

# [BR] Smart Sorting & Routing Solution

## I Basic Infos

|                          |   |
|--------------------------|---|
| Priority                 | P0  |
| Document Status          | PRD INITIALIZATION                                  |
| Business Requester       | SPX BPM + Delivery Team                             |
| Business Product Manager | BRD: BRD  |
| Function Product Manager |   |
| Data Product Manager     | kezhen.zhao ,Mengdi .Jianpeng Li ,Suyan ,Yaowen Wei |
| Designer                 |   |
| Developer                |   |
| Data Scientist           |   |
| Project Manager          |   |
| QA                       |   |
| Target Release           |   |
| JIRA Ticket              |   |

## PRD Modification

| # | 修改日期       | 改动点描述   | 修改人                      |
|---|------------|---|--------------------------|
| 1 | 2021 -12-7 | Initialization for the structure and background part.   | kezhen. zhao             |
| 2 | 2022 -1-9  | 初次评审后整理整体模块关系及调整细节：<br>1. 涉及新的先验库模块（需要data承接）<br>2. 详细的出入参定义，更新回写数据的需求<br>3. 更改部分参数配置模块的设计细节  | kezhen. zhao             |
| 3 | 2022 -1-11 | 更改计算结果进入AT的逻辑   | mengdi. li, kezhen. zhao |
| 4 | 2022 -1-12 | 评估直接使用Geo Wrapper调用Google,减少后期切换成本。Geo Wrapper的接口ready by 1.21(source=google)   | kezhen. zhao             |
| 5 | 2022 -1-21 | 更改Geo Wrapper的接口ready by 1.24(source=google)<br>统一各处命名： <ul style="list-style-type: none"><li>• hybrid库→combination库</li><li>• driver zone → cluster</li></ul> 完善地址库清洗及上线逻辑 | kezhen. zhao             |

|   |           |  |  |             |
|---|-----------|--|--|-------------|
| 6 | 2022-2-23 | 更新评审及更新环节涉及的部分逻辑细节   |  | kezhen.zhao |
| 7 | 2022-4-27 | 更新车辆资源使用优先级逻辑 linxiang.wen@shopee.com  |  | kezhen.zhao |
| 8 | 2022-6-23 | In-house solution algorithm to support "Roundtrip" and "Oneway", this configure should be deployed at BE only<br><br><input checked="" type="checkbox"/> SPSSO-2765 - [BR]In-house solution algorithm to support "Roundtrip" <span style="border: 1px solid #ccc; padding: 2px;">DONE</span><br><br><input checked="" type="checkbox"/> SPSSO-3852 - [BR]in-house routing计算方式是“oneway”还是“roundtrip”由BE统一配置 <span style="border: 1px solid #ccc; padding: 2px;">DONE</span> |  | yaowen.wei  |

## PRD review

### 功能点说明

| PRD模块    | 功能模块   | PRD   | Jira   | 初评时间       | 终评时间       | Go-dev | Go-Test | Go-UAT |
|----------|--|---|--|------------|------------|--------|---------|--------|
|          | 整体方案设计   | zhaokezhen  | 本解决方案主Jira单:<br><br><input checked="" type="checkbox"/> SPSSO-1271 - [BR] Build the in-house solution for LM delivery <span style="border: 1px solid #ccc; padding: 2px;">DONE</span>                              | 2021.12.24 |            |        |         |        |
| Function | Admin → Address Management<br>Hub服务范围管理  | [BR]Address Management to allow defining of Serviceable Area by zipcode range | <input checked="" type="checkbox"/> SPXFM-23111 - [BR] Customize Address Management to allow defining of Serviceable Area via zipcode range <span style="border: 1px solid #ccc; padding: 2px;">DONE</span>        | 21.12.21   |            |        |         |        |
| Function | Admin → Smart Sorting → Smart Sorting & Routing Management<br>服务白名单管理 ( by hub ) | [BR]Smartsorting & routing Mgt  | <input checked="" type="checkbox"/> SPSSO-1296 - [BR]Smartsorting & routing Mgt TESTING  | 2021.12.24 |            |        |         |        |
| Function | Admin → Smart Sorting → Vehicle Management<br>车辆信息配置                             | [BR]车辆参数配置页面  | <input checked="" type="checkbox"/> SPSSO-1292 - [BR]车辆参数配置页面 <span style="border: 1px solid #ccc; padding: 2px;">DONE</span>  | 2021.12.24 |            |        |         |        |
| Function | Admin → Smart Sorting → Zone Management<br>Zone服务管理                              | [BR]Driver level zone management  | <div style="border: 1px solid orange; padding: 10px; text-align: center;">  SPSSO-1579 - Jira项目不存在或者您没有查看该项目的权限。         </div> | 暂delay     |            |        |         |        |
| Function | Admin → Smart Sorting → Computation Page<br>计算页面                                 | 本PRD  | <input checked="" type="checkbox"/> SPXFM-24855 - [BR] Last Mile Solution Design - Calculation model <span style="border: 1px solid #ccc; padding: 2px;">DONE</span>   | 2021.12.24 | 12月最后一周    |        |         |        |
| Function | Admin → Smart Sorting → Result overview Page<br>结果展示页面                           | 本PRD  | <input checked="" type="checkbox"/> SPXFM-24855 - [BR] Last Mile Solution Design - Calculation model <span style="border: 1px solid #ccc; padding: 2px;">DONE</span>   | 2021.12.24 | 12月最后一周    |        |         |        |
| Function | Delivery + Driver app + in station   | 本PRD  | <input checked="" type="checkbox"/> SPXFM-24856 - [BR] Last Mile Solution Design - Delivery/Driver APP/in station 模块 <span style="border: 1px solid #ccc; padding: 2px;">DONE</span>                               | 2021.12.24 | 1月第一周      |        |         |        |
| Data&Map | FM+LH+LM轨迹数据回写   | 【轨迹数据获取及上报】SPX send Geo driver trajectory data                                | <input checked="" type="checkbox"/> SPXFM-23427 - [BR] Record driver trajectory/GPS data to perform analysis <span style="border: 1px solid #ccc; padding: 2px;">DONE</span>                                       | -          |            |        |         |        |
| Data     | Address Database Building for Location   | 【地址库相关建设及清洗逻辑】Address Database Requirement Document                           | 地址库建设及清洗逻辑<br><br><input checked="" type="checkbox"/> SPSSO-1272 - [BR] Address DB for Location Generation <span style="border: 1px solid #ccc; padding: 2px;">DONE</span>   | 2021.12.24 | 2021.12.30 |        |         |        |
| Data     | Address Database Updating Engineering  | 地址库上线工程[BR][Data+Dev]<br>Location Database Online Design                      | 地址库上线管理<br><br><input checked="" type="checkbox"/> SPSSO-1593 - [BR]Location Address Online <span style="border: 1px solid #ccc; padding: 2px;">DONE</span>  |            |            |        |         |        |

|                |                                      |   |   |            |            |  |  |
|----------------|--------------------------------------|---|---|------------|------------|--|--|
| Data           | Result Data Requirement for Analysis | [BR][DATA]Result Data Requirement Document          | <p>1. Routeeasy的结果数据回写需求</p> <p><input checked="" type="checkbox"/> SPSS0-1583 - [BR] Result Data Requirement for Routeeasy <span style="border: 1px solid #ccc; padding: 2px;">DONE</span></p> <p>1. Location获取的结果数据回写需求<br/>2. Smart Routing的结果数据回写需求</p> <p><input checked="" type="checkbox"/> SPSS0-1625 - [BR]Result DataBase for Analysis /Reports <span style="border: 1px solid #ccc; padding: 2px;">DONE</span></p> | 2021.12.24 | 2021.12.30 |  |  |
| Data&Algorithm | Initialized Test Set for Algorithm   | Algorithm Solution Test Set Generation              | <input checked="" type="checkbox"/> SPSS0-1581 - [BR] Initialized Test Set for Algorithm <span style="border: 1px solid #ccc; padding: 2px;">DONE</span>  | 2021.12.28 |            |  |  |
| Data&Algorithm | Location Generation Design           | 线上经纬度匹配逻辑 [BR][Data+Dev] Location Generation Design | <input checked="" type="checkbox"/> SPSS0-1580 - Location Generation - Dev Engineering <span style="border: 1px solid #ccc; padding: 2px;">TESTING</span>   | 2021.12.24 | 2021.12.30 |  |  |
| Data&Algorithm | Matrix Generation Design             | huwei@shopee.com                                    | 合并Jira单：<br><input checked="" type="checkbox"/> SPSS0-1553 - [BR] Smart Sorting & Routing Design & Algo & Engineering <span style="border: 1px solid #ccc; padding: 2px;">DONE</span>   | Jan. 09初评  |            |  |  |
| Data&Algorithm | Algorithm Solution Design            | huwei@shopee.com                                    |   | Jan. 09初评  |            |  |  |

## Content

### Term Clarification

此处用于统一不同概念的说法

|  | term         | Explanation   |
|--|--------------|---|
|  | POI Database | 指的是SPX保留的经纬度地址库，用于获取Location  |
|  | Matrix API   | 指的是Map服务，用于获取两个地址之间距离   |
|  | 先验库          | 指的是预先离线保留一份常用的地址间距离的数据库   |
|  | Cluster      | 指的是在Hub维度再进行区块的切分，每个区块单独进行运算，优化目标在每个Cluster内单独生效，分组和排线不会跨Cluster产生；由于一个Cluster必定有多个派送分组，概念区别于Sea地区的zone，所以单独命名。 |

## Business Requirement Background

### Background

BR SPX is planned to launch (go-live) by **End Jan** and one key difference between SPX in SEA VS BR is that BR SPX is integrating with an external company (called Routeeasy) in order to optimize LM delivery efficiency.

The scope of Routeeasy is to provide

- Order grouping:** to help sorters improve sorting efficiency in hub by avoiding the need to manually sort parcels based on buyers text address.
- Delivery sequence:** to reduce the need for drivers to perform manual delivery sequence based on buyers text address (e.g. based on ID SPX, on avg drivers need to spend around 30mins-1hr to manually sequence parcels).

However, it is not sustainable for BR SPX to continue using Routeeasy in the long-term due to multiple reasons

- Cost:** Shopee needs to pay 0.04 USD for every order that we use Routeeasy service. Forecasted ADO for BR SPX in Dec' 22 will be around 190k which can be translated into 7.6k of cost for calling Routeeasy per day (228k/month)

- **Data security:** Shopee needs to send order information, including buyer address, to Routeeasy; hence, it is not ideal to share this information to external parties.

