November 22, 2021

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To: Levi Rinkoff, Paul Hays - TIBA Parking Systems

Subject: Theory of Operation and Estimate – SP+ CARS to TIBA SmartPark Import Program

The purpose of this document is to define a theory of operations (TOO) for an integration between SP+ CARS and TIBA SmartPark. SP+ CARS is a billing and invoicing system utilized at SP+ managed properties.

TIBA desires to create an interface whereby the properties utilizing SP+ CARS can utilize their credentials to access the TIBA SmartPark PARCS system. SP+ CARS will be the “master” in maintaining the users and credentials.

SP+ CARS has an API that can be utilize to retrieve user information for adding or updating users in SmartPark. The interface will be defined such that it can be scheduled to periodically look for new or updated users in SP+ CARS to add or update monthly parkers in SmartPark.

Theory of Operation

**Setup Items** – Coordination will be needed between an SP+ CARS site and the SmartPark PARCS system.

In SmartPark: the parking access items (Access Profiles) will need to be defined with unique numbers. The Access Profile numbers and description recorded for use in SP+ CARS defining CARS Access Group. ****

Additionally, all Companies will be defined in SmartPark with a unique Accounting # (Company ID) recorded for use in SP+ CARS for their Account Number field.



In SP+ CARS: the recorded Access profiles and Companies from SmartPark will be used to provide values for selection in SP+ CARS. This requires coordination between SmartPark and SP+ CARS to ensure synchronization.

For Companies, the Account\_Number and Account\_Name in SP+ CARS will be populated with the appropriate accounting # value from SmartPark companies. For Access profiles, the Access\_Group\_1 and Access\_Group1\_Value will be populated with the appropriate number/Description from SmartPark Access profiles.

Setup items for the interface include the selection of a default access profile number and company ID. The default access profile will be used if the field value specified in the SP+ CARS field is not present or does not match an existing Access profile number. In the case of a SP+ CARS company field, if the value is blank or non-numeric then the default Company accounting # will be used.

In SmartPark, an external vendor account will be defined for usage of the API (Tools/Tables/SmartConnect Vendor Accounts). AMC has been assigned vendor ID 57. Once the external vendor account is set up, the values will need to be provided for use in the SP+ CARS program. The necessary values are: Facility ID, user ID, password, Terminal ID and Provider ID(Vendor).

For SP+ CARS, the required parameters to access CARS will be: CARS API URL and the API Key provided by SP+ CARS.

Setup will also require the location code(s) for the SP+ property and the associated data source (“RM” or “CARS”) for the location code. Setup will allow for the specification of one or more SmartPark Facility codes and one or more SP+ CARS location/source codes for a property. For example:
SmartPark facility code, CARS location, CARS Source, default SmartPark company ID, default SmartPark access profile number.

996, 12345, "CARS", "12", 4

996, 54321, "RM", "8", 9

406, 48230, "CARS", "1", 2

There will be other setup items that may become apparent as the system is developed.

**Expected Programs, Processes and Databases** – The general list of the required programs and processes will be listed and their function.

Over All Menu – a menu or tabbed form to make it easier to access the various processes and programs.

General Setup – Process to define the “static” setup items and to map SP+ CARS location/source codes and default SmartPark facility code, access profile and Company.

SP+ CARS Framework – process defined to verify SP+ CARS API operations, facilitate the proper parsing of data, standardize interactions and troubleshoot operation. Processes, modules and procedures defined in the framework will be utilized in any or all of the other programs or processes that require the features.

CARS Changes Processing - Process that will query SP+ CARS for user records for each SP+ CARS location/source for a property. The location ID, source type and the API key are used to retrieve the active parkers.
<https://monthlyparker.spplus.com/locations/12345/parkers?source=RM>

Data returned will be processed to add or update Monthly data in the SmartPark. At the end of processing, the list of valid users from SP+ CARS for a location will be compared to the monthlies list from SmartPark where the IdNum equals the CARS location code. Any monthlies found in SmartPark but not in SP+ CARS will be deleted in SmartPark.

All processes will log their actions. If any critical issues occur related to data received from SP+ CARS (I.E. Company ID not found or Access Profile ID not found) will be recorded in a separate file. This allows the errors to be reviewed and corrections made to either SmartPark or to SP+ CARS. Each program or process will be responsible for purging older log and error files (older than 60 days).

**CARS Changes Processing Overview**

CARS Changes processing (CCP) can be either run on-demand or as a scheduled task to run as frequently as desired. CCP will first verify it can communicate to SP+ CARS and to SmartPark API.

