:**   * Customer’s card is not a Farecard |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 3 in the main Use Case. 2. The SA Tool application does not respond, but the device error message “Card Read Error” is displayed for a short period of time. |
| **UC-SA Tool-060.16** | **Accepting Fare Payment on an Online SA Tool from a Virtual Card using Period Pass – Customer’s Farecard is within the Anti-Passback Window** |
| **Modified pre-conditions:**   * Customer’s card is within the Anti-Passback Window |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. Step 5 will be as follows:    1. ATS detects that the Farecard fails the Anti-Passback checks.   **Note**: For more details on the order of validation steps, refer to **[R6].**   1. Step 6 will be as follows:    1. The SA Tool application will display a declined message the customer. The transaction is not conducted.    2. The SA Tool plays the declined audio tone. 2. Step 7 as stated in Main Use Case |
| **UC-SA Tool-060.17** | **Accepting Fare Payment on an Online SA Tool from a Virtual Card using Period Pass – Limited Period Pass outside of valid time while card is in overdraft**  Farecard has a valid Limited Period Pass and the current time is outside the time limits of the product, and the farecard is in overdraft |
| **Modified pre-conditions:**   * The farecard has a valid Limited Period Pass product on it * The time at tap is occurring outside of the time limit of the Limited Period Pass Product * The farecard is in overdraft |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case 2. Step 5 will be as follows:    1. ATS detects that the Limited Period Pass is not valid at the current time, computes the value to be deducted from the e-Purse, and detects that farecard is in overdraft.    2. The SA Tool application will display a declined message to the customer. The transaction is not conducted.    3. The SA Tool plays the declined audio tone. 3. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |

#### Cardholder Tap-On an Online SA Tool to a Fare-by-Zone TA with Virtual Card Media

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-061** | | **Cardholder Taps-On an Online SA Tool to a Fare-by-Zone TA with Virtual Card Media** |
| **Use Case Description**:  This main use case describes the interactions of a Virtual Card Cardholder as they tap-on at a SA Tool that is online and connected to ATS for a Fare-by-Zone TA. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main use case, alternate flows and exceptions unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has selected the “Payment” option from home screen * The device is online and connected to the ATS * The Virtual Card Media is not on the hot list * The reader is configured to support Virtual Farecard s | | |
| **‘Main use case: Cardholder Taps-On an SA Tool with Virtual Card Media (SA Tool Validation)** | | |
| **Step #** | **Step Description** | |
| 1 | The Cardholder initiates a trip and taps the Virtual Card Media on the device Card Reader (CID). The device detects the Virtual Card media and reads the scratchpad (Card ID). | |
| 2 | The device reads the Virtual Card media and completes the following reader checks:   * Card Authentication Verification – The device checks if the media presented is a valid Virtual Farecard * The card is valid (i.e. able to communicate, is a Virtual Card, and not blocked) | |
| 3 | The device sends the tap to ATS for processing. ATS checks the online hotlist and completes the fare processing. ATS then sends the tap-on success result back to the device via API.  **Note**: For more details on the ticketing logic, please refer to [**R6**]. | |
| 4 | The right to travel is conferred to the Cardholder by updating the HMI of the SA Tool. The **FPS – E-Purse Tap On** is provided to the cardholder. The tap counter is checked and reset to 0 if it isn't already at 0 and the scratchpad on the Virtual Card is updated.  **Note**: For more details on the feedback provided to the Cardholder, please refer to [**R1**]. Also, while the feedback screen is presented to the Cardholder, the device will still be able to process another media at the same time. | |

##### Alternate Flow

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| **Alternate flows** | |
| **UC-SA Tool-061.1** | **Tap-On an SA Tool with Virtual Card Media – Device is offline and not connected to ATS** |
|  | **Modified Pre-Condition:** The device is offline and not connected to ATS |
| If the SA Tool is not online and not connected to ATS, the device will collect offline tap details and once the device returns back online, offline taps will be sent to ATS via bulk upload.  If the SA Tool is not online and not connected to ATS, the following steps will be completed as follows   * Steps 1 and 2 are as stated in the Main use case * Step 3 as follows:   + The device checks if the media is contained on the local hotlist, and if the hotlist parameter on the Virtual Card Scratchpad is enabled.   + The Tap Counter is checked and incremented   + The latent transaction processor stores the tap till the device goes back online and connects to ATS. The tap is then rated in ATS. * Step 4 as follows:   + The right to travel is conferred to the Cardholder by updating the HMI of the SA Tool. The **FPS –** **Virtual Card** tap-on is provided to the cardholder.   **Note**: For more details on the ticketing logic, please refer to [**R6**]. Note: For more details on the feedback provided to the Cardholder, please refer to [**R1**]. Also, while the feedback screen is presented to the Cardholder, the device will still be able to process another media at the same time. |
| **UC-SA Tool-061.2** | **Tap-On an SA Tool with Virtual Card Media – Customer uses audio jack to hear instructions** |
|  | The user will listen to the instructions through the headphones. The steps from Main Use Case will be completed as follows:   * Step 1 as follows:   + Customer inserts headphones into the Audio jack which automatically switches the device into audio assist mode   + Audio instructions detail how to adjust the volume by pressing the volume button and then prompt the user to tap their media (in both French and English). The default volume level is set to Medium and the volume levels can be rotated through Low – Medium – High * Step 2, 3 and 4 as stated in the Main Use Case   **Note**: Customer will hear prompts and feedback regarding the tap through the headphones. The language preference on the media will dictate which language the audio message will be played in. Depending on whether the language associated with the fare media is English or French, the appropriate language will be used. Otherwise, English will be used as the default language. |
| **UC-SA Tool-061.3** | **Tap-On an SA Tool with Virtual Card Media - Non-Revenue Virtual Card Media is tapped on the Device** |
|  | **Modified Pre-Condition:** The Virtual Card media is a non-revenue media |
| The device will send the tap like any other Open Payments Media to ATS:   * All steps are as stated in the Main Use Case   **Note**: For more details on the processing of Non-Revenue media taps, please refer to [**R6**]. |
| **UC-SA Tool-061.4** | **Virtual Card contains a Default O/D and the Customer Taps on at either the Origin or Destination Station** |
|  | **Modified Pre-Condition:** The Virtual Card media contains a default trip and the current tap location is either the origin or destination |
| If ATS returns the tap results stating that the current tap is associated with the Virtual Card’s default trip, the device will display the default trip success screen:   * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device sends the tap to ATS for processing. ATS checks the online hotlist and completes the fare processing accounting for the virtual card’s default trip. ATS then sends the default trip success result back to the device via API. * Step 4 as follows:   + The right to travel is conferred to the Cardholder by updating the HMI of the SA Tool. The **FPS – Default Trip Tap-On Screen** is provided to the cardholder.   **Note**: For more details on the ticketing logic, please refer to sections 15.6 (Default O/D Processing) within [**R6**]. |
| **UC-SA Tool-061.5** | **Virtual Card contains a Default O/D and the Customer Overrides the Default Trip prior to tapping-on** |
|  | **Modified Pre-Condition:** The Virtual Card media contains a default trip and the current tap location is either the origin or destination |
| The Device will override the default O/D contained on the Virtual Card and ATS will process the tap as a regular tap-on:   * Step 1 as follows:   + Customer requests the override of a Default Trip by interacting with the Device   + Device HMI informs the customer that the Device is prepared to override the Default Trip   + The Cardholder then initiates a trip by presenting the Virtual Card to the Device CID * Step 2 and 3 as stated in the Main Use Case * Step 4 as follows:   + The right to travel is conferred to the Cardholder by updating the HMI of the SA Tool. The **FPS – Override Successful** is provided to the cardholder.   **Note**: For more details on the feedback provided to the Cardholder in the case of Overriding the default trip, please refer to [**R1**]. |
| **UC-SA Tool-061.6** | **Virtual Card does not contain a Default O/D and the Customer Overrides the Default Trip prior to tapping-on** |
|  | If the Virtual Card with no Default O/D is tapped on while the device is in Override mode, the device will process the tap as a result tap-on   * Step 1 as follows:   + Customer requests the override of a Default Trip by interacting with the Device   + Device HMI informs the customer that the Device is prepared to override the Default Trip   + The Cardholder then initiates a trip by presenting the Virtual to the Device CID * Step 2, 3 as stated in the Main Use Case * Step 4 as follows:   + The right to travel is conferred to the Cardholder by updating the HMI of the SA Tool. The  **FPS – E-Purse Tap On Screen** is provided to the cardholder. |
| **UC-SA Tool-061.7** | **Tap a Virtual Card on online SA Tool where card is in good standing, but scratchpad blocked parameter needs to be updated** |
|  | **Modified Pre-Condition:** Virtual Card is in good standing according to ATS, but scratchpad blocked parameter needs to be updated |
| * Steps 1, 2 and 3 as stated in the Main Use Case * Step 4 as follows:   + The device provides the appropriate feedback to the Cardholder of a successful tap. The **FPS – Virtual Card E-Purse Flat Fare Accepted Screen** is provided to the cardholder   + The tap counter is checked and reset to 0 if it isn't already at 0 * The Virtual Card scratchpad is updated to remove the block parameter and prioritizes the accepted response from ATS |

##### Exception Flow

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| **Exceptions** | |
| **UC-SA Tool-061.8** | **Virtual Card Media fails Card Authentication check** |
|  | If the Virtual Card Media fails the Card Authentication check, the device returns the appropriate feedback.   * Step 1 is as stated in Main Use Case * Step 2 will be as follows:   + The device performs the necessary validation and determines that the Virtual Card Media is unable to pass the checks * Step 3 will be as follows:   + The **Declined – Failed Card Authentication Check** screen is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 4 will be as follows:   + The declined tap is sent to ATS   **Note**: For more details on the feedback provided to the Cardholder, please refer to [**R1**]. |
| **UC-SA Tool-061.9** | **Virtual Media has already tapped-on using an Online Device** |
|  | This Exception use case describes the interactions of the cardholder taps-on again at an SA Tool at the same station within the SA Tool Tap-on anti-passback Window, whereby the initial device and secondary device tapped on were both online. The device provides the cardholder with the appropriate feedback.   * Step 1 and 2 are as stated in the Main Use Case * Step 3 will be as follows:   + The device sends the tap to ATS which returns a response that the cardholder has already tapped on at the same station and is within the Tap-on anti-passback Window. * Step 4 will be as follows:   + The **Declined – Already Tapped Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the anti-passback logic, please refer to [**R6**]. |
| **UC-SA Tool-061.10** | **Virtual Card Media has already tapped-on using an Offline Device (Anti-passback)** |
|  | If the SA Tool is not online and not connected to ATS, the device will collect offline tap details and once the device returns back online, offline taps will be sent to ATS via bulk upload.  This Exception use case describes the interactions of the cardholder taps-on again at an SA Tool at the same station within the SA Tool Tap-on anti-passback Window whereby the initial device tapped, and secondary device(s) is the same device and is offline. The device provides the cardholder with the appropriate feedback.   * Step 1 and 2 are as stated in the Main Use Case * Step 3 will be as follows:   + The device checks the latent transaction processor on the same device for a previous tap within the anti-passback window. The tap is stored on the device till it is connected to ATS where the transactions will be reconciled. * Step 4 will be as follows:   + The **Declined – Already Tapped Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: The customer is not charged twice. For more details on the anti-passback logic, please refer to [**R6**]. |
| **UC-SA Tool-061.11** | **Multiple NFC media are presented to the device at one time** |
|  | If multiple NFC media are presented to the device at one time, the device will block all fare payment functionality:   * Step 1 as follows:   + Customer presents multiple NFC media to the card reader at once * Step 2 as follows:   + The **Anti-Collision Error Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 3 as follows:   + The declined tap is sent to ATS   **Note**: For more details on the feedback provided to the Cardholder in the case of anti-collision, please refer to **[R1]**. |
| **UC-SA Tool-061.12** | **Tap a Virtual Card Media when SA Tool is in Out-of-Service state.** |
|  | **Modified Pre-Conditions:** Device is in Out-of-Service state. Screen provides appropriate ‘Out-of-Service’ display to customers. |
| The steps from the Main use case will be replaced as follows:   * Step 1: The device displays the **Not in Service screen** to the cardholder. Customer attempts to tap their Virtual Card Media on the card reader. * Step 2 as follows: * Device will not detect the media * Step 3 as follows:   + Device Remains in Out-of-Service State |
| **UC-SA Tool-061.13** | **Customers attempts to tap-on immediately after tapping-off at the same station and the device is online** |
|  | This Exception use case describes the interactions of the cardholder taps-on again at an SA Tool after just tapping-off at the same station within the SA Tool Tap-off anti-passback Window. The device provides the cardholder with the appropriate feedback.   * Step 1 and 2 are as stated in the Main Use Case * Step 3 will be as follows:   + The device sends the tap to ATS which returns a response that the cardholder has already tapped on at the same station and is within the Tap-off anti-passback Window. * Step 4 will be as follows:   + The **Declined – Already Tapped Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: The user has the option to reverse the tap should they decide to continue travelling. For more details on the anti-passback logic, please refer to [**R6**]. |
| **UC-SA Tool-061.14** | **Customers attempts to tap-on immediately after tapping-off at the same station and the device is offline (anti-passback)** |
|  | If the SA Tool is not online and not connected to ATS, the device will collect offline tap details and once the device returns back online, offline taps will be sent to ATS via bulk upload.  This Exception use case describes the interactions of the cardholder taps-on again at an SA Tool after just tapping-off at the same station within the SA Tool tap-off anti-passback Window whereby the customer has tapped-on again at the same offline device. The device provides the cardholder with the appropriate feedback.   * Step 1 and 2 are as stated in the Main Use Case * Step 3 will be as follows:   + The device checks the latent transaction processor on the same device for a previous tap within the tap-off anti-passback window. The tap is stored on the device till it is connected to ATS where the tap will be reconciled. * Step 4 will be as follows:   + The **Declined – Already Tapped Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 5 will be as follows:   + The declined tap is sent to ATS   **Note**: For more details on the anti-passback logic, please refer to [**R6**]. |
| **UC-SA Tool-061.15** | **Customer attempts to tap on and an error has occurred** |
|  | This use-case occurs when an error has occurred on the device that does not cover the exception cases above.   * Steps 1 and 2 as stated in Main Use Case * Step 3 will be as follows:   + The device records the tap * Step 4 will be as follows   + The **Declined – See Customer Service Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 5 will be as follows:   + The declined tap is sent to ATS |
| **UC-SA Tool-061.16** | **Virtual Card has insufficient E-Purse to cover the Tap-On Fare** |
|  | If a Virtual Card’s E-Purse balance is less than that of the Tap-On Fare, the right to travel is not conferred.   * Step 1 & 2 as stated in the Main Use Case * Step 3 will be as follows:   + The device sends the tap to ATS which returns a response that the virtual card does not have a sufficient E-Purse balance to cover the tap-on fare * Step 4 will be as follows:   + The **Declined – Insufficient E-Purse Balance** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   + The Declined tap is sent to ATS   **Note**: For more details on the feedback provided to the Cardholder in the case of insufficient funds, please refer to [**R1**]. |
| **UC-SA Tool-061.17** | **Virtual Card Media is on the Online Hotlist and the SA Tool is online** |
|  | **Modified Pre-Condition:** Virtual Card Media is on the online hotlist |
| If the Virtual Card media in on the online hotlist, the right to travel is not conferred.   * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device sends the tap to ATS and returns a response that the media is on the online hotlist * Step 3 as follows:   + Right to travel is not conferred   + The **Declined – Blocked Screen** is provided to the cardholder.   + The Device updates the blocking parameter on the Virtual Card Scratchpad to be enabled   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the feedback provided to the Cardholder in the case of a blocked Virtual Card Media, please refer to [**R1**]. |
| **UC-SA Tool-061.18** | **Virtual Card Media is on the Online Hotlist, SA Tool is online but the scratchpad does not indicate blocked** |
|  | **Modified Pre-Condition:** Virtual Card Media is on the local hotlist |
| If the Virtual Card media in on the online hotlist, the right to travel is not conferred.   * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device sends the tap to ATS for processing. ATS checks the online hotlist and confirms that the virtual card is on the online hotlist. ATS sends the rejected tap back to the device via API. The device will update the scratchpad with the blocked status and send a notification to ATS that it has done so. For ATS to determine if the scratchpad write has occurred, after the device has update the scratchpad's card status to blocked, the device must send a bulk/upload event to ATS indicating the hotlist has been applied * Step 4 as follows:   + Right to travel is not conferred   + The **Declined – Blocked Screen** is provided to the cardholder.   + The Device updates the blocking parameter on the Virtual Card Scratchpad to be enabled   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the feedback provided to the Cardholder in the case of a blocked Virtual Card Media, please refer to [**R1**]. |
| **UC-SA Tool-061.19** | **Virtual Card Media is on the local hotlist and device is offline** |
|  | **Modified Pre-Condition:** Virtual Card Media is on the local hotlist |
| If the SA Tool is not online and not connected to ATS, the device will collect offline tap details and once the device returns back online, offline taps will be sent to ATS via bulk upload.  If the Virtual Card Media is on the local hotlist, the right to travel is not conferred.   * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device checks the local hotlist and returns a response that the media is denied * Step 3 as follows:   + Right to travel is not conferred   + The **Declined – Blocked Screen** is provided to the cardholder.   + The Device updates the blocking parameter on the Virtual Card Scratchpad to be enabled   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the feedback provided to the Cardholder in the case of a blocked Virtual Card Media, please refer to [**R1**]. |
| **UC-SA Tool-061.20** | **Virtual Card Media’s blocked parameter on the scratchpad is enabled** |
|  | **Modified Pre-Condition:** Virtual Card Media’s scratchpad blocked parameter is set to enabled and device is offline. |
| If the SA Tool is not online and not connected to ATS, the device will collect offline tap details and once the device returns back online, offline taps will be sent to ATS via bulk upload.  If the Virtual Card Media is blocked, the right to travel is not conferred.   * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device checks the local deny list and does not find the Virtual Card   + The device checks the Virtual Card Scratchpad and determines the card blocked parameter is set to true * Step 4 as follows:   + Right to travel is not conferred   + The **Declined – Blocked Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the feedback provided to the Cardholder in the case of a blocked Virtual Card Media, please refer to [**R1**].  **Note**: After device returns back online, the deny tap will be sent to ATS. |
| **UC-SA Tool-061.21** | **Virtual Card Media’s blocked parameter on the mobile wallet is enabled** |
|  | **Modified Pre-Condition:** Virtual Card Media’s mobile wallet blocked parameter is set to enabled |
| If the Virtual Card Media is blocked, the right to travel is not conferred.   * If the Virtual Card Media is blocked in the wallet, there will not be an interaction with the device on an attempted tap * The device will not know a tap is attempted and will have no action   **Note**: For more details on the feedback provided to the Cardholder in the case of a blocked Virtual Card Media, please refer to [**R1**]. |
| **UC-SA Tool-061.22** | **Virtual Card Media is tapped on an offline device and tap counter is greater than allowable offline taps** |
|  | **Modified Pre-Condition:** Tap counter is greater than the allowable offline taps |
| If the SA Tool is not online and not connected to ATS, the device will collect offline tap details and once the device returns back online, offline taps will be sent to ATS via bulk upload.  If the Virtual Media has reached its offline tap counter limit, the right to travel is not conferred   * Step 1, 2 and 3 as stated in the main use case * Step 4 is as follows:   + The device will check the tap counter and if the tap counter limit has been reached, the offline device will reject the tap and the rider will not be permitted entry   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. |