## Target

Smart Sorting and Routing team need to design and deploy a business solution to support the last mile operation in BR area as an in-house solution to replace the Routeeasy. Make Routeeasy's ability as reference, we need to provide an algorithm solution to realize:

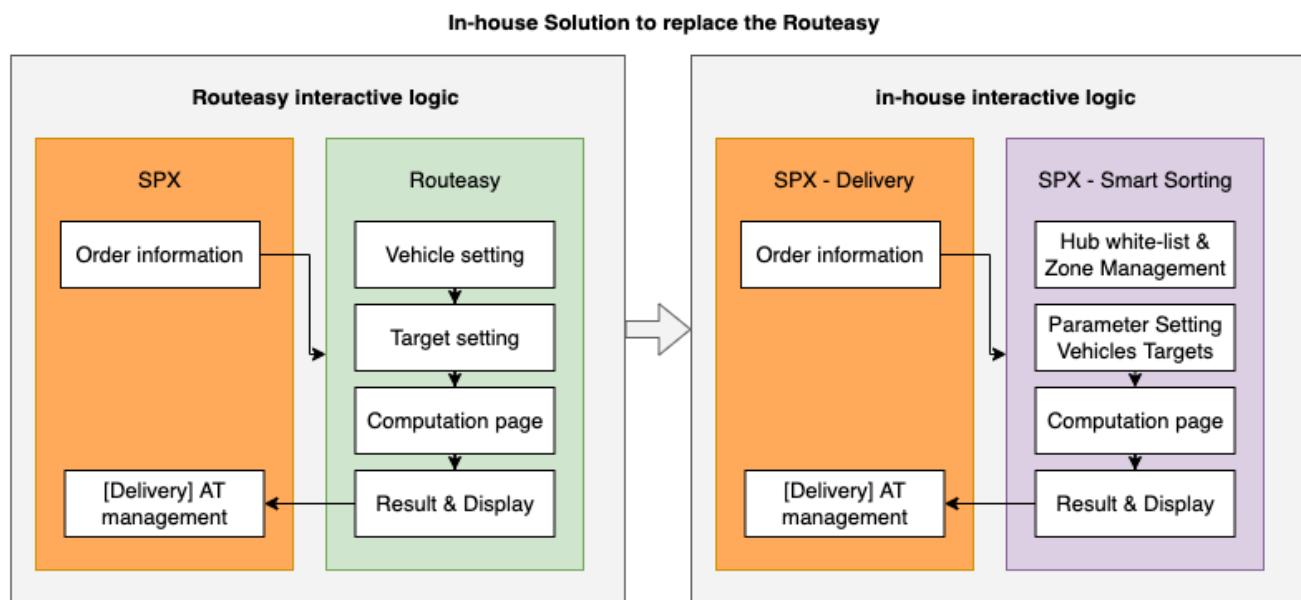
1. **Smart Sorting**, all orders within one station/cluster should be sorted as the optimal assignment task for each driver/vehicle.
2. **Smart Routing**, within each assignment task, recommend the best route for parcel-wide delivering.

**Since we do not know the operations and Routeeasy's performance when this PRD initialized, we will design our solution as universal as possible and will not follow the current product logic of the Routeeasy.**

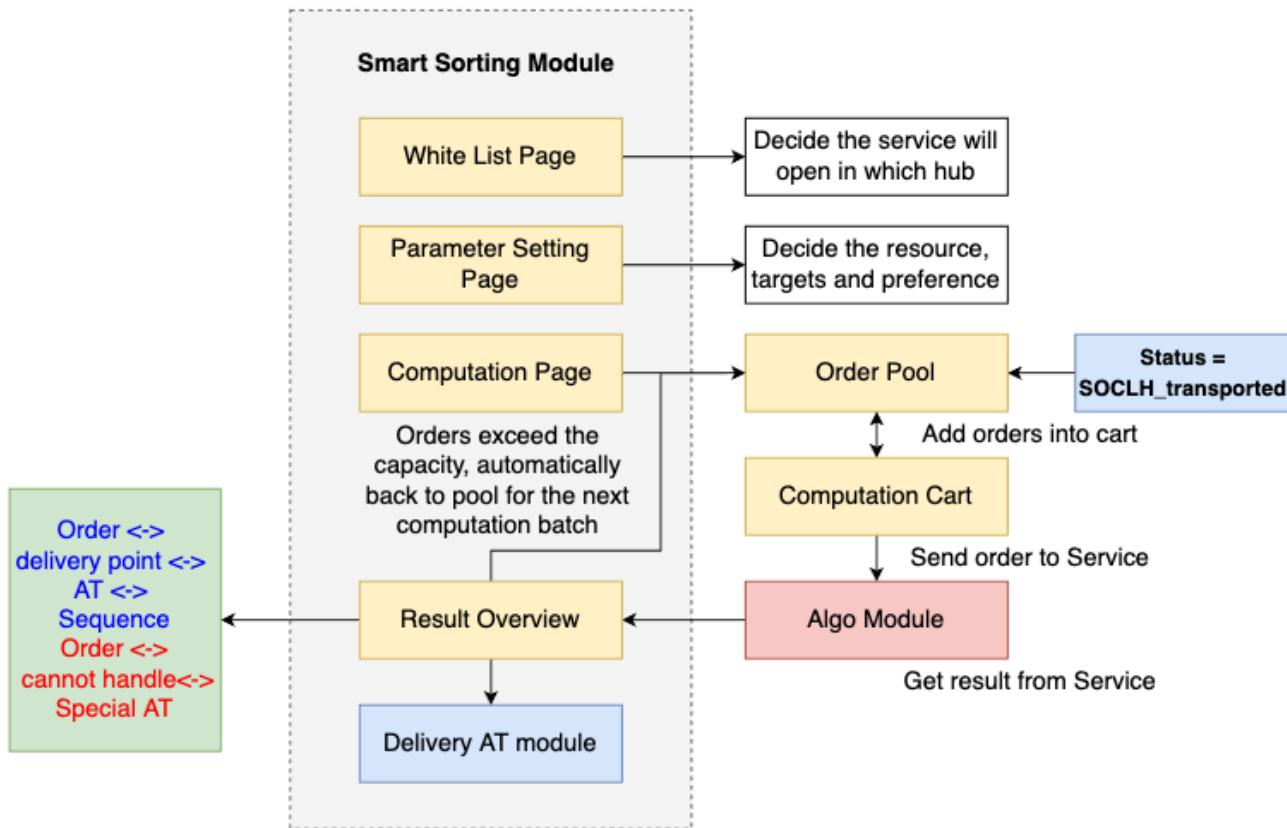
Comment: Cluster is the operation area under station area, for example, one station could have several clusters and we need to provide the optimal solution for each cluster's orders/vehicles/targets.

## Overall Design

The overall design include the function, data and the algorithm parts.



In-house solution will change the operation logistics, hub need to do re-label when orders are inbound.



**计算模块(Computation Page)整体逻辑：**

[https://drive.google.com/file/d/1mQQj-jWyZ\\_WL\\_aGFC5jV8o9j\\_a052l18/view?usp=sharing](https://drive.google.com/file/d/1mQQj-jWyZ_WL_aGFC5jV8o9j_a052l18/view?usp=sharing)

## 计算模块交互稿：

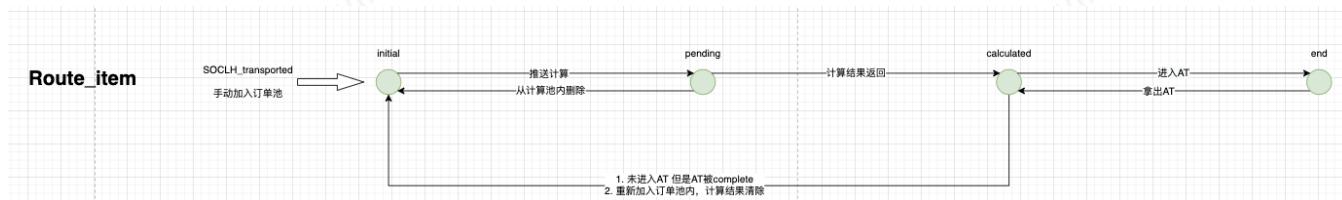
### 新增模型 1

模型名: Route\_item

可参考 <https://confluence.shopee.io/display/SSCP/%5BBBR%5D+RoutEasy+LM+-+Integration>

| 状态         | 对应场景  |
|------------|---|
| initial    | <p>初始状态</p> <p>1. Tracking_status 拓转至=SOCLH_transported 时</p> <p>2. exception inbound in</p> <ul style="list-style-type: none"><li>a. 订单未拓转至SOCLH_transported, 但是后续通过 exception inbound in , 订单状态变为 LMHUB_received</li><li>b. 手动添加进订单池</li></ul> <p>3. AT点击complete时, 未做inbound的订单, 状态会由calculated扭转initial</p> <p>如果不扭转为initial, 则会在inbound后自动生成新AT, 因为单不全, 新生成的AT失去意义</p> |
| pending    | <p>进入计算池, 等待计算</p> <p>1. 从HUB订单池拓转至HUB计算池, 且未返回任何计算结果前</p>  |
| calculated | <p>返回结果后, 但是还未进AT, 拓转为该状态</p> <p>1. 目前有可能订单还未做inbound, 未拓转为LMHUB_received</p>   |
| end        | <p>订单完成inbound ( Tracking_status = LMHUB_received )</p> <p>且AT完成 ( AT_status = Processed ), 拓转为该状态</p>  |