CCP will proceed to retrieve a list of active users for the specified location and source Sample call: (<https://monthlyparker.spplus.com/locations/73222/parkers?source=RM>)

For an SP+ “RM” source, a record may look as follows:

<Customer\_Item>

        <Location\_Number>73222</Location\_Number>

        <Parker\_Number>6062</Parker\_Number>

        <Parker\_First\_Name>JANE</Parker\_First\_Name>

        <Parker\_Last\_Name>LARGER</Parker\_Last\_Name>

        <Account\_Name>LARGER, JANE</Account\_Name>

        <Account\_Number>1616046</Account\_Number>

        <Open\_AR\_Amount>.00</Open\_AR\_Amount>

        <Days\_Aged>0</Days\_Aged>

        <Credential\_1\_Name>KEYCD</Credential\_1\_Name>

        <Credential\_1>6062</Credential\_1>

        <Credential\_3\_Name>Reference</Credential\_3\_Name>

        <Credential\_3>GRY/</Credential\_3>

        <License\_1>BA13674</License\_1>

        <Phone\_1\_Type>HOME</Phone\_1\_Type>

        <Phone\_1\_Number>3432132180</Phone\_1\_Number>

        <Phone\_2\_Type></Phone\_2\_Type>

        <Phone\_2\_Number>0000000000</Phone\_2\_Number>

        <Phone\_3\_Type></Phone\_3\_Type>

        <Phone\_3\_Number></Phone\_3\_Number>

        <Phone\_4\_Type></Phone\_4\_Type>

        <Phone\_4\_Number></Phone\_4\_Number>

    </Customer\_Item>

For an SP+ “CARS” source, a record may look as follows:

<Customer\_Item>

        <Location\_Number>91932</Location\_Number>

        <Parker\_Number>14207040</Parker\_Number>

        <Parker\_First\_Name>Timothy</Parker\_First\_Name>

        <Parker\_Last\_Name>Leary</Parker\_Last\_Name>

        <Account\_Number>1000</Account\_Number>

        <Account\_Name>1 Pedestrian Access</Account\_Name>

        <Open\_AR\_Amount>0.00</Open\_AR\_Amount>

        <Days\_Aged>0</Days\_Aged>

        <Access\_Group\_1>Access\_Group\_1</Access\_Group\_1>

        <Access\_Group\_1\_Value>Pedestrian Doors</Access\_Group\_1\_Value>

        <Access\_Group\_2>Access\_Group\_2</Access\_Group\_2>

        <Access\_Group\_2\_Value>Pedestrian Doors</Access\_Group\_2\_Value>

        <Access\_Group\_3/>

        <Access\_Group\_3\_Value/>

        <Access\_Group\_4/>

        <Access\_Group\_4\_Value/>

        <Access\_Group\_5/>

        <Access\_Group\_5\_Value/>

        <Access\_Group\_6/>

        <Access\_Group\_6\_Value/>

        <coid>4907045</coid>

        <Credential\_1/>

        <Credential\_1\_Value/>

        <Credential\_2/>

        <Credential\_2\_Value/>

        <Credential\_3/>

        <Credential\_3\_Value/>

        <Credential\_4/>

        <Credential\_4\_Value/>

        <Credential\_5>LicensePlateCredential</Credential\_5>

        <Credential\_5\_Value/>

        <License1/>

        <License2/>

        <Phone\_1\_Type>Account Phone Number</Phone\_1\_Type>

        <Phone\_1\_Number/>

        <Phone\_2\_Type>Parker Phone Number</Phone\_2\_Type>

        <Phone\_2\_Number>0000000000</Phone\_2\_Number>

        <Phone\_3\_Type/>

        <Phone\_3\_Number/>

        <Phone\_4\_Type/>

        <Phone\_4\_Number/>

    </Customer\_Item>

Assumption on the data returned from the SP+ CARS API:

* <Parker\_Number> will be used for the accounting ID and also contains the value of the access card that will be mapped to the badge number in SmartPark monthly
* <Credential\_1\_Value/> - ignored - if filled in/present will equal the value in <Parker\_Number>
* <Credential\_x\_Value/> - if filled in/present and > 0 are assumed to be additional badges
* <Access\_Group\_1\_Value> if filled with a numeric value will contain a valid SmartPark Access Profile ID
* <Phone\_1\_Number> if other than blank or 0000000000 will contain the main phone number
* <Phone\_2\_Number> if other than blank or 0000000000 will contain the mobile or cell number

CCP will examine the user entries returned and extract the name fields and other field values from each record. Each user row returned from SP+ CARS may return multiple unique credentials and license plates for a user. If no credential values are found for the user, the parker number for the user will be used as the badge in SmartPark.