#### Cardholder Taps-Off an Online SA Tool with Virtual Card Media

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-062** | | **Cardholder Taps-Off an Online SA Tool with Virtual Card Media** |
| **Use Case Description**:  This main use case describes the interactions of a Virtual Card Cardholder as they tap-off at the SA Tool. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main use case, alternate flows and exceptions unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has selected the “Payment” option from home screen * The device is online and connected to the ATS * Virtual Card Media is able to pass validation checks (i.e. valid card) * The Cardholder has tapped-on * The Virtual Card Media is not on the hot list * The reader is configured to only support Card Authentication cards | | |
| **Main use case: Cardholder Taps-Off SA Tool with Virtual Card Media** | | |
| **Step #** | **Step Description** | |
| 1 | The Cardholder ends the trip and taps the Virtual Card Media on the device Card Reader (CID). The device detects the Virtual Card media and reads the scratchpad (Card ID). | |
| 2 | The device reads the Virtual Card media and completes the following reader checks:   * Card Authentication Verification – The device checks if the media presented is a valid Virtual Farecard * The card is valid (i.e. able to communicate, is a Virtual Card, and not blocked) | |
| 3 | The device sends the tap to the ATS. ATS checks the online hot list and completes the fare processing. ATS then returns the successful tap result to the device via API  **Note**: For more details on the ticketing logic, please refer to **[R6]**. | |
| 4 | The device provides the appropriate feedback to the Cardholder of a successful tap. The **FPS – E-Purse Tap Off** is provided to the cardholder. The tap counter is checked and reset to 0 if it isn’t already at 0 and the scratchpad on the Virtual Card is updated.  **Note**: For more details on the feedback provided to the Cardholder, please refer to **[R1]**. Also, while the feedback screen is presented to the Cardholder, the device will still be able to process another media at the same time. | |

##### Alternate Flow

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| **Alternate flows** | |
| **UC-SA Tool-062.1** | **Tap-Off an SA Tool with Virtual Card Media – Device is offline and not connected to ATS** |
|  | **Modified Pre-Condition:** The device is offline and not connected to ATS |
| If the SA Tool is not online and not connected to ATS, the device will collect offline tap details and once the device returns back online, offline taps will be sent to ATS via bulk upload.  The following steps will be completed as follows   * Steps 1 and 2 are as stated in the Main use case * Step 3 as follows:   + The device checks if the media is contained on the local hotlist, and if the hotlist parameter on the Virtual Card Scratchpad is enabled.   + The tap counter is checked and incremented   + The latent transaction processor stores the tap till the device goes back online and connects to ATS. The tap is then rated in ATS. * Step 4 as follows:   + The right to travel is conferred to the Cardholder by updating the HMI of the SA Tool. The **FPS – E-Purse Tap Off** is provided to the cardholder.   **Note**: For more details on the ticketing logic, please refer to [**R6**]. Note: For more details on the feedback provided to the Cardholder, please refer to [**R1**]. Also, while the feedback screen is presented to the Cardholder, the device will still be able to process another media at the same time. |
| **UC-SA Tool-062.2** | **Tap-Off an SA Tool with Virtual Card Media – Customer uses audio jack to hear instructions** |
|  | The user will listen to the instructions through the headphones. The steps from Main Use Case will be completed as follows:   * Step 1 as follows:   + Customer inserts headphones into the Audio jack which automatically switches the device into audio assist mode   + Audio instructions detail how to adjust the volume by pressing the volume button and then prompt the user to tap their media (in both French and English). The default volume level is set to Medium and the volume levels can be rotated through Low – Medium – High * Step 2, 3 and 4 as stated in the Main Use Case   **Note**: Customer will hear prompts and feedback regarding the tap through the headphones. The language preference on the media will dictate which language the audio message will be played in. Depending on whether the language associated with the fare media is English or French, the appropriate language will be used. Otherwise, English will be used as the default language. |
| **UC-SA Tool-062.3** | **Tap-Off an SA Tool with Virtual Card Media - Non-Revenue Virtual Card Media is tapped on the Device** |
|  | **Modified Pre-Condition:** The Virtual Card media is a non-revenue media |
| The device will send the tap like any other Virtual Card Media to ATS:   * All steps are as stated in the Main Use Case   **Note**: For more details on the processing of Non-Revenue media taps, please refer to [R6]. |
| **UC-SA Tool-062.4** | **Customer Overrides the Default Trip prior to tapping-off** |
|  | If the tap-off occurs while the device is in Override mode, the device will process the tap as a normal tap-off   * Step 1 as follows:   + Customer requests the override of a Default Trip by interacting with the Device   + Device HMI informs the customer that the Device is prepared to override the Default Trip   + The Cardholder presents Virtual Card to the Device CID * Step 2, 3 and 4 as stated in the Main Use Case |

##### Exception Flow

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| **Exceptions** | |
| **UC-SA Tool-062.5** | **Tap-off and Virtual Card Media fails Card Authentication check** |
|  | If the Virtual Card Media fails the Card Authentication check, the device returns the appropriate feedback.   * Step 1 is as stated in Main Use Case * Step 2 will be as follows:   + The device performs the necessary validation and determines that the Virtual Card Media is unable to pass the checks * Step 3 will be as follows:   + The **Declined – Contact CLIENT Customer Service** screen is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 4 will be as follows:   + The declined tap is sent to ATS   **Note**: For more details on the feedback provided to the Cardholder, please refer to [**R1**]. |
| **UC-SA Tool-062.6** | **Tap-off and Multiple NFC media are presented to the device at one time** |
|  | If multiple NFC media are presented to the device at one time, the device will block all fare payment functionality:   * Step 1 as follows:   + Customer presents multiple NFC media to the card reader at once * Step 2 as follows:   + The **Anti-Collision Error Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 3 as follows:   + The declined tap is sent to ATS   **Note**: For more details on the feedback provided to the Cardholder in the case of anti-collision, please refer to **[R1]**. |
| **UC-SA Tool-062.7** | **Tap-off a Virtual Card Media when SA Tool is in Out-of-Service state.** |
|  | **Modified Pre-Conditions:** Device is in Out-of-Service state. Screen provides appropriate ‘Out-of-Service’ display to customers. |
| The steps from the Main use case will be replaced as follows:   * Step 1: The device displays the **Not in Service screen** to the cardholder. Customer attempts to tap their Virtual Card Media on the card reader. * Step 2 as follows: * Device will not detect the media * Step 3 as follows:   + Device Remains in Out-of-Service State |
| **UC-SA Tool-062.8** | **Tap-off and an error has occurred** |
|  | This use-case occurs when an error has occurred on the device that does not cover the exception cases above.   * Steps 1 and 2 as stated in Main Use Case * Step 3 will be as follows:   + The device records the tap * Step 4 will be as follows   + The **Declined – See Customer Service Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. * Step 5 will be as follows:   + The declined tap is sent to ATS |
| **UC-SA Tool-062.9** | **Tap-off and Virtual Card Media is on the local hotlist and device is offline** |
|  | **Modified Pre-Condition:** Virtual Card Media is on the local hotlist |
| If the SA Tool is not online and not connected to ATS, the device will collect offline tap details and once the device returns back online, offline taps will be sent to ATS via bulk upload.  If the Virtual Card Media is on the local hotlist, the right to travel is not conferred.   * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device checks the local hotlist and returns a response that the media is denied * Step 3 as follows:   + Right to travel is not conferred   + The **Declined – Blocked Screen** is provided to the cardholder.   + The Device updates the blocking parameter on the Virtual Card Scratchpad to be enabled   + The device removes the Virtual Card from the hotlist   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the feedback provided to the Cardholder in the case of a blocked Virtual Card Media, please refer to [**R1**]. |
| **UC-SA Tool-062.10** | **Tap-off and Virtual Card Media’s blocked parameter on the scratchpad is enabled** |
|  | **Modified Pre-Condition:** Virtual Card Media’s scratchpad blocked parameter is set to enabled |
| If the Virtual Card Media is blocked, the right to travel is not conferred.   * Step 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device checks the local hotlist and does not find the Virtual Card   + The device checks the Virtual Card Scratchpad and determines the card blocked parameter is set to true * Step 3 as follows:   + Right to travel is not conferred   + The **Declined – Blocked Screen** is provided to the cardholder.   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs.   **Note**: For more details on the feedback provided to the Cardholder in the case of a blocked Virtual Card Media, please refer to [**R1**]. |
| **UC-SA Tool-062.11** | **Tap-off and Virtual Card Media’s blocked parameter on the mobile wallet is enabled** |
|  | **Modified Pre-Condition:** Virtual Card Media’s mobile wallet blocked parameter is set to enabled |
| If the Virtual Card Media is blocked, the right to travel is not conferred.   * If the Virtual Card Media is blocked in the wallet, there will not be an interaction with the device on an attempted tap * The device will not know a tap is attempted and will have no action   **Note**: For more details on the feedback provided to the Cardholder in the case of a blocked Virtual Card Media, please refer to [**R1**]. |
| **UC-SA Tool-062.12** | **Virtual Card Media is tapped off an offline device and tap counter is greater than allowable offline taps** |
|  | **Modified Pre-Condition:** Tap counter is greater than the allowable offline taps |
| If the SA Tool is not online and not connected to ATS, the device will collect offline tap details and once the device returns back online, offline taps will be sent to ATS via bulk upload.  If the Virtual Media has reached its offline tap counter limit, the right to travel is not conferred   * Step 1, 2 and 3 as stated in the main use case * Step 4 is as follows:   + The device will check the tap counter and if the tap counter limit has been reached, the offline device will reject the tap and the rider will not be permitted entry   + An error will be captured and logged in the background when this occurs to help with troubleshooting the issue. This error will also be captured in the SOTI logs. |

#### E-Ticket – Fare Payment

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-062** | | **Accepting Fare Payment from the E-Ticket** |
| **Use Case Description**:  This use case describes the steps for an operator to accept a fare payment from a e-Ticket. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main use case, alternate flows and exceptions unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has selected the “Payment” option from home screen * E-Ticket is not in the deny list * E-Ticket is activated | | |
| **Main Use Case: Accepting fare payment from the e-Ticket** | | |
| **Step #** | **Step Description** | |
| 1 | The customer asks to pay for the trip with their e-ticket | |
| 2 | The operator presses the button on the side of the device to enable the barcode scanner. | |
| 3 | The E-Ticket holder scans the QR Code on their E-Ticket against the SA tool’s barcode reader to validate the Ticket in Fare Payment Mode. QR code is decrypted using the Bytemark key on the device. | |
| 4 | The device will perform a check to ensure that the E-Ticket meets timestamp window requirements (configurable) | |
| 5 | The device will perform a check against the local deny list and confirms that the current E-Ticket being validated is not on the deny list. | |
| 6 | The device calls the Bytemark API and receives a response that:   * The E-Ticket is valid for travel   The first word of the label name is used as the concession. An ‘ADULT’ or ‘Adult’ or ‘adult’ will be flagged as an adult concession. A ‘CHILD’ or ‘Child’ or ‘child’ will be flagged as a child concession. All remaining variation shall be marked as a non-adult, non-child concession. | |
| 7 | The right to travel is conferred to the E-Ticket holder, the device provides the appropriate feedback to the user of a successful transaction.  **Note**: For more details on the feedback provided to the user, please refer to [**R1**]. Also, while the feedback screen is presented to the Cardholder, the device will still be able to process another Farecard at the same time. | |
| 9 | After a configurable timeout, the screen returns to the application Tap Card screen. | |