状态机



### 新增模型 2

模型名: calculation\_task

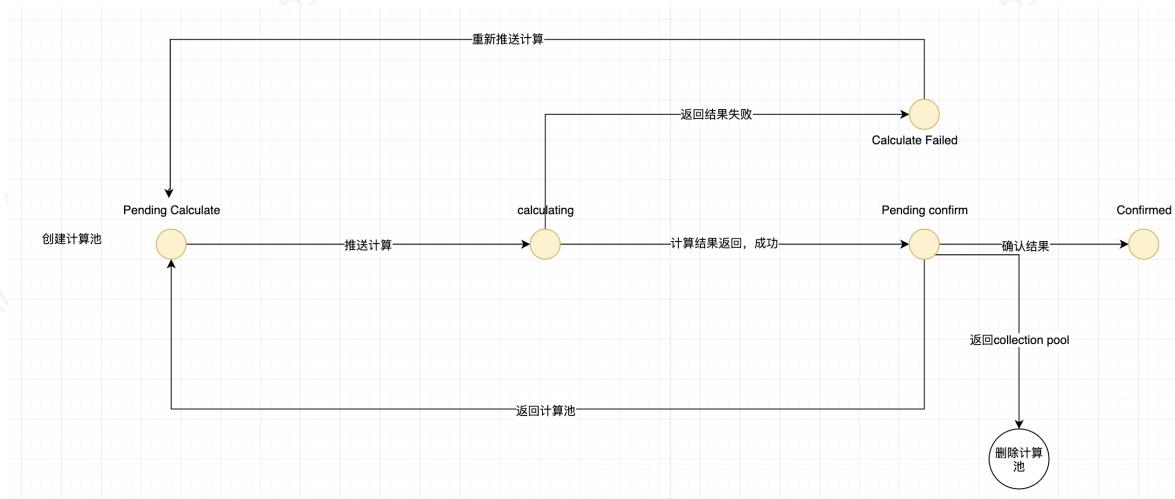
存在意义:

1. 因会在同一时间存在多个计算池, 需要用新模型承载计算池的各种状态
2. 订单池是订单批量的操作的行为, 如果只通过订单状态进行扭转 (尤其是在计算出结果, 推送至AT时), By 单推送不高效;

| 状态 | 对应场景 |
|----|------|
|----|------|

|                   |   |
|-------------------|---|
| Pending_Calculate | Pending Calculate初始状态<br><br>1. 在创建计算池时，生成<br>2. 返回失败，重新推送计算<br>a. Calculate Failed ——> Pending calculate |
| calculating       | 计算状态：将该计算池推送计算（推送给算法侧），扭转为该状态   |
| Pending_confirm   | 计算结果：算法侧将计算结果返回，有结果，但是还未确认结果时   |
| Calculate_failed  | 计算结果：算法侧将计算结果返回，无结果（报错/服务挂掉等）   |
| Confirmed         | 计算结果确认  |

状态机



## 1 Module 触发运算 - Collection Pool

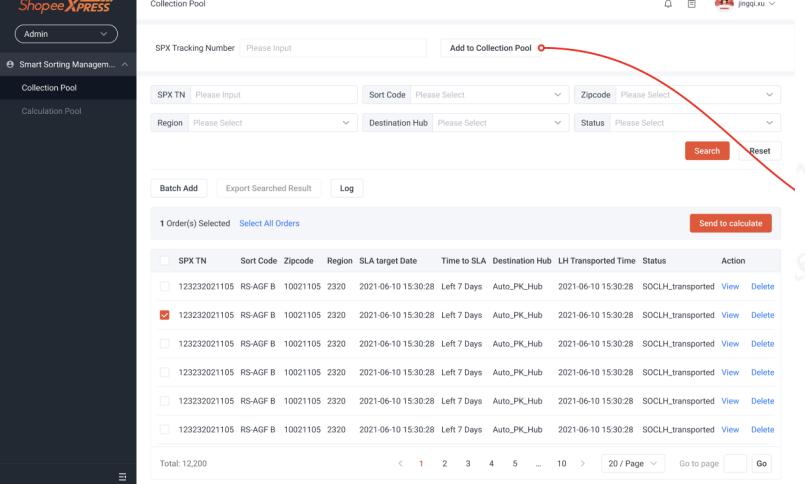
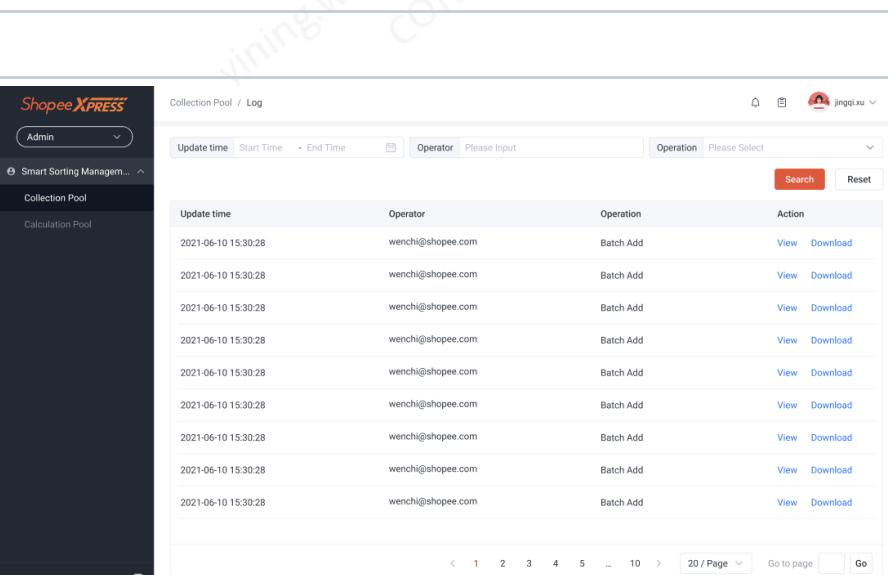
### 1.1 触发进入collection pool Trigger:

- (系统自动) SOCLH\_transported 当订单状态扭转为该状态后，推送至订单池内
- (系统自动) 尝试自动AT的order但是无法自动AT的订单，推送至订单池内（目的：筛选出exception inbound & receive from on-hold的订单进入Collection pool）
- (人工手动) 添加进入collection pool(单个&批量)；

### 1.2 Collection Pool 模块

基本能力：

| 模块     | 截图 | 说明            |
|--------|----|---------------|
| Search |    | 可支持by TN 精确搜索 |
| Reset  |    | 复用现有模块        |