If the account number value is missing, blank or non-numeric, the information is logged and the default Company ID will be used. If the account number is numeric but does not match a Company Id in SmartPark, the information is logged and a new Company will be added to SmartPark.

Chart below maps SmartPark Company fields to SP+ CARS API fields if a new Company is created.

|  |  |  |
| --- | --- | --- |
| SmartPark Field | SP+ CARS Field | Notes |
| Company ID | <Account\_Number> |  |
| Company Name | <Account\_Name> |  |
| Access Profile |  | Default Access Profile |
| Valid From |  | Current date (22-11-2021T00:00:00) |
| Valid To |  | 12/31/2049 (31-12-2049T23:59:59) |
| Active |  | True |

If the Access Group 1 Value is missing, blank, non-numeric or cannot be matched to an associated Access profile in SmartPark, the default Access Profile will be used. The SmartPark API does not allow the creation of an Access Profile due to the complexity of creating a valid Access Profile.

In either case, the use of the default values or creation of a new Company will be logged. Other data integrity checks may also take place not mentioned in this TOO.

CCP will take the parker information returned from SP+ CARS and either add or update a monthly record into SmartPark. This includes the addition of multiple badges and license plates, if values are present.

The data being processed from SP+ CARS for a location is supposed to contain all of the active parkers. CCP will retain the list of the SP+ CARS parker number processed and also develop a list of all of the SmartPark parkers. The two list will be compared at the end of processing. Any parker in the SmartPark parkers list that is not found in the SP+ CARS parker list will be deleted in SmartPark. Each deleted parker will be recorded in the log files.

A log of all actions taken will be recorded for each row processed. CCP will only keep the last 60 days of log files.

Chart below maps SmartPark monthly fields to SP+ CARS API fields.

|  |  |  |
| --- | --- | --- |
| SmartPark Field | SP+ CARS Field | Notes |
| Company ID | <Account\_Number> | Missing/blank/0 – use default value |
| Monthly ID | <Parker\_Number> |  |
| Access Profile | <Access\_Group\_1\_Value> | Missing/blank/non-numeric/0 – use default value |
| First Name  | <Parker\_First\_Name>  | left 20 chars – If blank, use “CARS” |
| Last Name  | <Parker\_Last\_Name> | left 20 chars – SmartPark limit |
| Badge | <Parker\_Number>  | Use Parker Number – Credential 1 value should match |
| Badge\_1 - 4 | <Credential\_2 - 5\_Value> | Numeric only – optional |
| IdNum  | <Location\_Number>  | Use for filtering for comparison at process end |
| Phone  | <Phone\_1\_Number> |  |
| Mobile  | <Phone\_2\_Number> |  |
| CAR(1 - 5) | <License1 - 5> |  |
| Start Date |  | default today (if new) |
| End Date |  | default 12/31/2049 |

End of processing will log the number of SP+ CARS rows processed, number of rows rejected, number of companies created, number of monthlies created, number of monthlies updated, number of errors found.

Tasks:

Communications (meetings, TOO, etc.) – 4 hrs.

Detailed documentation of SP+ CARS returned data and use – 2 hrs.

Framework project for API communications to SP+ CARS – 8 hrs.

Statement of Work/Design – 4hrs

Settings dialogue – 4 hrs.

Process SP+ CARS to SmartPark program – 32 hrs.

Installation program – 2 hrs.

Internal testing – 4 hrs.

Documentation – 2 hrs.

Remote support for factory testing and for site installation and training – 6 hrs.

Remote support/adjustments for 45 days after installation – 16 hrs.

On-going Remote Support/adjustment after 45 days, up to 16 hrs.

ESTIMATED COST: $12,500.00

– Timeframe from Approval to factory test: 15 working days.

**ESTIMATE IS GOOD FOR 60 DAYS FROM DOCUMENT DATE**

Accepted By – TIBA Parking Systems

Name/Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Dated: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1.1. TIBA retains ownership of all TIBA API and any copies thereof and any other deliverables provided by it hereunder. Developer acknowledges that all rights, title and interest in and to the TIBA API and any copies thereof and any other deliverables provided by it hereunder and any and all trademarks, trade names, copyrights, patents and other intellectual property rights used or embodied in or in connection with the TIBA API and any other deliverables provided by it hereunder are and shall at all times remain the sole and exclusive property of TIBA.

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Accepted By – TIBA Parking Systems

Name/Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Dated: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_