##### Alternate Flow

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| 1. Alternate Flows | |
| **UC-SA Tool-062.1** | **E-Ticket holder scans QR Code against the SA Tool reader and the SA Tool is Offline** |
|  | If an E-Ticket fails the necessary validation checks, the device returns the appropriate feedback, and the right to travel is not conferred.   * Step 1 – 5 is as stated in Main Use Case * Step 6:   + As the device is offline, the call to the Bytemark backend will fail and be unable to retrieve details regarding the E-Ticket. * Step 7:   + Result will be cached in an offline database to be uploaded to Bytemark API when connection is resumed   **Note**: For more details on the feedback provided to the user in the case of failed validation, please refer to [**R1**]. |
| **UC-SA Tool-062.2** | **E-Ticket holder scans Group QR Code at the SA Tool Barcode Reader** |
|  | The E-Ticket holder scans the Group QR Code on their E-Ticket against the SA Tool’s barcode reader to validate the Ticket in Fare Payment Mode.   * Step 1 – 4 is as stated in Main Use Case * Step 5 will be as follows:   + The device will check each ticket within the group against the deny list to determine if E-Ticket is valid for travel * Step 6 will be as follows:   + The device sends and receives a response from Bytemark API and checks that:     - The Group QR Code is valid for travel * Step 7 will be as follows:   + The right to travel is conferred to the E-Ticket holder, the device provides the appropriate feedback to the user of a successful transaction.   **Note**: QR code density shall determine the maximum number of E-Tickets that can be groDistance based Transitd and read by inbuilt barcode scanner.  **Note**: For more details on the feedback provided to the user in the case of failed validation, please refer to [R1]. |
| **UC-SA Tool-062.3** | **Pass holder E-Ticket is scanned at the SA Tool Barcode Reader** |
|  | A pass type E-ticket is scanned at the SA Tool barcode reader to validate the pass.   * Step 1-4 is as stated in Main Use Case * Step 5 will be as follows:   + The device sends and receives a response from Bytemark API and checks that:     - The E-Ticket pass is valid for travel     - The first word of the barcode label name is used as the concession. An ‘ADULT’ or ‘Adult’ or ‘adult’ will be flagged as an adult concession and all remaining variation shall be marked as a non-adult concession.     - A pass may contain multiple words such as ‘Adult Pass’ or ‘Adult Auto show’, the first word is still used to determine concession. * Step 6 will be as follows:   + The right to travel is conferred to the E-Ticket holder, the device provides the appropriate feedback to the user of a successful transaction.   **Note**: “Pass” is a multiuse E-Ticket valid for a time period or specific number of uses. For more details on the feedback provided to the user in the case of failed validation, please refer to [R1]. |
| **UC-SA Tool-062.4** | **Scanner does not scan E-Ticket QR Code multiple times in a row** |
|  | An E-ticket is scanned at the SA Tool barcode reader to validate the pass in fare payment mode.   * Steps 1, 2, 3, 4, and 5 will proceed as in Main Use Case * Step 6 will be as follows:   + If the pass-holder does not remove the QR code from view of the scanner after the initial scan, withdrawal logic will apply   + Withdrawal logic will check the last scanned E-Ticket ID against the next scanned E-Ticket ID and if the same will not respond to the scan.   + This logic will be implemented for 3 seconds after the initial scan, after this period the scanner will then be able to re-scan the initial E-ticket as normal.   **Note**: There will be no visual or audio feedback related to this logic. |
| **UC-SA Tool-062.5** | **Child E-Ticket is scanned at the SA Tool Barcode Reader** |
|  | The user scans a Child E-Ticket at the SA Tool Barcode Reader.  Use Case will be completed as follows:   * Steps 1-6 as stated in the Main Use Case. * Step 7: The right to travel is conferred to the E-Ticket holder, the device provides the appropriate feedback to the user of a successful Child E-Ticket transaction.   **Note**: For more details on the feedback provided to the user, please refer to [R1]. A Child E-Ticket scan will have a unique HMI and will use the Child audio tone. Also, while the feedback screen is presented to the Cardholder, the device will still be able to process another Farecard at the same time. |

##### Exception Flow

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| 1. Exceptions | |
| **UC-SA Tool-062.6** | 1. E-Ticket QR Code fails timestamp validation |
|  | If a E-Ticket fails the necessary validation checks, the device returns the appropriate feedback, and the right to travel is not conferred.   * Step 1 - 3 is as stated in Main Use Case * Step 4 will be as follows:   + The device checks the timestamp of the QR code against the maximum allowable time window in the device config to determine if the E-Ticket is valid for travel.   + Note: The QR code refreshes to prevent fraud (e.g. Screenshots)   + If the timestamp of the QR code does not meet the timestamp validation requirements, the user’s E-Ticket will not be valid for travel * Step 5 will be as follows:   + The device provides the appropriate decline feedback to the E-Ticket holder  1. Note: For more details on the feedback provided to the user in the case of failed validation, please refer to [R1]. |
| **UC-SA Tool-062.7** | 1. E-Ticket QR Code fails deny list validation |
|  | If a E-Ticket fails the necessary validation checks, the device returns the appropriate feedback, and the right to travel is not conferred.   * Steps 1 -3 as stated in Main Use Case * Step 4 will be as follows:   + The device performs a check against the local deny list and confirms that the E-Ticket ID is on the current deny list. * Step 5 will be as follows:   + The device provides the appropriate decline feedback to the E-Ticket holder  1. Note: For more details on the feedback provided to the user in the case of failed validation, please refer to [R1]. |
| **UC-SA Tool-062.8** | 1. E-Ticket QR Code fails validation (response from API) |
|  | If a E-Ticket fails the necessary validation checks, the device returns the appropriate feedback, and the right to travel is not conferred.   * Steps 1 – 4 as stated in Main Use Case * Step 5 will be as follows:   + The device calls the Bytemark API and receives a response that determines that the E-Ticket is not valid for travel * Step 6 will be as follows:   + The device provides the appropriate feedback to the E-Ticket holder  1. Note: For more details on the feedback provided to the user in the case of failed validation, please refer to [R1]. |
| **UC-SA Tool-062.9** | **E-Ticket QR Code fails to scan** |
|  | * Step 1: The device shall attempt to decrypt a scanned E-ticket QR code or any QR code using the Bytemark key. In the event of a failure an invalid ticket screen shall be displayed.   **Note**: For more details on the feedback provided to the user in the case of failed validation, please refer to [**R1**]. |
| **UC-SA Tool-062.10** | **Bytemark API call returns error code “401 Unauthorized User” or  Bytemark error code 50032 (unauthorized access)** |
|  | If the API call to Bytemark fails an error code will be returned to the device that made the call. If the HTTP code is “401” or Bytemark error code 50032” the following steps will apply:   * Steps 1 – 4 is as stated in Main Use Case * Step 5 will be as follows:   + The call to the Bytemark API returns 401, or Bytemark error code 50032 the device will read/log the error code and begin error handling process * Step 6 will be as follows:   + The device will renew authentication token and will retry API call * Step 7 will be as follows:   + If API call is successful, will follow Step 4 as stated in Main Use Case, else will act as if it is offline again * Step 8: The device will move to offline validation steps |
| **UC-SA Tool-062.11** | **Bytemark API call returns other HTTP error code** |
|  | If the API call to Bytemark fails an error code will be returned to the device that made the call. If any HTTP error code is returned the following steps will apply:   * Step 1, 2, and 3 is as stated in Main Use Case * Step 4 will be as follows:   + The call to the Bytemark API returns other HTTP error code, the device will act as if it is offline   + Error logged   Step 5 device will move to offline validation steps |
| **UC-SA Tool-062.12** | **Bytemark API call is successful (Return Code “200”) but response contains internal error code.** |
|  | The API call can return “200” successful response but have an internal error code attached to it resulting in an invalid response to the device. This will mean the E-Ticket will not have a valid/invalid result in the call and cannot be used to determine the validity for travel.   * Steps 1 – 4 is as stated in Main Use Case * Step 5 will be as follows:   + The device calls the Bytemark API and receives a response that contains an internal error code   + Error logged   + The device will act as if it is offline * Step 6:   + The device will move to offline validation steps in UC-ET-SA Tool-001.3   **Note**: For more details on the feedback provided to the user in the case of failed validation, please refer to [**R1**]. |
| **UC-SA Tool-062.13** | **Bytemark API call is successful (Return Code “200”) but response contains error code (200001) for “Wrong Transit Agency”** |
|  | If a customer scans a ticket for transit agency “A” at a transit agency “B” violating a transfer/fare logic implemented by Bytemark, the API call will return “200” successful response but contain a “Invalid Transit Agency” error code. This will mean the E-Ticket will be deemed invalid, and the correct response will display on the screen.   * Steps 1 – 4 is as stated in Main Use Case * Step 5 will be as follows:   + The device calls the Bytemark API and receives a response that contains an “Wrong Transit Agency” error code 200001. * Step 6 will be as follows:   + The device will treat this error code as an invalid result and the E-Ticket will be deemed invalid for travel. * Step 7 will be as follows:   + The device provides the appropriate feedback to the E-Ticket holder   **Note**: For more details on the feedback provided to the user in the case of failed validation, please refer to [**R1**]. |
| **UC-SA Tool-062.14** | **Bytemark API Call is unsuccessful due to Timeout** |
|  | If the API call to Bytemark fails due to a response timeout, the following steps will apply:   * Steps 1 - 4 is as stated in Main Use Case * Step 5 will be as follows:   + A wait screen will persist after the request has been sent and is waiting response. * Step 6:   + The call to the Bytemark API times out.   + Note: The timeout period will be configurable to provide best user experience and technical allowance   + Error logged   + The device will act as if it is offline * Step 7:   + The device will move to offline validation steps in UC-ET-SA Tool-001.3   **Note**: For more details on the feedback provided to the user in the case of failed validation, please refer to [**R1**]. |

### Fare Reversal

##### Fare Payment Reversal

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-076** | | **Transaction Reversal** |
| **Use Case Description**:  This use case describes the steps for a SP operator to manually perform a transaction reversal with the SA Tool.  **Note**: This use case (along with the associated alternate and exception flows) is not supported for LUM. If a LUM is tapped on the SA Tool in reversal mode, the SA Tool application will indicate that the operation is not supported. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main use case, alternate flows and exceptions unless explicitly stated otherwise.   * SA Tool is powered on. * Reversal is enabled in the Subsystem. If not enabled, this use case is not applicable. * The last transaction has been deemed to be reversible. * Customer’s Farecard ’s concession is Adult or Discreet Concessions | | |
| **Main Use Case:** **Transaction Reversal** | | |
| **Step #** | **Step Description** | |
| 1 | The customer requests to reverse a fare. | |
| 2 | The operator selects the fare payment reversal option on the SA Tool home screen. | |
| 3 | The customer taps their Farecard on the NFC card reader on the SA Tool device. | |
| 4 | The SA Tool device reads the Farecard information and verifies that the last transaction is reversible.  **Note:** For a more detailed description of eligibility criteria, refer to [**R6**]. During card identification, the audio button and volume controls will be disabled. | |
| 5 | The SA Tool application processes the fare reversal and updates the customer’s Farecard to reflect the fare reversal. | |
| 6 | The SA Tool displays successful fare reversal screen to the operator and customer . | |
| 7 | The SA Tool plays the successful fare reversal audio tone. | |
| 8 | After a configurable timeout, the screen returns to the application Tap Card screen. | |

###### Alternate Flow

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| **Alternate Flow** | |
| **UC-SA Tool-076.1** | **Transaction Reversal - Customer’s Farecard is Unreadable** |
| **Modified pre-conditions:**   * SA Tool application detects the Farecard and fails to read it correctly |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 3 as stated in the Main Use Case 2. The SA Tool NFC reader detects the Farecard but is unable to read it. SA Tool application will indicate to the operator that the Farecard is unreadable. 3. The customer will tap on the NFC reader again. If the tap is successful, steps 4 – 8 will be conducted. If the tap is unsuccessful, the SA Tool application will indicate to the operator that the Farecard is unreadable. |
| **UC-SA Tool-076.2** | **Transaction Reversal - Customer Requests Audio Messages** |
| **Modified pre-conditions:** N/A |
| The Steps from the Main Use Case will be completed as follows:   1. Step 1 as stated in the Main Use Case 2. Customer requests audio messages for fare reversal. 3. Operator enables audio mode. 4. The operator can change the volume level using the physical device buttons at the customer’s discretion or proceed with the use case. While the volume is being adjusted, a volume adjustment bar will appear, and timeout automatically, to indicate the volume level. The volume will return to the device default after the use case is completed. The physical buttons will only support changing the audio messaging volume when accessibility mode is enabled.   **Note:** The minimum volume level and default volume level are configurable   1. Steps 2-5 as stated in the Main Use Case. 2. The SA Tool displays the fare reversal screen to the operator and customer for the duration of the audio message. Corresponding audio message is played to the customer in the default language of their Farecard as seen in the table below  |  |  | | --- | --- | | **Card Language** | **Audio Language** | | Registered - English | English | | Registered - French | French | | Anonymous - English | English | | Anonymous - French | French |  1. Step 8 as stated in the Main Use Case |

###### Exception Flow

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| **Exception Flow** | |
| **UC-SA Tool-076.3** | **Transaction Reversal - Customer’s Farecard Does Not Have a Valid Fare to Reverse** |
|  | **Modified Pre-conditions:** N/A |
|  | The steps from the Main Use Case will be completed as follows:   1. Steps 1-3 as stated in the Main Use Case 2. If no valid fare to be reversed is found, the application displays a declined message to the customer. The transaction is not conducted. 3. The SA Tool application plays a declined audio tone. 4. Step 8 as stated in the Main Use Case |
| **UC-SA Tool-076.4** | **Transaction Reversal - Customer’s Farecard is Blocked** |
| **Modified pre-conditions:**   * Customer’s Farecard is blocked |
| The steps from the Main Use Case will be completed as follows:   1. Steps 1-3 as stated in the Main Use Case 2. The SA Tool application detects that the card is in blocked and displays a declined/error message to the customer. The transaction is not conducted. 3. The SA Tool application plays a declined audio tone. 4. Step 8 as stated in the Main Use Case |
| **UC-SA Tool-076.5** | **Transaction Reversal - Customer’s Farecard is on the Hotlist** |
| **Modified Pre-conditions:**   * Customer’s Farecard is on the hotlist |
| The steps from the Main Use Case will be completed as follows:   1. Steps 1-3 as stated in the Main Use Case 2. The SA Tool application detects that the card is on the hotlist and displays a declined/error message to the customer. The SA Tool application updates the customer’s card to a blocked status. The transaction is not conducted. 3. The SA Tool application plays a declined audio tone. 4. Step 8 as stated in the Main Use Case |
| **UC-SA Tool-076.6** | **Transaction Reversal - Battery goes below the low battery threshold during reversal** |
| **Modified Pre-conditions:**   * The low battery threshold is high enough that the remote lists can be processed even after the SA Tool device battery goes below the low battery threshold during a successful Farecard tap. |
| The steps from the Main Use Case will be completed as follows:   1. Steps 1 - 3 as stated in Main Use Case 2. If the low battery threshold is reached before Step 4, the application switches to “Out of Service” mode. Else, the customer’s transaction is reversed as per Step 5. The application then switches to “Out of Service” mode. |