| Add  |  <table border="1" data-bbox="381 375 1041 614"> <thead> <tr> <th>SPX TN</th> <th>Sort Code</th> <th>Zipcode</th> <th>Region</th> <th>SLA target Date</th> <th>Time to SLA</th> <th>Destination Hub</th> <th>LH Transported Time</th> <th>Status</th> <th>Action</th> </tr> </thead> <tbody> <tr><td>123232021105</td><td>RS-AGF B</td><td>10021105</td><td>2320</td><td>2021-06-10 15:30:28</td><td>Left 7 Days</td><td>Auto_PK_Hub</td><td>2021-06-10 15:30:28</td><td>SOCLH_transported</td><td><a href="#">View</a> <a href="#">Delete</a></td></tr> <tr><td>123232021105</td><td>RS-AGF B</td><td>10021105</td><td>2320</td><td>2021-06-10 15:30:28</td><td>Left 7 Days</td><td>Auto_PK_Hub</td><td>2021-06-10 15:30:28</td><td>SOCLH_transported</td><td><a href="#">View</a> <a href="#">Delete</a></td></tr> <tr><td>123232021105</td><td>RS-AGF B</td><td>10021105</td><td>2320</td><td>2021-06-10 15:30:28</td><td>Left 7 Days</td><td>Auto_PK_Hub</td><td>2021-06-10 15:30:28</td><td>SOCLH_transported</td><td><a href="#">View</a> <a href="#">Delete</a></td></tr> <tr><td>123232021105</td><td>RS-AGF B</td><td>10021105</td><td>2320</td><td>2021-06-10 15:30:28</td><td>Left 7 Days</td><td>Auto_PK_Hub</td><td>2021-06-10 15:30:28</td><td>SOCLH_transported</td><td><a href="#">View</a> <a href="#">Delete</a></td></tr> <tr><td>123232021105</td><td>RS-AGF B</td><td>10021105</td><td>2320</td><td>2021-06-10 15:30:28</td><td>Left 7 Days</td><td>Auto_PK_Hub</td><td>2021-06-10 15:30:28</td><td>SOCLH_transported</td><td><a href="#">View</a> <a href="#">Delete</a></td></tr> <tr><td>123232021105</td><td>RS-AGF B</td><td>10021105</td><td>2320</td><td>2021-06-10 15:30:28</td><td>Left 7 Days</td><td>Auto_PK_Hub</td><td>2021-06-10 15:30:28</td><td>SOCLH_transported</td><td><a href="#">View</a> <a href="#">Delete</a></td></tr> <tr><td colspan="10">Total: 12,200</td></tr> <tr> <td data-bbox="646 580 1041 614" style="text-align: center;"> <a href="#">Go to page</a> <input type="text"/> <a href="#">Go</a> </td></tr> </tbody> </table> | SPX TN      | Sort Code                                     | Zipcode             | Region      | SLA target Date     | Time to SLA         | Destination Hub   | LH Transported Time                           | Status              | Action            | 123232021105 | RS-AGF B                                      | 10021105            | 2320              | 2021-06-10 15:30:28 | Left 7 Days                                   | Auto_PK_Hub         | 2021-06-10 15:30:28 | SOCLH_transported | <a href="#">View</a> <a href="#">Delete</a>   | 123232021105        | RS-AGF B          | 10021105  | 2320  | 2021-06-10 15:30:28 | Left 7 Days       | Auto_PK_Hub | 2021-06-10 15:30:28                           | SOCLH_transported   | <a href="#">View</a> <a href="#">Delete</a> | 123232021105 | RS-AGF B                                      | 10021105            | 2320              | 2021-06-10 15:30:28 | Left 7 Days                                   | Auto_PK_Hub         | 2021-06-10 15:30:28 | SOCLH_transported | <a href="#">View</a> <a href="#">Delete</a>   | 123232021105        | RS-AGF B          | 10021105  | 2320  | 2021-06-10 15:30:28 | Left 7 Days       | Auto_PK_Hub | 2021-06-10 15:30:28                           | SOCLH_transported  | <a href="#">View</a> <a href="#">Delete</a> | 123232021105 | RS-AGF B | 10021105 | 2320 | 2021-06-10 15:30:28 | Left 7 Days | Auto_PK_Hub | 2021-06-10 15:30:28 | SOCLH_transported | <a href="#">View</a> <a href="#">Delete</a> | 123232021105 | RS-AGF B | 10021105 | 2320 | 2021-06-10 15:30:28 | Left 7 Days | Auto_PK_Hub | 2021-06-10 15:30:28 | SOCLH_transported | <a href="#">View</a> <a href="#">Delete</a> | Total: 12,200 |  |  |  |  |  |  |  |  |  | <a href="#">Go to page</a> <input type="text"/> <a href="#">Go</a> |
|--|--|-------------|---|---------------------|-------------|---------------------|---------------------|-------------------|---|---------------------|-------------------|--------------|---|---------------------|-------------------|---------------------|---|---------------------|---------------------|-------------------|---|---------------------|-------------------|-----------|---|---------------------|-------------------|-------------|---|---------------------|---|--------------|---|---------------------|-------------------|---------------------|---|---------------------|---------------------|-------------------|---|---------------------|-------------------|-----------|---|---------------------|-------------------|-------------|---|--|---|--------------|----------|----------|------|---------------------|-------------|-------------|---------------------|-------------------|---|--------------|----------|----------|------|---------------------|-------------|-------------|---------------------|-------------------|---|---------------|--|--|--|--|--|--|--|--|--|--|
| SPX TN   | Sort Code  | Zipcode     | Region  | SLA target Date     | Time to SLA | Destination Hub     | LH Transported Time | Status            | Action  |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| 123232021105   | RS-AGF B   | 10021105    | 2320  | 2021-06-10 15:30:28 | Left 7 Days | Auto_PK_Hub         | 2021-06-10 15:30:28 | SOCLH_transported | <a href="#">View</a> <a href="#">Delete</a>   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| 123232021105   | RS-AGF B   | 10021105    | 2320  | 2021-06-10 15:30:28 | Left 7 Days | Auto_PK_Hub         | 2021-06-10 15:30:28 | SOCLH_transported | <a href="#">View</a> <a href="#">Delete</a>   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| 123232021105   | RS-AGF B   | 10021105    | 2320  | 2021-06-10 15:30:28 | Left 7 Days | Auto_PK_Hub         | 2021-06-10 15:30:28 | SOCLH_transported | <a href="#">View</a> <a href="#">Delete</a>   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| 123232021105   | RS-AGF B   | 10021105    | 2320  | 2021-06-10 15:30:28 | Left 7 Days | Auto_PK_Hub         | 2021-06-10 15:30:28 | SOCLH_transported | <a href="#">View</a> <a href="#">Delete</a>   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| 123232021105   | RS-AGF B   | 10021105    | 2320  | 2021-06-10 15:30:28 | Left 7 Days | Auto_PK_Hub         | 2021-06-10 15:30:28 | SOCLH_transported | <a href="#">View</a> <a href="#">Delete</a>   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| 123232021105   | RS-AGF B   | 10021105    | 2320  | 2021-06-10 15:30:28 | Left 7 Days | Auto_PK_Hub         | 2021-06-10 15:30:28 | SOCLH_transported | <a href="#">View</a> <a href="#">Delete</a>   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| Total: 12,200  |  |             |   |                     |             |                     |                     |                   |   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| <a href="#">Go to page</a> <input type="text"/> <a href="#">Go</a> |  |             |   |                     |             |                     |                     |                   |   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| Export   |  |             |   |                     |             |                     |                     |                   |   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| Export-history   | <p>Export 支持筛选后导出, 如未做筛选, 导出所有订单;</p>  |             |   |                     |             |                     |                     |                   |   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| Log 列表   |  <table border="1" data-bbox="381 1307 1124 1797"> <thead> <tr> <th>Update time</th> <th>Operator</th> <th>Operation</th> <th>Action</th> </tr> </thead> <tbody> <tr><td>2021-06-10 15:30:28</td><td>wenchi@shopee.com</td><td>Batch Add</td><td><a href="#">View</a> <a href="#">Download</a></td></tr> <tr><td colspan="4" style="text-align: center;"> <a href="#">Go to page</a> <input type="text"/> <a href="#">Go</a> </td></tr> </tbody> </table>  | Update time | Operator                                      | Operation           | Action      | 2021-06-10 15:30:28 | wenchi@shopee.com   | Batch Add         | <a href="#">View</a> <a href="#">Download</a> | 2021-06-10 15:30:28 | wenchi@shopee.com | Batch Add    | <a href="#">View</a> <a href="#">Download</a> | 2021-06-10 15:30:28 | wenchi@shopee.com | Batch Add           | <a href="#">View</a> <a href="#">Download</a> | 2021-06-10 15:30:28 | wenchi@shopee.com   | Batch Add         | <a href="#">View</a> <a href="#">Download</a> | 2021-06-10 15:30:28 | wenchi@shopee.com | Batch Add | <a href="#">View</a> <a href="#">Download</a> | 2021-06-10 15:30:28 | wenchi@shopee.com | Batch Add   | <a href="#">View</a> <a href="#">Download</a> | 2021-06-10 15:30:28 | wenchi@shopee.com                           | Batch Add    | <a href="#">View</a> <a href="#">Download</a> | 2021-06-10 15:30:28 | wenchi@shopee.com | Batch Add           | <a href="#">View</a> <a href="#">Download</a> | 2021-06-10 15:30:28 | wenchi@shopee.com   | Batch Add         | <a href="#">View</a> <a href="#">Download</a> | 2021-06-10 15:30:28 | wenchi@shopee.com | Batch Add | <a href="#">View</a> <a href="#">Download</a> | 2021-06-10 15:30:28 | wenchi@shopee.com | Batch Add   | <a href="#">View</a> <a href="#">Download</a> | <a href="#">Go to page</a> <input type="text"/> <a href="#">Go</a> |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| Update time  | Operator   | Operation   | Action  |                     |             |                     |                     |                   |   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| 2021-06-10 15:30:28  | wenchi@shopee.com  | Batch Add   | <a href="#">View</a> <a href="#">Download</a> |                     |             |                     |                     |                   |   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| 2021-06-10 15:30:28  | wenchi@shopee.com  | Batch Add   | <a href="#">View</a> <a href="#">Download</a> |                     |             |                     |                     |                   |   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| 2021-06-10 15:30:28  | wenchi@shopee.com  | Batch Add   | <a href="#">View</a> <a href="#">Download</a> |                     |             |                     |                     |                   |   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| 2021-06-10 15:30:28  | wenchi@shopee.com  | Batch Add   | <a href="#">View</a> <a href="#">Download</a> |                     |             |                     |                     |                   |   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| 2021-06-10 15:30:28  | wenchi@shopee.com  | Batch Add   | <a href="#">View</a> <a href="#">Download</a> |                     |             |                     |                     |                   |   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| 2021-06-10 15:30:28  | wenchi@shopee.com  | Batch Add   | <a href="#">View</a> <a href="#">Download</a> |                     |             |                     |                     |                   |   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| 2021-06-10 15:30:28  | wenchi@shopee.com  | Batch Add   | <a href="#">View</a> <a href="#">Download</a> |                     |             |                     |                     |                   |   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| 2021-06-10 15:30:28  | wenchi@shopee.com  | Batch Add   | <a href="#">View</a> <a href="#">Download</a> |                     |             |                     |                     |                   |   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| 2021-06-10 15:30:28  | wenchi@shopee.com  | Batch Add   | <a href="#">View</a> <a href="#">Download</a> |                     |             |                     |                     |                   |   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| 2021-06-10 15:30:28  | wenchi@shopee.com  | Batch Add   | <a href="#">View</a> <a href="#">Download</a> |                     |             |                     |                     |                   |   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| 2021-06-10 15:30:28  | wenchi@shopee.com  | Batch Add   | <a href="#">View</a> <a href="#">Download</a> |                     |             |                     |                     |                   |   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |
| <a href="#">Go to page</a> <input type="text"/> <a href="#">Go</a> |  |             |   |                     |             |                     |                     |                   |   |                     |                   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |                     |   |              |   |                     |                   |                     |   |                     |                     |                   |   |                     |                   |           |   |                     |                   |             |   |  |   |              |          |          |      |                     |             |             |                     |                   |   |              |          |          |      |                     |             |             |                     |                   |   |               |  |  |  |  |  |  |  |  |  |  |

| LOG - View     |               |                      |
|----------------|---------------|----------------------|
|                | 字段            | 说明                   |
| 1              | Order ID      |                      |
| 2              | Result        | Successful<br>Failed |
| 3              | Failed Reason | 参考上面模块的报错            |
| LOG - download |               |                      |
|                | 字段            | 说明                   |
| 1              | Order ID      |                      |
| 2              | Result        | Successful<br>Failed |
| 3              | Failed Reason | 参考上面模块的报错            |

**Batch Action**

| SPX TN        | Sort Code | Zipcode  | Region | SLA target Date     | Time to SLA | Destination Hub | LH Transported Time | Status            | Action                                      |
|---------------|-----------|----------|--------|---------------------|-------------|-----------------|---------------------|-------------------|---|
| 123232021105  | RS-AGF-B  | 10021105 | 2320   | 2021-06-10 15:30:28 | Left 7 Days | Auto_PK_Hub     | 2021-06-10 15:30:28 | SOCLH_transported | <a href="#">View</a> <a href="#">Delete</a> |
| 123232021105  | RS-AGF-B  | 10021105 | 2320   | 2021-06-10 15:30:28 | Left 7 Days | Auto_PK_Hub     | 2021-06-10 15:30:28 | SOCLH_transported | <a href="#">View</a> <a href="#">Delete</a> |
| 123232021105  | RS-AGF-B  | 10021105 | 2320   | 2021-06-10 15:30:28 | Left 7 Days | Auto_PK_Hub     | 2021-06-10 15:30:28 | SOCLH_transported | <a href="#">View</a> <a href="#">Delete</a> |
| 123232021105  | RS-AGF-B  | 10021105 | 2320   | 2021-06-10 15:30:28 | Left 7 Days | Auto_PK_Hub     | 2021-06-10 15:30:28 | SOCLH_transported | <a href="#">View</a> <a href="#">Delete</a> |
| 123232021105  | RS-AGF-B  | 10021105 | 2320   | 2021-06-10 15:30:28 | Left 7 Days | Auto_PK_Hub     | 2021-06-10 15:30:28 | SOCLH_transported | <a href="#">View</a> <a href="#">Delete</a> |
| Total: 12,200 |           |          |        |                     |             |                 |                     |                   |   |

| SPX TN  | Destination Hub | Status | Result | Failed Reason |
|---------|-----------------|--------|--------|---------------|
| No data |                 |        |        |               |

| SPX TN                                 | Destination Hub | Status            | Result    | Failed Reason      |
|--|-----------------|-------------------|-----------|--------------------|
| 123232021105                           | Auto_PK_Hub     | SOCLH_transported | Failed    | Order Status Wrong |
| 123232021105                           | Auto_PK_Hub     | SOCLH_transported | Failed    | Order Status Wrong |
| 123232021105                           | Auto_PK_Hub     | SOCLH_transported | Failed    | Order Status Wrong |
| 123232021105                           | Auto_PK_Hub     | SOCLH_transported | Successed | -                  |
| 123232021105                           | Auto_PK_Hub     | SOCLH_transported | Successed | -                  |
| 123232021105                           | Auto_PK_Hub     | SOCLH_transported | Successed | -                  |
| 123232021105                           | Auto_PK_Hub     | SOCLH_transported | Successed | -                  |
| 123232021105                           | Auto_PK_Hub     | SOCLH_transported | Successed | -                  |
| 123232021105                           | Auto_PK_Hub     | SOCLH_transported | Successed | -                  |
| 123232021105                           | Auto_PK_Hub     | SOCLH_transported | Successed | -                  |
| Total Item: 13 Failed: 3 Successed: 10 |                 |                   |           |                    |