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| **UC-SA Tool-076.7** | **Transaction Reversal – Customer taps a card that is not a Farecard** |
| **Modified pre-conditions:**   * Customer’s card is not a Farecard |
| This exception flow occurs if the customer taps a card that is not a Farecard . The following steps will occur:   1. Steps 1 – 3 in the main Use Case. 2. The SA Tool application does not respond, but the device error message “Card Read Error” is displayed for a short period of time. |
| **UC-SA Tool-076.8** | **Transaction Reversal – Customer taps a non-activated Farecard** |
| **Modified pre-conditions:**   * Customer’s Farecard is not activated * Customer’s card is not on the action list available on the device |
| The following steps will occur:   1. Steps 1-3 as stated in the Main Use Case 2. The device detects that the Farecard is not activated. 3. The SA Tool application will display a declined message the customer. The transaction is not conducted. 4. The SA Tool plays the declined audio tone. 5. After a configurable timeout, the app returns to the SA Tool application Tap Card screen. |

##### Reversing Fare Payment with Open Payments Media on Online SA Tool

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-077** | | **Cardholder Performs a Fare Payment Reversal on an Online SA Tool that is connected to ATS** |
| **Use Case Description**:  This main use case describes the interactions of an Open Payments cardholder as they reverse a fare payment on an Online SA Tool that is connected to ATS. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main use case, alternate flows and exceptions unless explicitly stated otherwise.   * The device is in “In-Service” state * The device is in Reversal mode * Open Payments Media is able to pass validation checks (i.e. Passed ODA check) * Previous tap-on occurred at the same location within the same TA * Open Payments Media is not contained in the Hotlist * Reversal window is enabled and reversals are enabled on the device * Tap is within the reversal window * The Media passes the BIN check, if applicable. * The Media passes the ODA check, if applicable. Note: non-ODA Interac cards are allowed to travel. * The Media card brand / payment type is not disabled. | | |
| **Main use case: Cardholder Performs a Fare Payment Reversal on a SA Tool** | | |
| **Step #** | **Step Description** | |
| 1 | The Cardholder taps the Open Payments Media on the device Card Reader (CID) while the device is in reversal mode. The following reader checks occur:   * ODA Verification – The device checks if the media presented is a valid type supported by one of the compatible brands. - Note: non-ODA Interac cards are allowed to travel. * Expiry Check – The device checks if the media tapped is not expired (i.e. valid) * BIN Blocking – The device checks if the BIN of the media presented is in the BIN Blocking list. | |
| 2 | The device sends the cardholder’s reversal request tap to Accenture Ticketing Services.  **Note**: Fore more details on reversal processing, please refer to **[R7].** | |
| 3 | The **Request for Reversal Recorded** screen is provided to the cardholder.  **Note**: For more details on the feedback provided to the Cardholder, please refer to **[R1]**. | |

###### Alternate Flow

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| 1. Alternate flows | |
| **UC-SA Tool-077.1** | 1. Reverse a Fare Payment on a SA Tool with Open Payments Media – Device is offline and not connected to Accenture Ticketing Services |
|  | 1. Modified Pre-Condition: The device is offline and not connected to Accenture Ticketing Services |
|  | 1. If the SA Tool is not online and not connected to ATS, the following steps will be completed as follows 2. Step 1 is as stated in the Main use case 3. Step 2 as follows: 4. The latent transaction processor stores the tap till the device goes back online and connects to Accenture Ticketing Services. The tap is then rated in ATS. 5. Step 3 as stated in the Main Use Case 6. Note: For more details on the ticketing logic, please refer to [R7]. Note: For more details on the feedback provided to the Cardholder, please refer to [R1]. Also, while the feedback screen is presented to the Cardholder, the device will still be able to process another media at the same time. |
| **UC-SA Tool-077.2** | 1. Reverse a Fare Payment on a SA Tool with Open Payments Media – Customer requests audio messages |
|  | The Steps from the Main Use Case will be completed as follows:   1. Customer requests audio messages for fare payment reversal. 2. Steps 1-3 as stated in the Main Use Case 3. Operator enables audio mode. 4. The operator can change the volume level using the physical device buttons at the customer’s discretion or proceed with the use case. While the volume is being adjusted, a volume adjustment bar will appear, and timeout automatically, to indicate the volume level. The volume will return to the device default after the use case is completed. The physical buttons will only support changing the audio messaging volume when accessibility mode is enabled.   **Note:** The minimum volume level and default volume level are configurable.   1. SA Tool displays the fare payment reversal screen to the operator and customer for the duration of the audio message. The language preference on the media will dictate which language the audio message will be played in. If the card language tag (5F2D ISO 639 – Language Code; under EMV specifications) is EN or FR-CA, the appropriate language will be used. Otherwise, English will be used as the default language. |

###### Exception Flow

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| **Exceptions** | |
| **UC-SA Tool-077.4** | **Open Payments Media fails ODA check. Note: non-ODA Interac cards are allowed to travel.** |
|  | If an Open Payments Media fails the ODA check, the device returns the appropriate feedback.   * Step 1 is as stated in Main Use Case * Step 2 will be as follows:   + The device performs the necessary validation and determines that the Open Payments Media is unable to pass the checks * Step 3 will be as follows:   + The **Declined – Try Another Card (Failed ODA Check**) screen is provided to the cardholder. * Step 4 will be as follows:   + The declined tap is sent to ATS   **Note**: For more details on the feedback provided to the Cardholder in the case of failed validation, please refer to **[R1]**. |
| **UC-SA Tool-077.5** | **Open Payments Media Fails Expiry Check during Fare Payment** |
|  | If an Open Payments Media fails the Expiry Check, the device returns the appropriate feedback.   * Step 1 is as stated in Main Use Case * Step 2 will be as follows:   + The device performs the necessary validation and determines that the Open Payments Media is unable to pass the expiry check * Step 3 will be as follows:   + The **Declined – Card Expired Screen** is provided to the cardholder. * Step 4 will be as follows:   + The declined tap is sent to ATS   **Note**: For more details on the feedback provided to the Cardholder in the case of failed validation, please refer to **[R1]**. |
| **UC-SA Tool-077.6** | **Multiple NFC media are presented to the device at one time in Reversal mode** |
|  | If multiple NFC media are presented to the device at one time, the device will block all fare payment functionality:   * Step 1 as follows:   + Customer presents multiple NFC media to the card reader at once * Step 2 as follows:   + The device displays an error toast message. |
| **UC-SA Tool-077.7** | **Tap an Open Payments Media when SA Tool is in Out-of-Service state.** |
|  | **Modified Pre-Conditions:** Device is in Out-of-Service state. Screen provides appropriate ‘Out-of-Service’ display to customers. |
|  | The steps from the Main use case will be replaced as follows:   * Step 1: The **Not In Service** **Screen** is provided to the cardholder. Customer attempts to tap their Open Payments Media on the card reader. * Step 2 as follows: * Device will not detect the media * Step 3 as follows:   + - * + Device Remains in Out-of-Service State |
| **UC-SA Tool-077.8** | **Tap an Open Payments Media when SA Tool is configured for Farecard reversals only.** |
|  | **Modified Pre-Conditions:** Device is configured for only farecard reversals. |
|  | The steps from the Main use case will be replaced as follows:   * Step 1: Customer attempts to tap their Open Payments Media on the card reader. * Step 2 as follows:   + The **Only Available for Farecard s** error message is provided to the cardholder.   **Note**: For more details on the feedback provided to the Cardholder in the case of failed validation, please refer to **[R1]**. |
| **UC-SA Tool-077.9** | **Customer attempts to tap an Open Payments media not on the approved media list while the device is in Pilot mode** |
|  | This use-case occurs when the device is provisioned in beta mode and an Open Payments media that is not on the approved media list is tapped on the device.   * Steps 1 and 2 as stated in the Main Use Case * Step 3 as follows:   + The device checks the approved media list. If the media is not found on the approved media list, the  **Declined – Not Accepted, Tap Farecard** screen is provided to the cardholder. If the media is on the approved media list while the device is in beta mode, the steps continue as stated in the main use case. * Step 4 as follows:   + The declined tap is sent to ATS |
| **UC-SA Tool-077.10** | **Customer’s Open Payments Media is on the BIN Blocking List** |
|  | The Steps from the Main Use Case will be completed as follows:   1. Step 1 as stated in the Main Use Case. 2. Device checks its local BIN Blocking list. The card’s BIN is found to be on the BIN Blocking List. The device plays the decline audio tone and displays the **Declined – Try Another Card (****BIN Blocked)** screen. If the media passes the BIN check, the steps continue as stated in the main use case. 3. Step 3 as follows:    1. The decline is sent to ATS. |
| **UC-SA Tool-077.11** | **Customer attempts to reverse fare payment with Interac Card while Interac is disabled on SA Tool** |
|  | * Step 1 as follows:   + The Cardholder taps the Interac media on the device Card Reader (CID) while the device is in reversal mode. * Step 2 as follows:   + The device determines that the media tapped is not supported and displays an error message.   + The fare payment reversal is not recorded.   **Note**: For more details on the feedback provided to the Cardholder in the case of an Interac card being tapped while Interac is not supported on the SA Tool, please refer to [**R1**]. |
| **UC-SA Tool-077.12** | **Customer attempts to reverse fare payment with Open Payment Card while Open Payments are disabled on SA Tool** |
|  | * Step 1 as follows:   + The Cardholder taps the OP media on the device Card Reader (CID) while the device is in reversal mode. * Step 2 as follows:   + The device determines that the media tapped is not supported and displays an error message.   + The fare payment reversal is not recorded.   **Note**: For more details on the feedback provided to the Cardholder in the case of an OP card being tapped while OP is not supported on the SA Tool, please refer to [**R1**]. |
| **UC-SA Tool-077.13** | **Customer attempts to revers fare payment with Open Payment Card while corresponding payment method / card brand is disabled on SA Tool** |
|  | * Step 1 as follows:   + The Cardholder taps the OP media on the device Card Reader (CID) while the device is in reversal mode. * Step 2 as follows:   + The device determines that the media tapped is not supported and displays an error message.   + The fare payment reversal is not recorded.   **Note**: For more details on the feedback provided to the Cardholder in the case of a card being tapped while the corresponding card brand is disabled on the SA Tool, please refer to [**R1**]. |

##### Reversing Fare Payment from Virtual Card on an Online SA Tool

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-078** | | **Virtual Card Transaction Reversal on an Online SA Tool** |
| **Use Case Description**:  This use case describes the steps for a SP operator to manually perform a Virtual Card transaction reversal with the SA Tool. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main use case, alternate flows and exceptions unless explicitly stated otherwise.   * SA Tool is powered on. * Reversal is enabled in the Subsystem. If not enabled, this use case is not applicable. * The last transaction has been deemed to be reversible. * Customer’s Farecard ’s concession is Adult or Discreet Concessions * Virtual Cards are enabled on the SA Tool * SA Tool is online and connected to ATS | | |
| **Main Use Case: Virtual Card** **Transaction Reversal** | | |
| **Step #** | **Step Description** | |
| 1 | The customer requests to reverse a fare. | |
| 2 | The operator selects the reversal option on the SA Tool home screen. | |
| 3 | The customer taps their Virtual Card on the NFC card reader on the SA Tool. | |
| 4 | The SA Tool reads the Virtual Card information and sends transaction to ATS to be processed. | |
| 5 | ATS verifies that the last transaction is reversible. ATS performs the reversal and sends the result back to the SA Tool.  **Note:** For a more detailed description of eligibility criteria, refer to **[R6].** During card identification, the audio button and volume controls will be disabled. | |
| 6 | The SA Tool displays successful fare reversal screen to the operator and customer. The SA Tool plays the successful fare reversal audio tone.  **Note:** The SA Tool will be able to view Virtual card fare payment reversals performed on the device when the card is queried. | |
| 7 | After a configurable timeout, the screen returns to the application Tap Card screen. | |

###### Alternate Flow

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| **Alternate Flows** | |
| **UC-SA Tool-078.1** | **Transaction Reversal - Customer’s Farecard is Unreadable** |
| **Modified pre-conditions:**   * SA Tool application detects the Farecard and fails to read it correctly |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1 – 3 as stated in the Main Use Case 2. The SA Tool NFC reader detects the Farecard but is unable to read it. SA Tool application will indicate to the operator that the Farecard is unreadable. 3. The customer will tap on the NFC reader again. If the tap is successful, steps 4 – 7 will be conducted. If the tap is unsuccessful, the SA Tool application will indicate to the operator that the Farecard is unreadable. |
| **UC-SA Tool-078.2** | **Transaction Reversal – SA Tool is Offline** |
| **Modified pre-conditions:**   * SA Tool is offline and not connected to ATS |
| * Steps 1 – 3 as stated in the Main Use Case * Step 4 is as follows:   + Device checks the Tap Counter to see if it is exceeded * Step 5 is as follows:   + SA Tool store request for reversal * Step 6 is as follows:   + Request for reversal success screen is displayed. * Step 7 is as stated in Main Use Case * Step 8 is as follows:   + SA Tool sends bulk upload of transactions to ATS for processing when it comes back online. |
| **UC-SA Tool-078.3** | **Transaction Reversal - Customer Requests Audio Messages** |
| **Modified pre-conditions:** N/A |
| The Steps from the Main Use Case will be completed as follows:   1. The customer requests to reverse a fare and requests audio messages for fare reversal. 2. Steps 2-6 as stated in the Main Use Case. 3. Operator enables audio mode. 4. The operator can change the volume level using the physical device buttons at the customer’s discretion or proceed with the use case. While the volume is being adjusted, a volume adjustment bar will appear, and timeout automatically, to indicate the volume level. The volume will return to the device default after the use case is completed. The physical buttons will only support changing the audio messaging volume when accessibility mode is enabled.   **Note:** The minimum volume level and default volume level are configurable   1. The SA Tool displays the fare reversal screen to the operator and customer for the duration of the audio message. Corresponding audio message is played to the customer in the default language of their Farecard as seen in the table below  |  |  | | --- | --- | | **Card Language** | **Audio Language** | | Registered - English | English | | Registered - French | French | | Anonymous - English | English | | Anonymous - French | French |  1. After the audio ends, the SA Tool screen returns to the application Sales screen. |

###### Exception Flow

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| **Exception Flows** | |
| **UC-SA Tool-078.4** | **Transaction Reversal - Customer’s Farecard Does Not Have a Valid Fare to Reverse** |
|  | **Modified Pre-conditions:** N/A |
|  | The steps from the Main Use Case will be completed as follows:   1. Steps 1-3 as stated in the Main Use Case 2. If no valid fare to be reversed is found, the application displays a declined message to the customer. The transaction is not conducted. 3. The SA Tool application plays a declined audio tone. 4. Step 8 as stated in the Main Use Case |
| **UC-SA Tool-078.5** | **Transaction Reversal - Customer’s Farecard is Blocked** |
| **Modified pre-conditions:**   * Customer’s Farecard is blocked |
| The steps from the Main Use Case will be completed as follows:   1. Steps 1-3 as stated in the Main Use Case 2. Step 5 is as follows:    1. The device sends the request to ATS for processing. ATS detects the card is blocked.    2. ATS will return a declined/error result back to the SA Tool. 3. Step 6 as follows:    1. The SA Tool application will display a declined message to the customer. The transaction is not conducted.    2. The SA Tool plays the declined audio tone.    3. The Scratchpad is updated accordingly. 4. Step 7 as stated in the Main Use Case |
| **UC-SA Tool-078.6** | **Transaction Reversal - Customer’s Farecard is on the Deny List** |
| **Modified Pre-conditions:**   * Customer’s Farecard is on the Deny List |
| The steps from the Main Use Case will be completed as follows:   1. Steps 1-3 as stated in the Main Use Case 2. Step 5 is as follows:    * ATS detects the Virtual Card is on the Deny List    * ATS moves card to blocked and removes from the Deny List    * ATS returns declined/error result back to SA Tool.   **Note:** For more information on list processing, refer to **[R7]**.   1. Step 6 as follows:    * The SA Tool application will display a declined message to the customer. The transaction is not conducted.    * The SA Tool plays the declined audio tone.    * The Scratchpad is updated accordingly. 2. Step 7 as stated in the Main Use Case |
| **UC-SA Tool-078.7** | **Transaction Reversal - Battery goes below the low battery threshold during reversal** |
| **Modified Pre-conditions:**   * The low battery threshold is high enough that the remote lists can be processed even after the SA Tool device battery goes below the low battery threshold during a successful Farecard tap. |
| The steps from the Main Use Case will be completed as follows:   1. Steps 1 - 3 as stated in Main Use Case 2. If the low battery threshold is reached before Step 4, the application switches to “Out of Service” mode. Else, the customer’s transaction is reversed as per Step 5. The application then switches to “Out of Service” mode. |
| **UC-SA Tool-078.8** | **Transaction Reversal – Customer taps a card that is not a Farecard** |
| **Modified pre-conditions:**  Customer’s card is not a Farecard |
| This exception flow occurs if the customer taps a card that is not a Farecard . The following steps will occur:   * Steps 1 – 3 in the main Use Case. * The SA Tool application does not respond, but the device error message “Card Read Error” is displayed for a short period of time. |
| **UC-SA Tool-078.9** | **Reverse a Fare Payment on a SA Tool with Virtual Card Media - ECP is disabled and users Artemis device is locked or asleep** |
|  | * **Modified Pre-Condition:**    + The users device is locked or asleep   + ECP is disabled for the users Virtual Card |
| * Step 1: The customer presents their locked or asleep device to the reader * Step 2: Virtual card media is not detected and the SA Tool screen remains the same. Artemis device prompts user to provide authentication. * Step 3: Customer provides authentication for their Virtual Card media on their Artemis device. * Steps 1 – 7 as stated in the main use case. |
| **UC-SA Tool-078.10** | **Reverse a Fare Payment on a SA Tool with Virtual Card Media - Users Artemis device is in Power Reserve mode and ECP is disabled** |
|  | Modified Pre-Condition:   * + The user’s mobile device is in Power Reserve mode   + ECP is disabled on the mobile device for the users Virtual Card |
| * Step 1: The customer presents their locked or asleep device to the reader * Step 2: Virtual card media is not detected and the SA Tool screen remains the same. Artemis device prompts user to charge their device. |

### Payment Options

#### Payment by Credit/Debit Card (via EX8000)

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-099** | | **Payment by Credit/Debit Card (Integrated EPT)** |
| **Use Case Description**:  This use case describes the customer paying for a transaction via credit or debit | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has added saleable products to cart and customer is ready for payment * Customer decides to pay credit or debit * Receipt printer is connected and fully functional (to ensure printing of merchant receipt) * SA Tool is provisioned with integrated EPT | | |
| **Main Use Case: Payment by Credit/Debit Card (Integrated EPT)** | | |
| **Step #** | **Step Description** | |
| 1 | Operator proceeds to payment and the customer wants to pay credit or debit.   * The operator selects Credit * The operator selects Debit | |
| 2 | The SA Tool populates the full payment amount and the operator has the option to edit if the customer is making a split payment (see Split Payments).  The SA Tool also checks if the entered payment amount is more than the total shopping cart amount.   * Show error message that the total amount to pay exceeded for this payment method. Operator must acknowledge and try again with another payment method. The max amount to be entered is the total shopping cart amount (ie. Cannot charge $40 for $38 basket, as change should not be given back for this payment method). | |
| 3 | The operator confirms the payment and the amount to be charged on the payment card is displayed on the customer-facing PIN pad. The customer must present their card and interact with the PIN pad. | |
| 4 | Moneris reads the customer’s payment card, detecting the type of card, and returns the result of the transaction | |
| 5 | Upon successful result, the SA Tool displays the option to (1) print a customer receipt, (2) return to main menu. For reference this can be found on [R3] ’32. Shopping Confirmation’ screen.  In addition, the SA Tool prints the customer receipt and a merchant receipt. | |

##### Alternate Flow

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| **Moneris Payment is Unsuccessful and Operator would like to try card payment again** |
| **Modified pre-conditions:**   * Operator has chosen either debit or credit as the mode of payment on the SA Tool * Customer has attempted payment with either a debit or credit card on the PIN pad |
| The Steps from the Main Use Case will be completed as follows:   * + - 1. Step 1-3 as stated in the Main Use Case.       2. The SA Tool notifies the Operator of the unsuccessful payment attempt on the SA Tool and prints a receipt with the corresponding error messages.       3. The operator can select the credit/debit mean of payment again       4. Repeat Steps 1-3 until successful. |
| **Moneris Payment is Unsuccessful and Operator would like to try another payment method** |
| Modified pre-conditions:   * Operator has chosen either debit or credit as the mode of payment on the SA Tool * Customer has attempted payment with either a debit or credit card on the PIN pad |
| The Steps from the Main Use Case will be completed as follows:  1.Step 1-3 as stated in the Main Use Case.  2.The SA Tool notifies the Operator of the unsuccessful payment attempt on the SA Tool and prints a receipt with the corresponding error messages.  3.The operator can select any other available payment method to complete the transaction. Please see all other Means of Payment Flow in Section 7.2 |

##### Exception Flow

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| **Cancel Moneris Transaction** |
| **Modified pre-conditions:**   * Operator has chosen either debit or credit as the mode of payment on the SA Tool * Operator has initiated the transaction on the PIN pad * Operator or Customer would like to cancel the current payment method |
| The Steps from the Main Use Case will be completed as follows:   1. Step 1-3 as stated in the Main Use Case. 2. The customer can cancel operation on the PIN pad to cancel the payment. This will not remove any items from the shopping cart. 3. The SA Tool cancels the Moneris transaction and returns to the main payment screen. 4. Resume main use case from step 1. |
| **Cancel PIN pad Transaction** |
| **Modified pre-conditions:**   * Operator has initiated the transaction on the PIN pad * Customer would like to cancel the current payment method |
| The Steps from the Main Use Case will be completed as follows:   1. Step 1-4 as stated in the Main Use Case. 2. The Operator chooses to cancel the payment. The customer can presses the also cancel option on the PIN pad to cancel the payment. This will not remove any items from the shopping cart.. 3. The SA Tool application provides appropriate message indicating that the customer has cancelled the transaction. 4. The SA Tool application returns to the payment method screen. 5. Resume main use case from step 1.   Note: The operator will not be able to cancel the transaction from the SA Tool application. If the customer is unable to cancel the transaction from the PIN pad, the SA Tool application will automatically time out if no response is received from the PIN pad after a pre-configured time. |
| **SA Tool goes offline before payment response is received** |
| The Steps from the Main Use Case will be completed as follows:   1. Steps 1-4 as stated in the Main Use Case. 2. The SA Tool loses its connection to the Moneris backend and is unable to retrieve the status of the payment. 3. The SA Tool payment request times out. An error message is displayed to the operator informing them that if the payment was processed successfully, an established operational process should be followed to void/refund the transaction.   **Note**: This error will also be displayed when the customer does not successfully complete the payment on the terminal and the request times out, even if the SA Tool is online.   1. The operator confirms and returns to the Payment Method screen. The customer may choose to proceed with a different payment method. |

#### Payment by Warrant

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-101** | | **Payment by Warrant** |
| **Use Case Description**:  This use case describes the customer paying for a transaction via warrant | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has added saleable products to cart and customer is ready for payment * Customer decides to pay by warrant | | |
| **Main Use Case: Payment by Warrant** | | |
| **Step #** | **Step Description** | |
| 1 | Operator proceeds to payment and the customer wants to pay by warrant. The operator selects “warrant” as the payment method. | |
| 2 | The SA Tool populates the full payment amount and the operator has the option to edit if the customer is making a split payment (see Split Payments).   * If the warrant amount is greater than the total, the customer will not receive change. * If the warrant amount is less than the total, the customer must make pay the difference (see: Split Payment). | |
| 3 | The customer presents the payment means and the operator confirms the final sale on the pop up. | |
| 4 | The operator receives the coupon, warrant, or credit voucher | |
| 5 | The operator indicates the transaction is complete.  On the screen, the SA Tool displays the option to (1) print a customer receipt, (2) return to main menu For reference this can be found on [R3] ’32. Shopping Confirmation’ screen. | |

#### Payment by Credit Voucher

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-102** | | **Payment by Credit Voucher** |
| **Use Case Description**:  This use case describes the customer paying for a transaction via credit voucher | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has added saleable products to cart and customer is ready for payment * Customer decides to pay by credit voucher | | |
| **Main Use Case: Payment by Credit Voucher** | | |
| **Step #** | **Step Description** | |
| 1 | Operator proceeds to payment and the customer wants to pay by credit voucher. The operator selects “credit voucher” as the payment method. | |
| 2 | The SA Tool populates the full payment amount and the operator has the option to edit if the customer is making a split payment (see Split Payments).   * If the voucher amount is greater than the total, the customer will not receive change. * If the voucher amount is less than the total, the customer must make pay the difference (see: Split Payment). | |
| 3 | The customer presents the payment means and the operator enters the balance and confirms the final sale on the pop up. | |
| 4 | The operator receives the credit voucher and stores it with them. | |
| 5 | The operator indicates the transaction is complete.  On the screen, the SA Tool displays the option to (1) print a customer receipt, (2) return to main menu. For reference this can be found on [R3] ’32. Shopping Confirmation’ screen. | |

#### Payment by Coupon

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-103** | | **Payment by Coupon** |
| **Use Case Description**:  This use case describes the customer paying for a transaction via a coupon. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has added saleable products to cart and customer is ready for payment * Customer decides to pay by coupon | | |
| **Main Use Case: Payment by Coupon** | | |
| **Step #** | **Step Description** | |
| 1 | Operator proceeds to payment and the customer wants to pay by coupon. The operator selects “coupon” as the payment method. | |
| 2 | The SA Tool populates the full payment amount and the operator has the option to edit if the customer is making a split payment (see Split Payments).   * If the coupon amount is greater than the total, the customer will not receive change. * If the coupon amount is less than the total, the customer must make pay the difference (see: Split Payment). | |
| 3 | The customer presents the payment means and the operator enters the balance and confirms the final sale on the pop up. | |
| 4 | The operator receives the coupon and stores it with them. | |
| 5 | The operator indicates the transaction is complete.  On the screen, the SA Tool displays the option to (1) print a customer receipt, (2) return to main menu). For reference this can be found on [R3] ’32. Shopping Confirmation’ screen. | |

#### Payment by e-Purse

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-104** | | **Payment by e-Purse** |
| **Use Case Description**:  This use case describes the customer paying for a transaction via e-Purse (not available or e-purse Loads) | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Customer is purchasing a product by which e-purse is an eligible form of payment * Operator has added saleable products to cart and customer is ready for payment * Customer decides to pay by e-purse | | |
| **Main Use Case: Payment by e-Purse** | | |
| **Step #** | **Step Description** | |
| 1 | Operator proceeds to payment and the customer wants to pay with their e-purse balance. The operator places the customer’s Farecard on the NFC card reader and selects to pay by e-Purse. The SA Tool automatically detects the Farecard and initiates the identification checks as in the Ticketing Use Cases. Note TICKET cards cannot be used as a mean of payment.  If the Farecard is not already on the reader, the SA Tool application will prompt the operator to place the Farecard on the NFC Reader. | |
| 2 | During the identification process, the SA Tool reads the Farecard information and checks for the Farecard serial number and if the Farecard is on the hotlist. If the card is valid, not on the hotlist, and has at least a minimum balance needed for payment, then the SA Tool populates the full payment amount and the operator has the option to edit if the customer is making a split payment (see Split Payments). | |
| 3 | The SA Tool application checks if the e-Purse balance can cover the payment amount.   * If the e-purse balance is insufficient, a notification informs the operator that the e-Purse balance cannot cover the price. * Operator can select to cancel the transaction or choose another mode of payment, including split payment (with e-Purse and another form of payment).   If the operator has edited the amount to pay the SA Tool also checks if the payment amount is more than the total shopping cart amount.   * Show error message that the total amount to pay exceeded for this payment method. Operator must acknowledge and try again with another payment method. The max amount to be entered is the total shopping cart amount (ie. Cannot charge $40 for $38 basket, as change should not be given back for this payment method). | |
| 4 | The operator confirms the payment. | |
| 5 | The SA Tool deducts the balance from the e-purse and uses it as a payment means for the transaction.   * If not successful, SA Tool prints a receipt with the corresponding error messages; operator can prompt to re-try * If repeatedly not successful, the operator can cancel the transaction or try another mode of payment | |
| 6 | Upon successful transaction, the SA Tool displays the option to (1) print a customer receipt, (2) return to main menu.  For reference this can be found on [R3] ’32. Shopping Confirmation’ screen.  In addition, the SA Tool prints the customer receipt. | |

#### Payment by Cheque

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-105** | | **Payment by Cheque** |
| **Use Case Description**:  This use case describes the customer paying for a transaction via cheque. | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator is signed-in to the SA Tool application in the sales mode * Operator has added saleable products to cart and customer is ready for payment * Customer decides to pay with a cheque. | | |
| **Main Use Case: Payment by Cheque** | | |
| **Step #** | **Step Description** | |
| 1 | Operator proceeds to payment and the customer wants to pay with a cheque. | |
| 2 | The SA Tool populates the full payment amount and the operator has the option to edit if the customer is making a split payment (see Split Payments). | |
| 3 | The customer presents the payment means and the operator enters the balance and confirms the final sale on the pop up. | |
| 4 | The operator receives the cheque and stores it with them. | |
| 5 | The operator indicates the transaction is complete.  On the screen, the SA Tool displays the option to (1) print a customer receipt, (2) return to main menu. For reference this can be found on [R3] ’32. Shopping Confirmation’ screen. | |