1. Batch Add  
2. 点击后跳转Batch Action页

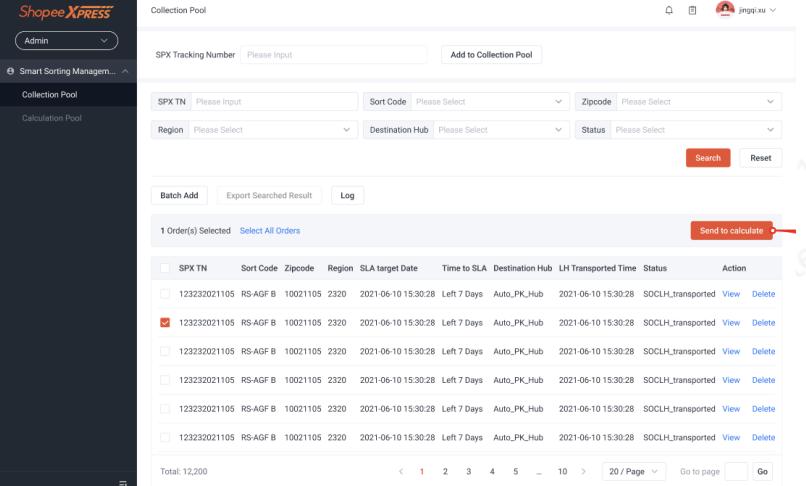
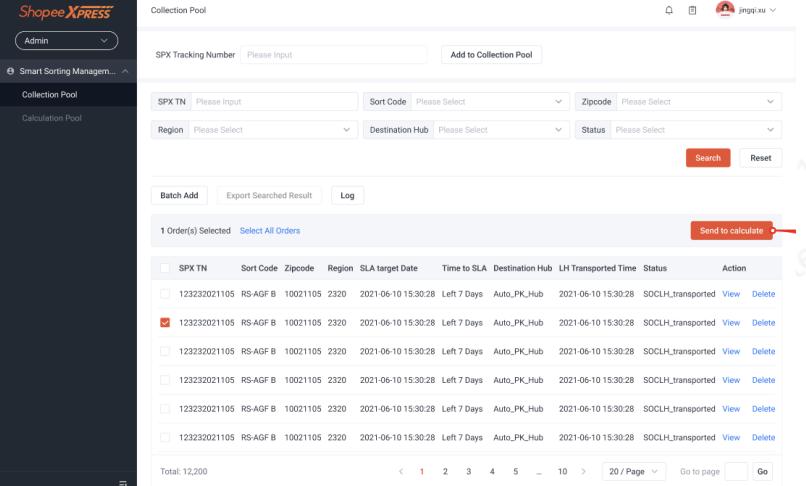
- a. 标题: Batch Add
- b. 统计:
  - i. Total item
  - ii. Successed
  - iii. Failed
- c. 字段
  - i. SPX TN
  - ii. Destination Hub
  - iii. Status
  - iv. Result
  - v. Failed Reason
    - 1. Order status wrong
    - 2. Destination hub is wrong

3. Download Template  
a. Order 必填

4. Import  
a. 点击后回batch add页, 显示 Import Successful

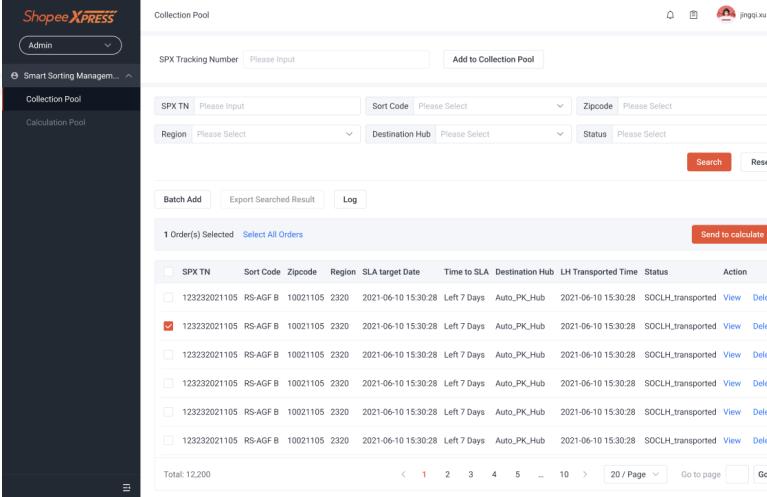
5. Submit  
a. 点击后返回collection pool列表页, 显示Add x order(s) successful.

注意!添加订单需要满足订单池校验逻辑

|                   |  |   |
|-------------------|--|---|
| Send to calculate |  <p>The screenshot shows the ShopeeXpress Collection Pool interface. At the top, there are search fields for SPX Tracking Number and Sort Code, and dropdowns for Zipcode, Region, Destination Hub, and Status. Below these are buttons for 'Batch Add', 'Export Searched Result', and 'Log'. A table lists 12,200 orders with columns for SPX TN, Sort Code, Zipcode, Region, SLA target Date, Time to SLA, Destination Hub, LH Transported Time, Status, and Action. A red box highlights the 'Send to calculate' button at the top right of the table. The bottom of the table shows a page navigation bar.</p> | <p><b>1. 选择订单:</b></p> <ul style="list-style-type: none"> <li>a. 多单勾选，展示所选的订单数量</li> <li>b. 需要支持“Select All Orders”（这里为池内全部订单，不是当前页面所有订单）</li> </ul> <p><b>2. 选择进入计算池</b></p> <ul style="list-style-type: none"> <li>a. 已存在计算池（列表选择计算池ID），这里只展示状态为initi的计算池             <ul style="list-style-type: none"> <li>i. 列表字段：                     <ul style="list-style-type: none"> <li>1. Calculation Task ID</li> <li>2. Create time (列表按照这个排序，后创建的排在前)</li> <li>3. Creator</li> <li>4. Num of Order</li> </ul> </li> <li>b. 新建计算池</li> </ul> </li> </ul> <p><b>3. 并发问题：</b></p> <ul style="list-style-type: none"> <li>a. 如果一个订单被同时选中，后选中进入计算池的报错</li> <li>b. 报错内容：Selected order has already pushed into Calculation pool.</li> </ul> <p><b>4. 考虑到性能问题，单次发送太多订单到CT中会导致过慢</b></p> <ul style="list-style-type: none"> <li>a. 限制一次最多发送2000条；如果超过2000条，将排在前面的2000条订单发送，剩下的订单还保留在collection pool中；并在发送后会展示：             <ul style="list-style-type: none"> <li>i. Maximum of 2000 orders can be sent within one request. The remaining orders can be sent to next time.</li> </ul> </li> </ul> <p><b>5. 如果批量发送，部分成功，部分失败：</b></p> <ul style="list-style-type: none"> <li>a. BE：将失败的订单号发送给前端；</li> <li>b. 前端：展示报错：Due to the instability of the system, some orders have not been sent successfully; Can try again.</li> </ul> |
| 计数                |  <p>The screenshot shows the ShopeeXpress Collection Pool interface. At the top, there are search fields for SPX Tracking Number and Sort Code, and dropdowns for Zipcode, Region, Destination Hub, and Status. Below these are buttons for 'Batch Add', 'Export Searched Result', and 'Log'. A table lists 12,200 orders with columns for SPX TN, Sort Code, Zipcode, Region, SLA target Date, Time to SLA, Destination Hub, LH Transported Time, Status, and Action. A red box highlights the 'Send to calculate' button at the top right of the table. The bottom of the table shows a page navigation bar.</p> | <p>count筛选后订单数量</p>   |

列表页

| 模块 | 截图 | 说明 |
|----|----|----|
|----|----|----|

| collection pool -<br>添加逻辑 |  | 需要满足以下条件，才可以将订单加入订单池<br><br>Destination HUB = Current station & tracking_status = LMhub_received   |             |     |    |            |   |        |         |  |   |           |        |  |   |         |        |  |   |         |                                   |             |   |                 |  |  |   |             |  |  |   |                 |  |        |   |                     |   |  |   |                 |  |        |    |                   |  |        |    |        |   |  |
|---------------------------|--|--|-------------|-----|----|------------|---|--------|---------|--|---|-----------|--------|--|---|---------|--------|--|---|---------|-----------------------------------|-------------|---|-----------------|--|--|---|-------------|--|--|---|-----------------|--|--------|---|---------------------|---|--|---|-----------------|--|--------|----|-------------------|--|--------|----|--------|---|--|
| collection pool -<br>列表   |  <p>The screenshot shows the ShopeeXpress Collection Pool interface. At the top, there are input fields for SPX Tracking Number, Sort Code, Zipcode, Region, Destination Hub, and Status, each with dropdown menus. Below these are buttons for 'Batch Add', 'Export Searched Result', and 'Log'. A red box highlights the 'Send to calculate' button at the top right of the main table area. The main table lists 12 orders with columns for SPX TN, Sort Code, Zipcode, Region, SLA target Date, Time to SLA, Destination Hub, LH Transported Time, Status, and Action. One row has a checked checkbox in the first column. At the bottom of the table, it says 'Total: 12,200' and includes a page navigation section.</p> | <p><b>列表信息</b></p> <table border="1"> <thead> <tr> <th></th> <th>字段名</th> <th>说明</th> <th>是否可筛选 / 查询</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>SPX TN</td> <td>输入，精确查询</td> <td></td> </tr> <tr> <td>2</td> <td>sort code</td> <td>选择，后模糊</td> <td></td> </tr> <tr> <td>3</td> <td>Zipcode</td> <td>选择，后模糊</td> <td></td> </tr> <tr> <td>4</td> <td>Cluster</td> <td>根据Zipcode拆分的二级分类<br/>实际上是sort code</td> <td>(多选) 选择，后模糊</td> </tr> <tr> <td>5</td> <td>SLA target Date</td> <td></td> <td></td> </tr> <tr> <td>6</td> <td>Time to SLA</td> <td></td> <td></td> </tr> <tr> <td>7</td> <td>Destination Hub</td> <td></td> <td>选择，后模糊</td> </tr> <tr> <td>8</td> <td>LH transported time</td> <td>订单扭转至SOCLH_transported时间<br/>对于未扭转，手动加入的订单，展示“/”</td> <td></td> </tr> <tr> <td>9</td> <td>Tracking status</td> <td></td> <td>选择，后模糊</td> </tr> <tr> <td>10</td> <td>Route item status</td> <td></td> <td>选择，全模糊</td> </tr> <tr> <td>11</td> <td>Action</td> <td> <ul style="list-style-type: none"> <li>• View           <ul style="list-style-type: none"> <li>• 点击跳转至order detail页</li> </ul> </li> <li>• Delete           <ul style="list-style-type: none"> <li>• 点击后二次确认弹窗：</li> <li>• Are you sure to delete this order from Collection Pool?               <ul style="list-style-type: none"> <li>• Delete</li> <li>• Cancel</li> </ul> </li> </ul> </li> </ul> </td> <td></td> </tr> </tbody> </table> |             | 字段名 | 说明 | 是否可筛选 / 查询 | 1 | SPX TN | 输入，精确查询 |  | 2 | sort code | 选择，后模糊 |  | 3 | Zipcode | 选择，后模糊 |  | 4 | Cluster | 根据Zipcode拆分的二级分类<br>实际上是sort code | (多选) 选择，后模糊 | 5 | SLA target Date |  |  | 6 | Time to SLA |  |  | 7 | Destination Hub |  | 选择，后模糊 | 8 | LH transported time | 订单扭转至SOCLH_transported时间<br>对于未扭转，手动加入的订单，展示“/” |  | 9 | Tracking status |  | 选择，后模糊 | 10 | Route item status |  | 选择，全模糊 | 11 | Action | <ul style="list-style-type: none"> <li>• View           <ul style="list-style-type: none"> <li>• 点击跳转至order detail页</li> </ul> </li> <li>• Delete           <ul style="list-style-type: none"> <li>• 点击后二次确认弹窗：</li> <li>• Are you sure to delete this order from Collection Pool?               <ul style="list-style-type: none"> <li>• Delete</li> <li>• Cancel</li> </ul> </li> </ul> </li> </ul> |  |
|                           | 字段名  | 说明   | 是否可筛选 / 查询  |     |    |            |   |        |         |  |   |           |        |  |   |         |        |  |   |         |                                   |             |   |                 |  |  |   |             |  |  |   |                 |  |        |   |                     |   |  |   |                 |  |        |    |                   |  |        |    |        |   |  |
| 1                         | SPX TN   | 输入，精确查询  |             |     |    |            |   |        |         |  |   |           |        |  |   |         |        |  |   |         |                                   |             |   |                 |  |  |   |             |  |  |   |                 |  |        |   |                     |   |  |   |                 |  |        |    |                   |  |        |    |        |   |  |
| 2                         | sort code  | 选择，后模糊   |             |     |    |            |   |        |         |  |   |           |        |  |   |         |        |  |   |         |                                   |             |   |                 |  |  |   |             |  |  |   |                 |  |        |   |                     |   |  |   |                 |  |        |    |                   |  |        |    |        |   |  |
| 3                         | Zipcode  | 选择，后模糊   |             |     |    |            |   |        |         |  |   |           |        |  |   |         |        |  |   |         |                                   |             |   |                 |  |  |   |             |  |  |   |                 |  |        |   |                     |   |  |   |                 |  |        |    |                   |  |        |    |        |   |  |
| 4                         | Cluster  | 根据Zipcode拆分的二级分类<br>实际上是sort code  | (多选) 选择，后模糊 |     |    |            |   |        |         |  |   |           |        |  |   |         |        |  |   |         |                                   |             |   |                 |  |  |   |             |  |  |   |                 |  |        |   |                     |   |  |   |                 |  |        |    |                   |  |        |    |        |   |  |
| 5                         | SLA target Date  |  |             |     |    |            |   |        |         |  |   |           |        |  |   |         |        |  |   |         |                                   |             |   |                 |  |  |   |             |  |  |   |                 |  |        |   |                     |   |  |   |                 |  |        |    |                   |  |        |    |        |   |  |
| 6                         | Time to SLA  |  |             |     |    |            |   |        |         |  |   |           |        |  |   |         |        |  |   |         |                                   |             |   |                 |  |  |   |             |  |  |   |                 |  |        |   |                     |   |  |   |                 |  |        |    |                   |  |        |    |        |   |  |
| 7                         | Destination Hub  |  | 选择，后模糊      |     |    |            |   |        |         |  |   |           |        |  |   |         |        |  |   |         |                                   |             |   |                 |  |  |   |             |  |  |   |                 |  |        |   |                     |   |  |   |                 |  |        |    |                   |  |        |    |        |   |  |
| 8                         | LH transported time  | 订单扭转至SOCLH_transported时间<br>对于未扭转，手动加入的订单，展示“/”  |             |     |    |            |   |        |         |  |   |           |        |  |   |         |        |  |   |         |                                   |             |   |                 |  |  |   |             |  |  |   |                 |  |        |   |                     |   |  |   |                 |  |        |    |                   |  |        |    |        |   |  |
| 9                         | Tracking status  |  | 选择，后模糊      |     |    |            |   |        |         |  |   |           |        |  |   |         |        |  |   |         |                                   |             |   |                 |  |  |   |             |  |  |   |                 |  |        |   |                     |   |  |   |                 |  |        |    |                   |  |        |    |        |   |  |
| 10                        | Route item status  |  | 选择，全模糊      |     |    |            |   |        |         |  |   |           |        |  |   |         |        |  |   |         |                                   |             |   |                 |  |  |   |             |  |  |   |                 |  |        |   |                     |   |  |   |                 |  |        |    |                   |  |        |    |        |   |  |
| 11                        | Action   | <ul style="list-style-type: none"> <li>• View           <ul style="list-style-type: none"> <li>• 点击跳转至order detail页</li> </ul> </li> <li>• Delete           <ul style="list-style-type: none"> <li>• 点击后二次确认弹窗：</li> <li>• Are you sure to delete this order from Collection Pool?               <ul style="list-style-type: none"> <li>• Delete</li> <li>• Cancel</li> </ul> </li> </ul> </li> </ul>  |             |     |    |            |   |        |         |  |   |           |        |  |   |         |        |  |   |         |                                   |             |   |                 |  |  |   |             |  |  |   |                 |  |        |   |                     |   |  |   |                 |  |        |    |                   |  |        |    |        |   |  |

## 2 计算池模块

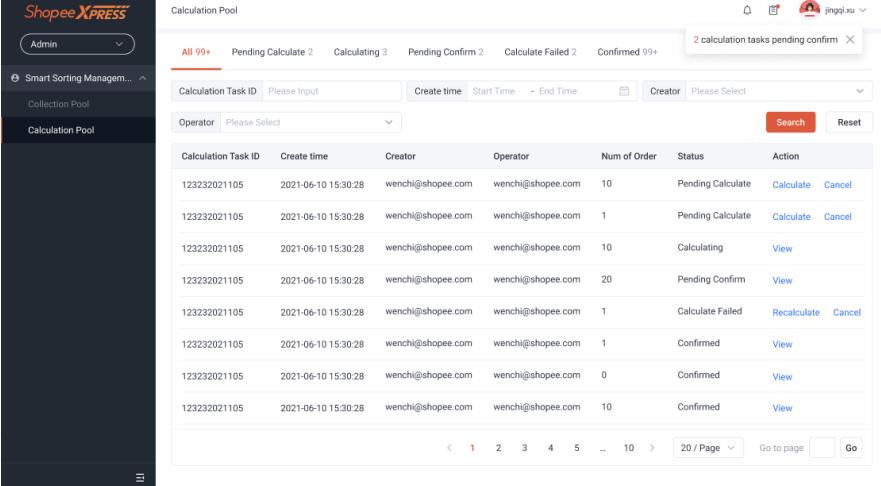
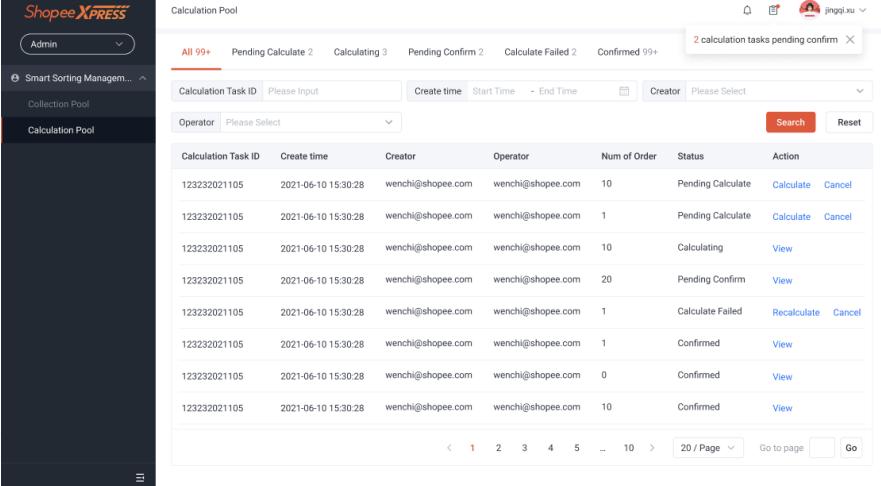
一个HUB只有一个订单池，但是可以有多个计算池，因为要考虑多个OPS并行计算的情况