#### Split Payment

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-106** | | **Split Payment** |
| **Use Case Description**:  This use case describes the customer paying for a transaction via multiple forms of payment. Note only one of each debit and credit card payment is allowed per transaction. The operator can input multiple Cash CAD, Cash USD, Coupon, Warrants, or Voucher payments, however, this will be processed as one transaction in the backend. For example, if the operator inputs a $20 cash payment, they will be allowed to input more cash payments. If the operator inputs 2 $20 cash payments separately, they will show on the receipt as the total of $40.  Zero dollar transactions must always be paid or refunded in cash (no other payment method available). | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has added saleable products to cart and customer is ready for payment * Customer decides to pay with several forms of payment | | |
| **Main Use Case: Split Payment** | | |
| **Step #** | **Step Description** | |
| 1 | Operator proceeds to payment and the customer wants to pay with several forms of payment.   * Customer wants to pay $X amount on Payment Method A * Customer wants to pay $Total – X amount on Payment Method B | |
| 2 | The SA Tool populates the full payment amount and the operator edits the field to enter the amount for Payment Method A. | |
| 3 | Depending on method of payment, see corresponding flow. Upon successful payment, the SA Tool returns to the payment screen in the previous step.   * If the method of payment was a debit or credit card, the receipt will automatically print. | |
| 4 | Repeat steps 2 and 3 above until the total has been paid.   * If the mean of payment limit has been reached before the total has been paid, the transaction must be reversed, and the customer must agree to distribute charges to the payment means such that the total has been paid. Operationally, the operator should verbally ensure that the customer is only using one of each payment type per transaction and the maximum mean of payment limit is not reached, before proceeding to charge. | |
| 5 | Upon successful transaction, the SA Tool will print the customer receipt. | |

##### Alternative Flow

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| **UC-SA Tool-106.1** | **Operator Selects Credit Voucher, Coupon, Cheque, or Warrant where Payment Amount Selected is Greater than Total Shopping Cart Amount** |
| Modified pre-conditions:   * Operator has chosen a payment amount greater than the total shopping cart amount. * Operator has selected Credit Voucher, Coupon, or Warrant as part of the split payment |
| The Steps from the Main Use Case will be completed as follows:   1. Step 1-5 as stated in the Main Use Case. 2. As part of the Main Use Case Step 5 the ‘Change Due’ option will not be available as there will never be change returned to the Customer for a Credit Voucher, Coupon, Cheque, or a Warrant. |

##### Exception Flow

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| **Exception Flows** | |
| **UC-SA Tool-106.2** | **Operator Selects Debit or Credit where Payment Amount Selected is Greater than Total Shopping Cart Amount** |
| **Modified pre-conditions:**   * Operator has chosen a payment amount greater than the total shopping cart amount. * Operator has selected Debit or Credit as part of the split payment |
| The Steps from the Main Use Case will be completed as follows:   1. Step 1-2 as stated in the Main Use Case. 2. The SA Tool application provides an error notification to the Operator as they cannot select a payment amount greater than the total shopping cart amount.   *NOTE: The Operator will either have to select a different payment mode or change the payment amount to be less than or equal to the shopping cart amount.*   1. Step 3-5 as stated in the Main Use Case. |

#### Split Refunds

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| **Use Case ID** | | **Use Case Name** |
| **UC-SA Tool-107** | | **Split Refunds** |
| **Use Case Description**:  This use case describes the operator performing a refund for a transaction via multiple forms of payment. This Note only one of each debit and credit card payment is allowed per transaction. The operator can input multiple payment means for refund amounts. However, Cash payments will be processed as one transaction in the backend. For example, if the operator inputs a refund amount of $20 in cash, they will be allowed to input more cash payments. If the operator inputs 2 $20 cash refunds separately, they will show on the receipt as the total of $40.  Zero dollar transactions must always be paid or refunded in cash (no other payment method available). | | |
| **Pre-Conditions**: The following pre-conditions hold true for the main Use Case, alternate flows and exception flows unless explicitly stated otherwise.   * Android device has the latest SA Tool application * Android device is charged above the minimum battery threshold * SA Tool application is in “In-Service” state * Operator is signed-in to the SA Tool application in the revenue mode * Operator has initiated a refund * Customer wants several different forms of payment back | | |
| **Main Use Case: Split Refund** | | |
| **Step #** | **Step Description** | |
| 1 | Operator proceeds to payment and the customer wants back several forms of payment.   * Customer wants to be refunded $X amount on Payment Method A * Customer wants to be refunded $Total – X amount on Payment Method B | |
| 2 | The SA Tool populates the full refund amount and the operator edits the field to enter the amount for Payment Method A. | |
| 3 | Depending on method of payment, see corresponding flow. Upon successful refund, the SA Tool returns to the payment screen in the previous step.   * If the method of payment was a debit or credit card, the receipt will automatically print. | |
| 4 | Repeat steps 2 and 3 above until the total has been refunded .   * If the mean of payment limit has been reached before the total has been refunded , the transaction must be reversed. Operationally, the operator should verbally ensure that the customer is only using one of each payment type per transaction and the maximum mean of payment limit is not reached, before proceeding to process the refund. | |
| 5 | Upon successful refund of each mean of payment, the SA Tool will print the customer receipt. | |

##### Exception Flow

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| **Exception Flows** | |
| **UC-SA Tool-107.1** | **Operator Selects Debit or Credit where Payment Amount Selected is Greater than Total Shopping Cart Amount** |
| **Modified pre-conditions:**   * Operator has chosen a payment amount greater than the total shopping cart amount. * Operator has selected Debit or Credit as part of the split payment |
| The Steps from the Main Use Case will be completed as follows:   1. Step 1-2 as stated in the Main Use Case. 2. The SA Tool application provides an error notification to the Operator as they cannot select a payment amount greater than the total shopping cart amount.   *NOTE: The Operator will either have to select a different payment mode or change the payment amount to be less than or equal to the shopping cart amount.*   1. Step 3-5 as stated in the Main Use Case. |

## Common Flows

### Alternate Flows

#### Action, load value, or hotlist

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| **Customer’s Farecard is on the Action, Load Value, or Hotlist** |
| **Modified pre-conditions:**   * Customer’s Farecard is on the Action, Load Value, or Hotlist |
| The steps from the Main Use Case will be completed as follows:   1. Proceed through Main Use Case until the Farecard is placed on the NFC Reader. 2. The SA Tool device detects that the Farecard is on the Action, Load Value, or Hotlist and updates the Farecard accordingly. 3. The SA Tool displays the Farecard Query information. 4. Proceed as in the Main Use Case. |

#### Farecard tapped does not match

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| **Farecard tapped during the write tap does not match the Farecard tapped during the identification tap** |
| **Modified pre-conditions:**   1. Only occurs when the operator does not allow the Farecard to remain on the NFC Reader for the duration of the transaction. 2. Operator has tapped one Farecard and intends to write to it but another Farecard is presented during the write tap. |
| The steps from the Main Use Case will be completed as follows:   1. Proceed through Main Use Case until the second, incorrect Farecard is read. 2. The SA checks if the serial number matches the serial number detected in the identification tap. 3. The SA detects that the Farecard tapped during the write tap does not match the Farecard tapped during the identification tap. 4. The SA displays an error message and prompts the operator to tap the correct card in order to proceed.    1. The operator can also choose to cancel the transaction. |

#### Underpayment handling

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| **Customer’s Farecard is in underpayment** |
| If there is no underpayment applicable for that TA, the Operator will not see this flow.  **Modified pre-conditions:**   1. Customer’s Farecard is in underpayment 2. The TA has not enabled the underpayment fee in the EOD |
| If the customer’s card is in underpayment, the identification tap will detect the underpayment amount. The Steps from the Main Use Case will be completed as follows:   1. = 2. Operator selects “Sell” from the Main menu, then selects a product. If the operator chooses to Add Funds or Transit Pass while the card is in underpayment, the SA Tool will show the Underpayment Full Screen Alert. 3. The operator informs the customer that they are in underpayment. The operator must determine whether the customer has missed a tap off or just tapped on (and would like to add funds while waiting for their vehicle). They can do this in two ways:    1. Ask the customer directly    2. Verify by checking the last tap information on the Farecard 4. If the customer is currently on a trip, the operator selects to uncheck the box associated with underpayment bringing the subtotal to be zero. Operator can proceed through the main flow or exit it. 5. If the customer has a missed tap off and the operator would like to accept the underpayment, the operator leaves the box associated with underpayment checked (default setting) and selects to proceed to the rest of the main flow. The SA Tool will automatically add the underpayment (U) amount to the shopping cart. 6. The operator browses the product the customer desired and adds to the cart:    1. If the customer is loading an e-purse for X amount, the operator informs the customer that X-U will be loaded onto the card. If the customer wants to load the original amount requested, X, on their card, the operator must manually calculate and input X+U into the custom amount field.    2. If the customer is loading a transit pass, the operator informs the customer that they must pay X+U (here X is a transit pass price) in addition to the price of their chosen transit pass. 7. If the customer has a missed tap off and the operator would like to waive the missed tap off amount, the operator should note the underpayment amount U and exit the current flow.    1. The operator informs the customer that due to U amount underpayment, and W amount to be waived, they must load X + U – W to the card. If the customer is loading transit pass products , the operator informs the customer that due to U amount underpayment, they must load the price of the products and an e-purse load of U – W to the card. 8. The SA Tool navigates to the credit voucher issuance screen. The operator enters the amount W they would like to waive and issues the credit voucher for amount W only.    1. The credit voucher prints. Now the operator has a credit voucher for value W and a Farecard with balance - U. The SA Tool returns to the Home screen.   *NOTE:* If operator wishes to waive underpayment amount completely, the W amount populated on credit voucher screen in step 8 should be equal to the U amount noted by operator in step 7.   1. Go to step 2. 2. Proceed through Main Use Case until checkout. 3. On the payment screen, the operator redeems the full amount of the credit voucher for W (see Split Payment, Pay Using Credit Voucher), then proceeds to accept payment as in the main flow. 4. Upon successful payment and transaction:    1. If the customer is loading an e-purse and paid X + U, the amount loaded on the e-purse will be X.    2. If the customer is loading an e-purse and paid X + U – W, the amount loaded on the e-purse will be X – U + W.    3. If the customer is loading transit pass products and chose to waive underpayment, they must pay underpayment amount U (or U – W). The products will be loaded onto the Card and the underpayment will be cleared.    4. The operator keeps the credit voucher slip (if applicable) with them for reconciliation.   *Note: Operator will have an option to address Underpayment without loading extra products onto the card (e-Purse or Transit Pass) by choosing ‘PAY’ option instead of ‘CONTINUE’.* |

#### Underpayment handling with fee

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| **Customer’s Farecard is in underpayment & TA is charging a fee for underpayment** |
| If there is no underpayment applicable for that TA, the Operator will not see this flow.  **Modified pre-conditions:**   1. Customer’s Farecard is in underpayment 2. The TA has configured an underpayment fee in the EOD which will charge the customer a fee on top of the underpayment amount when they are in underpayment. |
| If the customer’s card is in underpayment, the identification tap will detect the underpayment amount. The Steps from the Main Use Case will be completed as follows:   1. Steps 1-3 in Underpayment Handling Alternate Flow. 2. The operator can choose to waive the fee for the underpayment. If the operator decides to waive the fee, they select the “waive fee” option, then proceed through the main flow as normal. 3. If the operator does not decide to waive the fee, an “underpayment fee” line item is also added to the shopping cart. 4. With an underpayment fee, the customer must load more than an e-Purse amount of X plus the underpayment amount of U plus the fee of F. 5. Steps 4-11 in the Underpayment Handling Alternate Flow. 6. Upon successful payment and transaction:    1. If the customer is loading an e-purse and paid X + U + F, the amount loaded on the e-purse will be X.    2. If the customer is loading an e-purse and paid X + U – W, the amount loaded on the e-purse will be X – U + W.    3. If the customer is loading products that do not include e-purse, they must pay underpayment amount U + F (or U – W + F). The products will be loaded onto the Card and the underpayment will be cleared.    4. The operator keeps the credit voucher slip (if applicable) with them for reconciliation.   *Note: Operator will have an option to address Underpayment with Fee without loading extra products onto the card (e-Purse or Transit Pass) by choosing ‘PAY’ option instead of ‘CONTINUE’.* |

#### Overdraft handling

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| **Customer’s Farecard is in overdraft** |
| Note: When a Farecard is in negative balance and the operator performs a load, the SA Tool will perform 2 loads – one to bring the Farecard balance to 0, and a second to load the rest, so if the operator needs to reverse, they don’t have to reverse to a negative balance.  If there is no overdraft applicable for that TA, the Operator will not see this flow.  **Modified pre-conditions:**   1. Customer’s Farecard is in overdraft 2. The TA has not enabled the overdraft fee in the EOD |
| If the customer’s card is in overdraft, the identification tap will detect the overdraft amount. The Steps from the Main Use Case will be completed as follows:   1. The SA Tool application will indicate that the card is in overdraft and display the corresponding negative balance in the card query. 2. Operator selects “Sell” from the Main menu, then selects a product. If the operator chooses to sell a Farecard product while the card is in overdraft, the SA Tool will show the Overdraft Full Screen Alert. 3. The operator informs the customer that they are in overdraft. 4. If the customer did not intend to load products (eg. only querying card), the operator can “dismiss” the overdraft notice.    1. If overdraft notice is “dismissed”, the SA Tool will return to the Sell screen.    2. When selling non-card products, customer cannot pay with e-purse. 5. If the customer is loading products, the operator selects “continue”. Upon “continue”, the SA Tool will automatically add the overdraft (O) amount to the shopping cart is an e-purse load. 6. The operator browses the product the customer desired and adds to the cart:    1. If the customer is loading an e-purse for X amount, the operator informs the customer that due to O amount overdraft, a dollar value of X minus O will be loaded onto the card. If the customer wants to pay amount X+O, the operator inputs their desired X amount e-purse load plus the O amount overdraft as a total on the e-Purse load screen.    2. If the customer is loading products that do not include e-purse, the operator informs the customer that they must pay the overdraft in addition to the price of their purchased products. 7. Proceed through Main Use Case until checkout. 8. Upon successful payment and transaction:    1. If the customer is loading an e-purse and paid X+O, the amount loaded on the e-purse will be X.    2. If the customer is loading an e-purse and paid X, the amount loaded on the e-purse will be X-O.    3. If the customer is loading products that do not include e-purse, they must pay overdraft amount O. The products will be loaded onto the Card and the overdraft of O amount will be cleared.   *Note: Operator will have an option to address Overdraft without loading extra products onto the card (e-Purse or Transit Pass) by choosing ‘PAY’ option instead of ‘CONTINUE’. The customer will still be able to travel as long as Overdraft is cleared even without any e-purse load.* |

#### Overdraft handling with fee

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| **Customer’s Farecard is in overdraft & TA is charging a fee for overdraft** |
| Note: When a Farecard is in negative balance and the operator performs a load, the SA Tool will perform 2 loads – one to bring the Farecard balance to 0, and a second to load the rest, so if the operator needs to reverse, they don’t have to reverse to a negative balance.  If there is no overdraft applicable for that TA, the Operator will not see this flow.  **Modified pre-conditions:**   1. Customer’s Farecard is in overdraft 2. The TA has configured an overdraft fee in the EOD which will charge the customer a fee on top of the overdraft amount when they are in overdraft. |
| If the customer’s card is in overdraft, the identification tap will detect the overdraft amount. The Steps from the Main Use Case will be completed as follows:   1. Steps 1-3 in Overdraft Handling Alternate Flow. 2. The operator can choose to waive the fee for the overdraft. If the operator decides to waive the fee, they select the “waive fee” option, then proceed through the main flow as normal. 3. If the operator does not decide to waive the fee, an “overdraft fee” line item is also added to the shopping cart. 4. With an overdraft fee, the customer must load more than an e-Purse amount of X plus the overdraft amount of O plus the fee of F. 5. Steps 4-6 in the Overdraft Handling Alternate Flow. 6. Upon successful payment and transaction:    1. If the customer is loading an e-purse and paid X+O+F, the amount loaded on the e-purse will be X.    2. If the customer is loading an e-purse and paid X, the amount loaded on the e-purse will be X-O-F.    3. If the customer is loading products that do not include e-purse, they must pay overdraft amount O+F. The products will be loaded onto the Card and the overdraft of O amount will be cleared.   *Note: Operator will have an option to address Overdraft with Fee without loading extra products onto the card (e-Purse or Transit Pass) by choosing ‘PAY’ option instead of ‘CONTINUE’.* |