从订单池内挑选订单后，可以形成一个计算池（Calculation\_Pool）

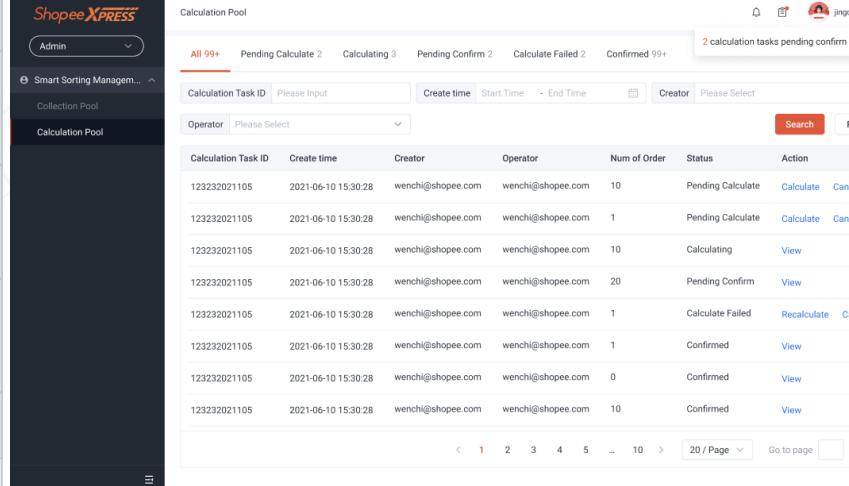
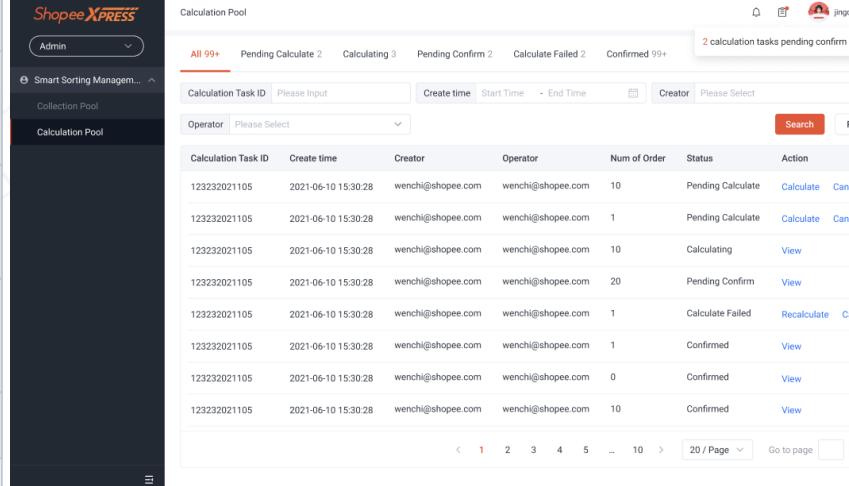
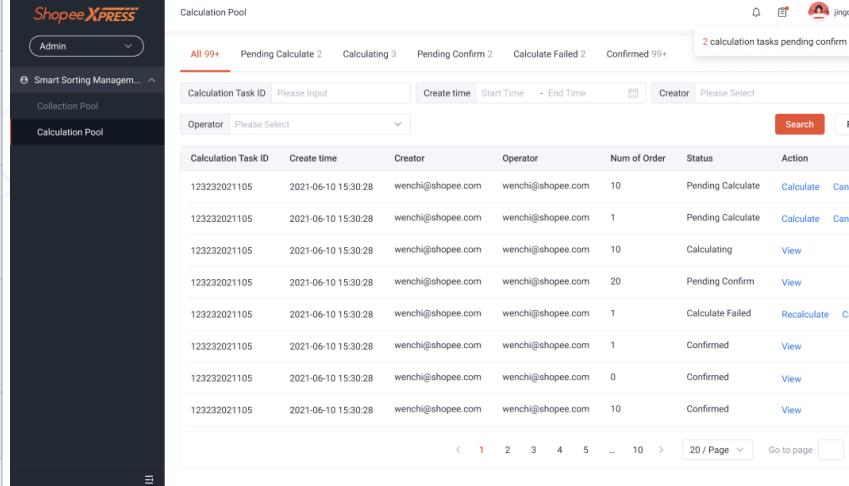
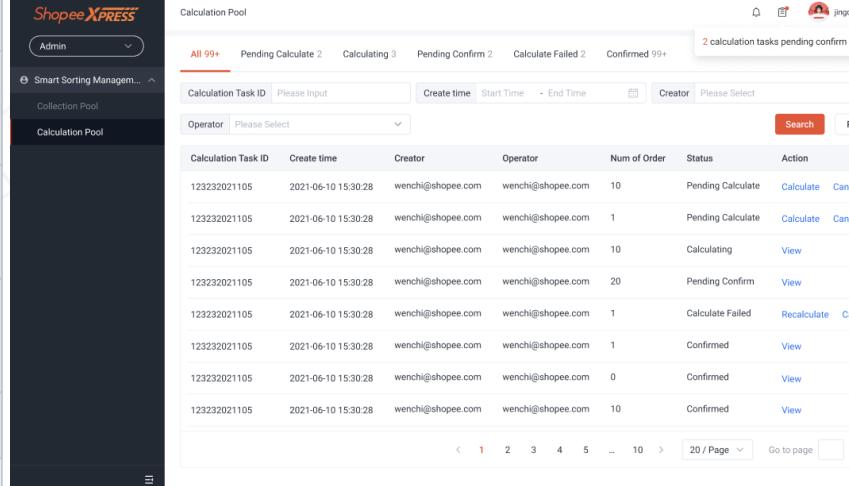
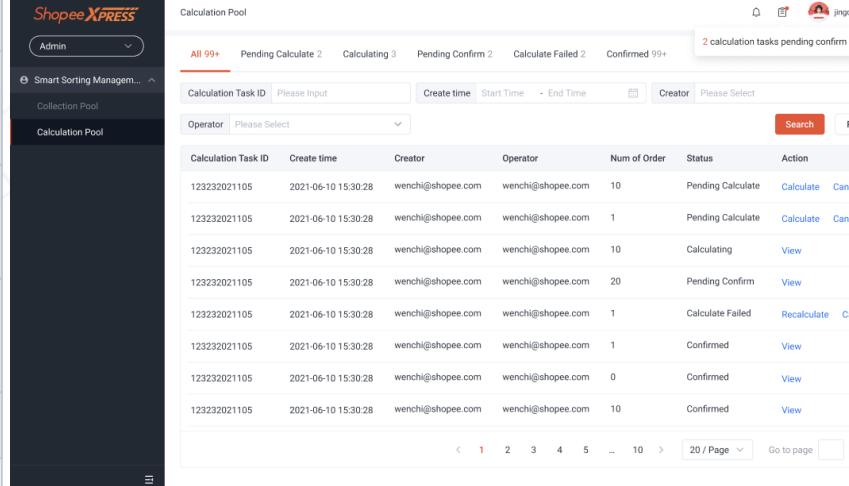
需要用新模型来承载计算池的各种状态

一个订单不能在两个计算池中！！！从订单池推送进入计算池后，需要在订单池中删除这个订单

## 基本能力

| 模块     | 图示  | 说明     |
|--------|---|--------|
| Search |  | 见列表页逻辑 |
| Reset  |  | 复用逻辑   |

### 2.1 列表页

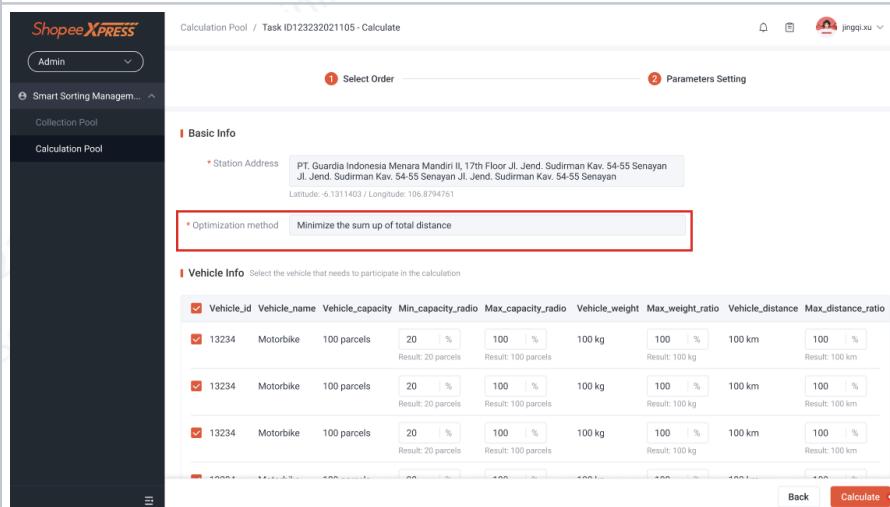
| 字段                  | 图示   | 说明      | 是否可搜索   |
|---------------------|--|---------|---------|
| Calculation Pool ID |  | 系统生成    | 输入，精确搜索 |
| Create time         |  | 创建时间    | 选择，后模糊  |
| Creator             |  | 创建人     | 选择，后模糊  |
| Operator            |  | 最后的操作人  | 选择，后模糊  |
| Num of Order        |  | 池内的订单数量 |         |

|        |   |    |
|--------|---|----|
| Status | <p>状态:</p> <ol style="list-style-type: none"> <li>1. Pending Calculate ( 创建, 编辑参数中, 但是还未推送计算 )</li> <li>2. Calculating ( 计算中 )</li> <li>3. Pending Confirm ( 计算出结果, 但是没有选择处理方式 )</li> <li>4. Calculate Failed ( 算法返回计算失败 )</li> <li>5. Confirm ( 已选择了处理方式 )</li> </ol>  | 选择 |
| Action | <p>各状态对应的操作为</p> <ul style="list-style-type: none"> <li>• Pending Calculate: Calculate、Cancel</li> <li>• Calculating: View</li> <li>• Pending Confirm: View</li> <li>• Calculate Failed: Recalculate、Cancel</li> <li>• Confirm: View</li> </ul> <p>点击Cancel, 代表清除这个Calculation Pool, 所有的订单将会返回Collection Pool</p> |    |