#### Customer is in underpayment and overdraft

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| **Customer is in underpayment and overdraft** |
| **Modified pre-conditions:**   1. Customer is in underpayment and overdraft at the same time |
| Note: When a Farecard is in negative balance and the operator performs a load, the SA Tool will perform 2 loads – one to bring the Farecard balance to 0, and a second to load the rest, so if the operator needs to reverse, they don’t have to reverse to a negative balance.  If there is no underpayment or overdraft applicable for that TA, the Operator will not see this flow. |
| If the customer’s card is in overdraft and underpayment at once, the identification tap will detect the amounts. The Steps from the Main Use Case will be completed as follows:   1. The SA Tool application will indicate that the card is in overdraft and underpayment and display the corresponding negative balances in the card query. 2. Operator selects “Sell” from the Main menu, then selects a product. If the operator chooses to sell a Farecard product while the card is in overdraft, the SA Tool will show the Overdraft And Underpayment Full Screen Alert. 3. The operator informs the customer that they are in overdraft and underpayment at once. 4. If the customer did not intend to load products (eg. only querying card), the operator can “dismiss” the overdraft notice.    1. If overdraft notice is “dismissed”, the SA Tool will return to the home screen.    2. When selling non-card products, customer cannot pay with e-purse. 5. If the customer is loading products, the operator selects “continue”. Upon “continue”, the SA Tool will automatically add the underpayment (U) and overdraft (O) amounts to the shopping cart is an e-purse load, plus any applicable fees (F). 6. The operator browses the product the customer desired and adds to the cart:    1. If the customer is loading an e-purse for X amount, the operator informs the customer that X-U-O (and fees if applicable) will be loaded onto the card. If the customer wants to load the original amount requested, X, on their card, the operator must manually calculate and input X+U+O (and fees if applicable) into the custom amount field.    2. If the customer is loading products that do not include e-purse, the operator informs the customer that they must pay X+U+O (and fees if applicable) in addition to the price of their purchased products. 7. Proceed through Main Use Case until checkout. 8. Upon successful payment and transaction:    1. If the customer is loading an e-purse and paid X+O+U (and fees if applicable), the amount loaded on the e-purse will be X.    2. If the customer is loading an e-purse and paid X, the amount loaded on the e-purse will be X-O-U (and fees if applicable).    3. If the customer is loading products that do not include e-purse, they must pay O+U (and fees if applicable).    4. The products will be loaded onto the Card and the underpayment and overdraft amounts will be cleared.   *Note: Operator will have an option to address Underpayment and Overdraft without loading extra products onto the card (e-Purse or Transit Pass) by choosing ‘PAY’ option instead of ‘CONTINUE’.* |

#### Required fields not filled out or not valid

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| **Operator proceeds before all required fields are filled out** |
| **Modified pre-conditions:**   1. Operator is adding a product to the shopping cart for which fields must be filled out 2. Operator attempts to proceed to payment without entering required information OR 3. Information is entered but does not meet validation rules |
| Steps from the Main Use Case will be completed as follows:   1. Proceed through Main Use Case. 2. Operator attempts to proceed to the next screen or proceed to payment without entering required information. 3. SA Tool checks whether all the required fields have valid information. 4. If not, the SA Tool application will display screen validation rules to prompt the operator to input the correct information 5. The operator enters all the required information and takes all required actions. 6. Proceed as in the main flow. |

#### Purchase multiple items

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| **Purchase multiple items** |
| **Modified pre-conditions:** N/A |
| This alternate flow occurs if the customer indicates that they would like to conduct other purchases in the same transaction. Note only one Farecard may be used per transaction. The Steps from the Main Use Case will be completed as follows:   1. Proceed through Main Use Case until product is added to cart. 2. The operator returns to the SA Tool application Sales screen and selects the additional product(s) the customer would like to purchase. 3. The SA Tool application adds the additional products to the shopping cart. 4. Continue through Main Use Case as normal.   **Note**: VC and non-farecard products are not eligible to be added to the same shopping cart. If attempting to do so, an operator will be presented with the “Item cannot be added to the cart” error message, and they must perform the transaction over two checkouts. |

#### Refund multiple items

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| **Customer requests to refund multiple products where refund criteria have been met** |
| **Modified pre-conditions:**   1. Customer has purchased multiple products 2. Customer’s purchased products are eligible for refund based on the criteria defined in the Ticketing Use Cases [**R6**]. |
| Note, refunds and reversals must happen individually at a product level. If the customer wants a refund of two different types of product, the operator must perform 1 transaction per product. Note that Paper Tickets of varying Fare Types can be refunded in one transaction.  If a customer requests to refund multiple transactions and the refund criteria are met respectively as in the Ticketing Use Cases [**R6**], the Steps from the Main Use Case will be completed as follows:   1. Proceed through Main Use Case. 2. The operator must complete one transaction before starting the next. 3. The operator confirms the reversal and a transaction successful screen is displayed. 4. If it is a Farecard product refund and the Farecard had been placed in the NFC reader in step #1, the SA Tool will detect and scan the card automatically. The SA Tool will update the Farecard balance, remove the products and update the transaction history as applicable. 5. Repeat steps 1-4 until all refunds have been completed. |

#### Period pass cross selling is enabled

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| **Period pass cross selling is enabled** |
| **Modified pre-conditions:**   1. TA has enabled the period pass cross selling function in their EOD. This provides the TA to sell the period passes of other TAs and also view the period passes of other TAs. This affects two main flows: Card Query and Load Period Pass. |
| By default, this document assumes that TAs cannot sell each others’ period passes or view the period passes belonging to other TAs, which is the current state.  However, if TAs have MOUs in place to cross-sell each others’ period passes and has enabled the period pass cross selling function in their EOD, they will be able to sell the period passes of other TAs and also view the period passes of other TAs only for which there is a business agreement.  Changes to viewing or changing concession:   1. For universal concessions, show name 2. If SP specific, show [SP Name] [Concession Name] 3. If SP specific is chosen as a concession, set universal concession as Adult   Change to Card Query Flow:   1. Proceed through Card Query Flow until Farecard is read. 2. Card Query will show the period passes of other TAs in addition to their own (if mutual agreement to sell has been implemented) 3. Resume the Card Query Flow.   Change to Load Period Pass Flow:   1. Proceed through Load Period Pass Flow until the Operator browses products. 2. When browsing Period Passes, SA Tool will display the current TAs period passes as well as the period passes of other TAs in (if mutual agreement to sell has been implemented). The Operator has the option to sell that Period Pass. 3. Resume the Load Period Pass Flow.   Change to New Farecard Flow:   1. Proceed through New Farecard Flow until the Operator browses products. 2. When browsing Period Passes, SA Tool will display the current TAs period passes as well as the period passes of other TAs in (if mutual agreement to sell has been implemented). The Operator has the option to sell that Period Pass. 3. Resume the New Farecard Flow.   Change to Refund Period Pass Flow:   1. Proceed through Refund Period Pass Flow until the Operator browses products eligible for refund. 2. SA Tool will display the current TAs period passes as well as the period passes of other TAs in (if mutual agreement to sell has been implemented). The Operator has the option to refund that Period Pass. 3. Resume the Refund Period Pass Flow. |

#### Refund Maximum Amount Reached

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| **Amount to be refunded to a customer exceeds the maximum refund amount** |
| **Modified pre-conditions:**   1. The Operator tries to perform a refund which has a value greater than the maximum refund amount |
| 1. The operator submits the amount to be refunded, including the refund fee if applicable and if not waived. 2. The SA Tool application checks to see if the amount input by the operator is greater than the maximum refund amount. 3. If yes, the SA Tool application prompts the operator with an error. The SA Tool application does not proceed to the payment screen. The SA Tool application displays the previous page and allows the operator to edit the refund amount 4. Once edited, the Operator submits. Complete steps 1-3 until successful |

#### ECP is enabled and users Artemis device is locked or asleep

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| Customer’s Artemis device has ECP enabled and the device is locked or asleep |
| **Modified pre-conditions:**   * Customer’s device is locked or asleep * ECP is enable for the users Virtual Card |
| 1. Proceed as in the Main Use Case. |

#### ECP is enabled and users Artemis device is unlocked or awake

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| Customer’s Artemis device has ECP enabled and the device is unlocked or awake |
| **Modified pre-conditions:**   * Customer’s device is unlocked or awake * ECP is enable for the users Virtual Card |
| 1. Proceed as in the Main Use Case. |

#### Customer’s Artemis device is in Power Reserve mode and ECP is enabled

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| Customer’s Artemis device is in Power Reserve mode |
| **Modified pre-conditions:**   * Customer’s device is in Power Reserve mode * ECP is enable on the Artemis device for the users Virtual Card |
| 1. Proceed as in the Main Use Case. |

#### Using an Artemis wearable device

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| Customer is using Virtual Card on their Artemis wearable device |
| **Modified pre-conditions:**   * Virtual Card media is setup on the users artemis wearable device * ECP is enabled or user has provided authentication |
| 1. Proceed as in the Main Use Case. |

#### ECP is disabled and users Artemis device is unlocked or awake

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| ECP is disabled and Customer’s Artemis device is unlocked or awake |
| **Modified pre-conditions:**   * The user’s device is unlocked or awake * ECP is disabled for the users Virtual Card |
| 1. Proceed as in the Main Use Case. |

### Exception Flows

#### Failure to read Farecard

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| **Failure to read customer’s Farecard** |
| **Modified pre-conditions:**   1. SA Tool application detects the Farecard and fails to read it correctly 2. Customer’s Farecard may be on a remote list (torn transaction generation) |
| The steps from the Main Use Case will be completed as follows:   1. Proceed through Main Use Case until the Farecard is read. 2. A message notifying Card read error will be displayed and “declined” audio tone is played 3. SA Tool will prompt the customer to tap their Farecard again 4. If successful, resume the Main Use Case.    1. If unsuccessful, the operator may choose to exit the scenario    2. The operator can also choose to look up the Farecard number using the SP Remote Web – Farecard Lookup |

#### Expired Farecard

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| **Customer’s Farecard is expired** |
| **Modified pre-conditions:**   1. Card expiry is “yes” in the EOD |
| The steps from the Main Use Case will be completed as follows:   1. Proceed through Main Use Case until the Farecard is read. 2. The SA Tool application detects that the Farecard is expired. 3. The SA Tool application will display the Farecard query screen (see: Card Query) indicating that the Farecard has expired.    1. Operator can only print the card query    2. Operator will not be able to take any further actions on the Farecard 4. The Operator clears the Farecard information and returns to the SA Tool application home screen. |

#### Blocked/Hotlisted Farecard

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| **Customer’s Farecard is blocked** |
| **Modified pre-conditions:**   1. Customer’s Farecard is blocked |
| The steps from the Main Use Case will be completed as follows:   1. Proceed through Main Use Case until the Farecard is read. 2. The SA Tool application detects that the Farecard is blocked. 3. The SA Tool application will display the Farecard query screen (see: Card Query) indicating that the Farecard has been blocked.    1. Operator can only print the card query    2. Operator will not be able to take any further actions on the Farecard 4. Based on their discretion, the operator can either choose to begin the Use Case: Unblock a Blocked Farecard or inform the customer to contact CLIENT Customer Service. 5. If the operator opts not to unblock at that moment, they may exit and return to the SA Tool application home screen. |

#### Cancel a purchase transaction

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| **Customer’s purchase transaction is cancelled** |
| **Modified pre-conditions:**   1. Operator is in the middle of a purchase transaction |
| This exception flow occurs if the operator would like to cancel the transaction at any point in the Main Use Case.  ***Note:*** *for all canceled purchase transactions that involve Farecard products the card will be written to upon successfully returning payment (if applicable)*  Scenario 1: If an action has been taken or a form has been filled on any screen besides Home screen and then operator would like to return to the Home screen (canceling the current flow), then operator has to select Back button, Clear button in the shopping cart (if applicable) or Home button (Client logo in the top left) and confirm this action on a confirmation pop up. Please note, SA Tool will provide different confirmation pop us for when (1) there are no purchase items in the shopping cart, (2) there are purchase items in the shopping cart, and (3) there are refund items in the shopping cart.  Scenario 2: If payment has not begun:   1. Operator can choose to cancel the transaction at any time and return to the SA Tool application home screen. 2. The SA Tool will ask the operator if they are certain they want to cancel the transaction    * If the operator selects yes, the transaction will be cancelled and the SA Tool will return to the main screen. The SA Tool application will not record the cancellation and the reason behind the cancellation.    * If the operator selects no, proceed through the Main Use Case as usual.   Scenario 3: If the operator has selected debit or credit as a mean of payment:   1. The customer choses to cancel transaction on the PIN pad, however, the transaction has already been authorized and cannot be cancelled. 2. The customer choses to cancel transaction on the PIN pad, and the transaction has not been authorized yet, an error pop-up will occur, and the SA Tool will return to the means of payment screen.   Scenario 4a: If split payment has already begun and the customer has paid with at least 1 mean of payment and that mean of payment is credit or debit and PIN pad is integrated:   1. The operator selects to cancel the transaction. 2. The SA Tool informs the operator that in order to cancel the transaction, the payment means must be reversed, and prompts the operator to confirm that they want to cancel the transaction. 3. The operator confirms the cancellation of the transaction. 4. The SA Tool reverses non-credit and/or non-debit means of payment automatically. 5. The operator has to choose payment method and verbally prompt the customer to interact with the PIN pad in order to place the funds on their card.    * Upon successful Moneris processing, the funds are returned to the customer in full. A customer receipt with Moneris information always prints and the operator is returned to the SA Tool home screen.    * If unsuccessful Moneris processing, the operator will have an option to refund a customer with cash. A customer receipt with Moneris information always prints (ie. This would be the original successful credit/debit payment) with the addition of the cash that was returned in order to successfully cancel the transaction. The operator is returned to the SA Tool home screen.   Scenario 4b: If split payment has already begun and the customer has paid with at least 1 mean of payment and that mean of payment is credit or debit and PIN pad is not integrated:   1. The operator selects to cancel the transaction. 2. The SA Tool informs the operator that in order to cancel the transaction, the payment means must be reversed, and prompts the operator to confirm that they want to cancel the transaction. 3. The operator confirms the cancellation of the transaction. 4. The SA Tool reverses non-credit and/or non-debit means of payment automatically. 5. The customer advises the operator which credit/debit type they would like their funds reversed to. 6. Operator inputs the amount into the PIN pad and passes it the customer to interact with the PIN pad in order to place the funds on their card.   Upon successful Moneris processing, the operator will select the credit/debit payment type on the SA Tool application to complete the cancellation of the transaction. The operator is returned to the Home screen. Scenario 5: If split payment has already begun and the customer has paid with at least 1 mean of payment and none of them are credit or debit:   1. The operator selects to cancel the transaction. 2. The SA Tool informs the operator that in order to cancel the transaction, the payment means must be reversed, and prompts the operator to confirm that they want to cancel the transaction. 3. The operator confirms the cancellation of the transaction. 4. the SA Tool will reverse all the payment means automatically and the operator returns the funds to the customer.    * The SA Tool returns to the home screen. |

#### Cancel a refund/reversal transaction

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| **Customer’s refund/reversal transaction is cancelled** |
| **Modified pre-conditions:**   1. Operator is in the middle of a refund transaction |
| This exception flow occurs if the operator would like to cancel the transaction at any point in the Main Use Case.  **Note:** For all canceled refund/reversal transactions that involve Farecard products the card will be written to upon successfully returning payment (if applicable).  Scenario 1: If an action has been taken or a form has been filled on any screen besides Home screen and then operator would like to return to the Home screen (canceling the current flow), then operator has to select Back button, Clear button in the shopping cart (if applicable) or Home button (Client logo in the top left) and confirm this action on a confirmation pop up.  Scenario 2: If payment refund/reversal has not begun:   1. Operator can choose to cancel the transaction at any time and return to the SA Tool application home screen. 2. The SA Tool will ask the operator if they are certain they want to cancel the transaction    1. If the operator selects yes, the transaction will be cancelled and the SA Tool will return to the main screen. The SA Tool application will not record the cancellation and the reason behind the cancellation.    2. If the operator selects no, proceed through the Main Use Case as usual.   Scenario 3: If the operator has selected debit or credit as a mean of payment for the refund/reversal:   1. The customer choses to cancel transaction on the PIN pad, however, the transaction has already been authorized and cannot be cancelled. 2. The customer choses to cancel transaction on the PIN pad, and the transaction has not been authorized yet, an error pop-up will occur, and the SA Tool will return to the means of payment screen.   Scenario 4: If split payment for the refund/reversal has already begun and the customer has been refunded with at least 1 mean of payment and that mean of payment is credit or debit:   1. The operator selects to cancel the transaction. 2. The SA Tool informs the operator that in order to cancel the transaction, the payment means must be reversed, and prompts the operator to confirm that they want to cancel the transaction. 3. The operator confirms the cancellation of the transaction. 4. The SA Tool reverses non-credit and/or non-debit means of payment automatically. 5. the operator has to choose mean of payment and verbally prompt the customer to interact with the PIN pad in order to perform a refund void    1. Upon successful Moneris processing, the customer has repaid for the refund amount. A customer receipt with Moneris information always prints and the operator is returned to the SA Tool home screen.    2. If unsuccessful Moneris processing, the operator will have an option to prompt a customer to return fully refunded payment back with cash in order to successfully cancel the transaction. A customer receipt with Moneris information always prints (ie. This would be the original successful credit/debit payment) The operator is returned to the SA Tool home screen. If customer is not able to return refunded funds in cash, then Use Case terminates.   Scenario 5: If split payment has already begun and the customer has been refunded with at least 1 mean of payment and none of them are credit or debit:   1. The operator selects to cancel the transaction. 2. The SA Tool informs the operator that in order to cancel the transaction, the payment means must be reversed, and prompts the operator to confirm that they want to cancel the transaction. 3. The operator confirms the cancellation of the transaction. 4. the SA Tool will reverse the payment means automatically and prompt the operator to begin a refund void. 5. A customer and merchant receipt print. The SA Tool returns to the home screen. |

#### Quantity added to cart exceeds allowable maximum

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| **Quantity of product added to cart exceeds product maximum** |
| **Modified pre-conditions:**   1. Operator has already added the maximum allowable amount of products to the shopping cart. The maximum allowable amount is calculated based on the total quantity of products rather than line item. The maximum allowable amount is configured in the EOD. |
| This exception flow occurs if the customer requests to purchase more than the maximum allowable quantity transaction.   1. The operator informs the customer that they must process their request in multiple transactions. 2. Proceed through the Main Use Case until operator tries to add more than the allowable amount of one product to the shopping cart. 3. The SA Tool will not allow the operator to add more than the maximum allowable quantity to the shopping cart. 4. The operator must process the customer’s request in multiple transactions as per the Main Use Case. |

#### No eligible products for refund or reversal

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| **No eligible products for refund or reversal** |
| **Modified pre-conditions:**   1. Any of the refund or reversal eligibility criteria specified in the Ticketing Use Cases [R5] is not met |
| If any of the reversal or refund eligibility criteria specified in the Ticketing Use Cases [R5] are not met, the Steps from the Main Use Case will be completed as follows:   1. Steps 1-3 in the main use case 2. No eligible products for refund or reversal are detected. 3. The SA Tool displays the relevant error message and the operator must acknowledge the message. 4. The SA Tool returns to the main menu. |

#### Products are eligible for refund or reversal, but are not what the customer requested

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| **Products are eligible for refund or reversal, but are not what the customer requested** |
| **Modified Pre-Conditions**: N/A |
| This exception flow occurs if there are products available for refund or reversal other than the product request by the customer. The following steps will occur:   1. Steps 1-3 in the main use case 2. All products eligible are displayed. However the SA Tool Operator cannot find the product the customer requested for reversal/refund. 3. The Operator informs the customer their product is not eligible for reversal or refund. 4. The Operator returns to the main menu. |

#### Failure to connect to internet

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| **Failure to connect to internet** |
| **Modified pre-conditions:**   1. User is performing a flow which requires internet connection (eg. Change password, accessing SP Remote) |
| If there is no internet connection and the SA Tool Operator is performing an action that requires connection to the Internet, the Steps from the Main Use Case will be completed as follows:   1. Proceed through the main use case. Internet connection is lost. 2. SA Tool will time out and display the relevant error message (handled natively by Android) with options to try again or cancel (also handled natively). 3. If successful connection is restored, resume the main use case. If the action is cancelled, return to the previous screen. |

#### PIN pad transmits DECLINED message from Moneris

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| **PIN pad transmits DECLINED message from** **Moneris** |
| **Modified pre-conditions:**  The operator is performing one of the following transactions:   1. Payment with a credit card 2. Payment with a debit card |
| If the SA Tool Operator is performing a credit or debit transaction and communication with Moneris fails, the Steps from the Main Use Case will be completed as follows:   1. SA Tool will attempt to reach Moneris. 2. After an unsuccessful attempt, the SA Tool will display the relevant error message and return to the payment means screen. For more details refer to section 7.3.10 Payment by Credit/Debit Card. 3. The receipt printer will print a failure of payment means.   **Note:**If Moneris transaction was unsuccessful during a refund, the option to refund all in cash will be available. |

#### Failure to load Farecard after payment has been processed

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| **Failure to load Farecard after payment has been processed** |
| **Modified pre-conditions:**   1. The operator is performing a Farecard transaction. The payment has been processed and successful, but the write to the card is not successful. |
| Steps from the Main Use Case will be completed as follows:   1. SA Tool will attempt to reach Moneris. 2. After an unsuccessful attempt, the SA Tool will display the relevant error message and the operator can choose:    1. Try again    2. Cancel and refund the payment (begin exception flow: Cancel transaction) |

#### Failure to connect to receipt printer

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| **Failure to connect to receipt printer** |
| **Modified pre-conditions:**  The operator is performing one of the following transactions:   * Any transactions which change the e-Purse * A refund * A reversal * Non-transit Product Sales |
| If the SA Tool Operator is performing a transaction which requires printing, and connection with the receipt printer fails, the Steps from the Main Use Case will be completed as follows:   1. Operator attempts to begin a user flow which requires the use of the receipt printer. 2. Before beginning the flow, the SA Tool checks the connection status to the receipt printer. 3. If there is no connection to the receipt printer, the SA Tool displays the relevant error message and the operator can choose to proceed with the flow without printing capabilities, or exit the flow. 4. If “No” is chosen, the SA Tool will return to the previous screen. If “Yes” is chosen, the SA Tool proceeds through the main use case without the ability to print.   **Note**: The application fetches the status of the printer at a regular rate throughout the experience (frequency of 15 minutes). In case printer is disconnected after successful transaction completion and a product has to be printed (Paper Tickets/Upgrades, Voucher, Service Guarantee), the operational procedures should apply to ensure that the sold product is delivered to the customer or refunded. |

#### Failure to connect to Pin Pad

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| **Failure to connect to Pin Pad** |
| **Modified pre-conditions:**  The operator is performing any transaction that requires the use of Pin Pad to receive payment from the customer such as   * Any transactions for which the payment will be made via Debit or Credit * A refund for which the payment will be refunded back to the customer’s debit or credit card |
| If the SA Tool Operator is performing a transaction which requires use of Pin Pad, and connection with the Pin Pad fails, the Steps from the Main Use Case will be completed as follows:   1. Operator attempts to begin a user flow which requires the use of the receipt printer. 2. Before beginning the flow, the SA Tool checks the connection status to the Pin Pad. 3. If there is no connection to the Pin Pad, the SA Tool displays the relevant error message and the operator can choose to wait for the Pin Pad to connect in the background or exit the flow. 4. If the connection to the Pin Pad is not automatically established, the operator can manually attempt to connect an available Pin Pad   **Note**: The application fetches the status of the pin pad at a regular rate throughout the payment or refund flow where pin pad is required. |

#### Farecard Tapped is the incorrect Farecard Type

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| **Farecard Tapped is the incorrect Farecard Type** |
| **Modified pre-conditions:**   1. Farecard tapped is the incorrect Farecard type for the Mode   **Note**: Revenue Farecards will only be accepted in Revenue Mode. Non-Revenue Farecards will only be accepted in Training Mode. For more details on this please see [**R6**] Ticketing Use Cases |
| The steps from the Main Use Case will be completed as follows:   1. Proceed through Main Use Case until the Farecard is read 2. The NFC reader detects the Farecard and during the identification process, the SA Tool reads the Farecard information and checks the Farecard Type 3. The SA Tool application identifies the Farecard Type to be incorrect for the mode the operator is currently operating in 4. The SA Tool application notifies the operator of the incorrect Farecard Type. 5. The use case terminates. |

#### Non-Farecard tapped to the reader

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| **Non-Farecard tapped to the reader** |
| **Modified pre-conditions:**   1. Card tapped to reader is a Non-Farecard . |
| The steps from the Main Use Case will be completed as follows:   1. Proceed through Main Use Case until the Farecard is attempted to be read 2. The SA Tool application identifies the card to be a non-Farecard and displays an error pop up message. |

#### Failure to read Virtual Card

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| **Failure to read customer’s Virtual Card** |
| **Modified pre-conditions:**   1. SA Tool application detects the Virtual Card and fails to read it correctly |
| The steps from the Main Use Case will be completed as follows:   1. Proceed through Main Use Case until the Virtual Card is read. 2. The NFC reader detects the Virtual Card but is unable to read it. SA Tool application will indicate to the operator that the Virtual Card read has failed. 3. Operator will close the error prompt and tap the card to try again. 4. If the read is successful, resume the Main Use Case. If the tap is unsuccessful, step 2 – 3 in this alternate flow will repeat until the SA Tool is able to read the card.    1. If the Farecard cannot be detected or read, the operator may choose to exit the scenario. |

#### Non-Virtual Card tapped to the reader

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| **Non-Virtual Card tapped to the reader** |
| **Modified pre-conditions:**   1. Card tapped to reader is a Non-Virtual Card. |
| The steps from the Main Use Case will be completed as follows:   1. Proceed through Main Use Case until the Virtual Card is attempted to be read 2. The SA Tool application identifies the card to be a non-Virtual Card and displays an error pop up message. |

#### 7.1.2.17 Blocked/Hotlisted Farecard – Virtual Card

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| **Customer’s Farecard is blocked – Virtual Card** |
| **Modified pre-conditions:**   1. Customer’s Farecard is blocked |
| The steps from the Main Use Case will be completed as follows:   1. Proceed through Main Use Case until the Virtual Card is read. 2. The SA Tool application detects that the Farecard is blocked. 3. The SA Tool application will display the Farecard query screen (see: Card Query) indicating that the Farecard has been blocked.    1. Operator will not be able to take any further actions on the Farecard 4. The operator exits and returns to the SA Tool application home screen. |

#### 7.1.2.18 Virtual Card – Ineligible Products

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| **SA Tool shopping cart has ineligible products** |
| **Modified pre-conditions:**   1. Operator is in the middle of loading products 2. Products that were added to the card are now ineligible for purchase 3. Products may become ineligible prior to checkout, after checkout, and during payment |
| This exception flow occurs if, while loading funds and/or a transit pass, the product that the operator is loading is no longer eligible to be sold after being added to cart.  Scenario 1: the product(s) become ineligible before a payment has been made:   1. Operator attempts to proceed through the Shopping flow with an ineligible product 2. Device displays an error confirming that one or more of the products are not available for sale. 3. Operator removes the ineligible products from cart and reattempts the shopping flow   Scenario 2: the product(s) become ineligible after a payment has been made:   1. Device informs the Operator that a customer has just purchased an ineligible product. 2. The transaction is reversed by ATS and the customer’s payment method is refunded |

#### ATS failure to load products

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| **ATS failed to load** |
| **Modified pre-conditions:**   1. Operator has completed the SA Tool shopping flow 2. ATS is unable to load products to the customer’s account |
| This exception flow occurs when after proceeding through checkout, ATS is not able to load products onto a customer’s account.   1. SA Tool informs operator that the products purchased were not added to the user’s account 2. The Operator may attempt the checkout again or provide the customer a refund if the customer paid with cash. |

#### SVC / VC Shopping Cart

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| **Shopping Cart must only include Virtual Card or Stored Value Card Products** |
| **Modified pre-conditions:**   1. The device must have either SVC or VC products in the shopping cart 2. The device cannot have both SVC and VC products in the shopping cart at the same time |
| This exception flow occurs at the start once a media is tapped.   1. Customer taps their media (VC or SVC) on the reader 2. If the cart has ineligible products, the Operator receives an error providing them the option to clear the cart.    1. If the customer tapped a VC, clearing cart will remove SVC products    2. If the customer tapped an SVC, clearing cart will remove VC products |

#### ECP is disabled and Customer’s Artemis device is locked or asleep

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| Customer’s Artemis device has ECP is disabled and the device is locked or asleep |
| **Modified pre-conditions:**   * The user’s device is locked or asleep * ECP is disabled for the users Virtual Card |
| The steps from the Main Use Case will be completed as follows:   1. Proceed through Main Use Case until the user presents their device to the reader. 2. Virtual card media is not detected and the screen remains the same. Artemis device prompts user to provide authentication. 3. Customer provides authentication for their Virtual Card media on their Artemis device. 4. Proceed from Step 1 as stated in the Main Use Case. |

#### Customer’s Artemis device is in Power Reserve mode and ECP is disabled

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| Customer’s Artemis device is in Power Reserve mode and ECP is disabled |
| * **Modified Pre-Condition:**    + The user’s mobile device is in Power Reserve mode * ECP is disabled on the mobile device for the users Virtual Card |
| The steps from the Main Use Case will be completed as follows:   1. Proceed through Main Use Case until the user presents their device to the reader. 2. Virtual card media is not detected and the screen remains the same. Artemis device prompts user to charge their device. |