### 3 MODULE 推送计算流程

到具体的计算池中

| 模块  | 截图 | 说明  |
|-----|----|---|
| 列表页 |    | <p>包括:</p> <ol style="list-style-type: none"> <li>1. 计算配置</li> <li>2. 站点地理信息位置</li> <li>3. 开始计算 按钮</li> </ol> |

| 计算池                       | <p>列表信息</p> <table border="1"> <thead> <tr> <th></th><th>字段名</th><th>说</th></tr> </thead> <tbody> <tr> <td>1</td><td>SPX TN</td><td></td></tr> <tr> <td>2</td><td>sort code</td><td></td></tr> <tr> <td>3</td><td>Zipcode</td><td></td></tr> <tr> <td>4</td><td>Cluster</td><td>根据<br/>一期</td></tr> <tr> <td>5</td><td>StA target Date</td><td></td></tr> <tr> <td>6</td><td>Time-to-StA</td><td></td></tr> <tr> <td>7</td><td>Destination Hub</td><td></td></tr> <tr> <td>8</td><td>LH transported time</td><td>订单<br/>对于</td></tr> <tr> <td>9</td><td>Time send to Calculation Pool</td><td>推送</td></tr> <tr> <td>9</td><td>Tracking status</td><td></td></tr> <tr> <td>10</td><td>Route item status</td><td></td></tr> <tr> <td>11</td><td>Action</td><td>•<br/>•</td></tr> </tbody> </table> <p>按钮：</p> <ol style="list-style-type: none"> <li>1. Back</li> <li>2. Next</li> </ol> |  | 字段名 | 说 | 1 | SPX TN |  | 2 | sort code |  | 3 | Zipcode |  | 4 | Cluster | 根据<br>一期 | 5 | StA target Date |  | 6 | Time-to-StA |  | 7 | Destination Hub |  | 8 | LH transported time | 订单<br>对于 | 9 | Time send to Calculation Pool | 推送 | 9 | Tracking status |  | 10 | Route item status |  | 11 | Action | •<br>• |  |
|---------------------------|--|--|-----|---|---|--------|--|---|-----------|--|---|---------|--|---|---------|----------|---|-----------------|--|---|-------------|--|---|-----------------|--|---|---------------------|----------|---|-------------------------------|----|---|-----------------|--|----|-------------------|--|----|--------|--------|--|
|                           | 字段名  | 说  |     |   |   |        |  |   |           |  |   |         |  |   |         |          |   |                 |  |   |             |  |   |                 |  |   |                     |          |   |                               |    |   |                 |  |    |                   |  |    |        |        |  |
| 1                         | SPX TN   |  |     |   |   |        |  |   |           |  |   |         |  |   |         |          |   |                 |  |   |             |  |   |                 |  |   |                     |          |   |                               |    |   |                 |  |    |                   |  |    |        |        |  |
| 2                         | sort code  |  |     |   |   |        |  |   |           |  |   |         |  |   |         |          |   |                 |  |   |             |  |   |                 |  |   |                     |          |   |                               |    |   |                 |  |    |                   |  |    |        |        |  |
| 3                         | Zipcode  |  |     |   |   |        |  |   |           |  |   |         |  |   |         |          |   |                 |  |   |             |  |   |                 |  |   |                     |          |   |                               |    |   |                 |  |    |                   |  |    |        |        |  |
| 4                         | Cluster  | 根据<br>一期   |     |   |   |        |  |   |           |  |   |         |  |   |         |          |   |                 |  |   |             |  |   |                 |  |   |                     |          |   |                               |    |   |                 |  |    |                   |  |    |        |        |  |
| 5                         | StA target Date  |  |     |   |   |        |  |   |           |  |   |         |  |   |         |          |   |                 |  |   |             |  |   |                 |  |   |                     |          |   |                               |    |   |                 |  |    |                   |  |    |        |        |  |
| 6                         | Time-to-StA  |  |     |   |   |        |  |   |           |  |   |         |  |   |         |          |   |                 |  |   |             |  |   |                 |  |   |                     |          |   |                               |    |   |                 |  |    |                   |  |    |        |        |  |
| 7                         | Destination Hub  |  |     |   |   |        |  |   |           |  |   |         |  |   |         |          |   |                 |  |   |             |  |   |                 |  |   |                     |          |   |                               |    |   |                 |  |    |                   |  |    |        |        |  |
| 8                         | LH transported time  | 订单<br>对于   |     |   |   |        |  |   |           |  |   |         |  |   |         |          |   |                 |  |   |             |  |   |                 |  |   |                     |          |   |                               |    |   |                 |  |    |                   |  |    |        |        |  |
| 9                         | Time send to Calculation Pool  | 推送   |     |   |   |        |  |   |           |  |   |         |  |   |         |          |   |                 |  |   |             |  |   |                 |  |   |                     |          |   |                               |    |   |                 |  |    |                   |  |    |        |        |  |
| 9                         | Tracking status  |  |     |   |   |        |  |   |           |  |   |         |  |   |         |          |   |                 |  |   |             |  |   |                 |  |   |                     |          |   |                               |    |   |                 |  |    |                   |  |    |        |        |  |
| 10                        | Route item status  |  |     |   |   |        |  |   |           |  |   |         |  |   |         |          |   |                 |  |   |             |  |   |                 |  |   |                     |          |   |                               |    |   |                 |  |    |                   |  |    |        |        |  |
| 11                        | Action   | •<br>•   |     |   |   |        |  |   |           |  |   |         |  |   |         |          |   |                 |  |   |             |  |   |                 |  |   |                     |          |   |                               |    |   |                 |  |    |                   |  |    |        |        |  |
| 计算池 -<br>添加订单<br>(只能单个添加) |  | <ol style="list-style-type: none"> <li>1. 点击Add Order from Collection Pool             <ol style="list-style-type: none"> <li>a. 弹出弹窗：                     <ol style="list-style-type: none"> <li>i. Add Order from Collecti</li> <li>ii. 输入LM TN</li> <li>iii. 点击确认</li> </ol> </li> </ol> </li> <li>2. 后端校验逻辑：             <ol style="list-style-type: none"> <li>a. 需要从collection pool中查询这</li> <li>b. 同时保证这个订单不再当前这个</li> <li>c. 如果一个订单被confirmed了 1</li> <li>i. 然后手动加到池2时报错：</li> </ol> </li> </ol> |     |   |   |        |  |   |           |  |   |         |  |   |         |          |   |                 |  |   |             |  |   |                 |  |   |                     |          |   |                               |    |   |                 |  |    |                   |  |    |        |        |  |
| 计算配置<br>- 算法选择            |  <p>The screenshot shows the ShopeeXpress Calculation Pool interface. It includes sections for 'Smart Sorting Management' and 'Collection Pool'. Under 'Collection Pool', there are tabs for 'Basic Info' and 'Vehicle Info'. In 'Basic Info', the 'Station Address' is set to PT. Guardia Indonesia Menara Mandiri II, 17th Floor Jl. Jend. Sudirman Kav. 54-55 Senayan Jl. Jend. Sudirman Kav. 54-55 Senayan. The 'Optimization method' is set to 'Minimize the sum up of total distance'. In 'Vehicle Info', three vehicles are listed: 13234 Motorbike with 100 parcels, 13234 Motorbike with 100 parcels, and 13234 Motorbike with 100 parcels. Each vehicle has its own configuration parameters like capacity, weight, and distance.</p>  | <ol style="list-style-type: none"> <li>1. Optimization method             <ol style="list-style-type: none"> <li>a. Minimize the sum up of total distance</li> </ol> </li> </ol>   |     |   |   |        |  |   |           |  |   |         |  |   |         |          |   |                 |  |   |             |  |   |                 |  |   |                     |          |   |                               |    |   |                 |  |    |                   |  |    |        |        |  |

计算  
配置  
- 站  
点起  
点

ShopeeEXPRESS

Admin

Smart Sorting Management

Collection Pool

Calculation Pool

Calculation Pool / Task ID123232021105 - Calculate

① Select Order ② Parameters Setting

**I Basic Info**

\* Station Address: PT. Guardia Indonesia Menara Mandiri II, 17th Floor Jl. Jend. Sudirman Kav. 54-55 Senayan Jl. Jend. Sudirman Kav. 54-55 Senayan Jl. Jend. Sudirman Kav. 54-55 Senayan

Latitude: -6.1311403 | Longitude: 106.8794761

\* Optimization method: Minimize the sum up of total distance

**I Vehicle Info** Select the vehicle that needs to participate in the calculation

| Vehicle_id | Vehicle_name | Vehicle_capacity | Min_capacity_radio | Max_capacity_radio | Vehicle_weight | Max_weight_ratio | Vehicle_distance | Max_distance_ratio |
|------------|--------------|------------------|--------------------|--------------------|----------------|------------------|------------------|--------------------|
| 13234      | Motorbike    | 100 parcels      | 20 %               | 100 %              | 100 kg         | 100 %            | 100 km           | 100 %              |
| 13234      | Motorbike    | 100 parcels      | 20 %               | 100 %              | 100 kg         | 100 %            | 100 km           | 100 %              |
| 13234      | Motorbike    | 100 parcels      | 20 %               | 100 %              | 100 kg         | 100 %            | 100 km           | 100 %              |

Back Calculate

1. Station Address  
a. 这里只做展示，不能修改

展示  
配置-  
参与  
计算  
车辆

ShopeeEXPRESS

Admin

Smart Sorting Management

Collection Pool

Calculation Pool

Calculation Pool / Task ID123232021105 - Calculate

① Select Order ② Parameters Setting

**I Basic Info**

\* Station Address: PT. Guardia Indonesia Menara Mandiri II, 17th Floor Jl. Jend. Sudirman Kav. 54-55 Senayan Jl. Jend. Sudirman Kav. 54-55 Senayan Jl. Jend. Sudirman Kav. 54-55 Senayan

Latitude: -6.1311403 | Longitude: 106.8794761

\* Optimization method: Minimize the sum up of total distance

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| Vehicle_id | Vehicle_name | Vehicle_capacity | Min_capacity_radio | Max_capacity_radio | Vehicle_weight | Max_weight_ratio | Vehicle_distance | Max_distance_ratio |
|------------|--------------|------------------|--------------------|--------------------|----------------|------------------|------------------|--------------------|
| 13234      | Motorbike    | 100 parcels      | 20 %               | 100 %              | 100 kg         | 100 %            | 100 km           | 100 %              |
| 13234      | Motorbike    | 100 parcels      | 20 %               | 100 %              | 100 kg         | 100 %            | 100 km           | 100 %              |
| 13234      | Motorbike    | 100 parcels      | 20 %               | 100 %              | 100 kg         | 100 %            | 100 km           | 100 %              |

Back Calculate

顶部需要展示Pool ID  
选择参加计算的车辆类型+参数

- a. Vehicle\_id  
b. Vehicle\_name  
c. Vehicle\_capacity ( Parcel number )  
d. Min\_capacity\_ratio ( default 20% )  
i. 展示计算后的结果  
e. Max\_capacity\_ratio ( default 100% )  
i. 展示计算后的结果  
f. Vehicle\_load ( Parcel weight )  
g. Max\_load\_ratio ( default 100% )  
i. 展示计算后的结果

选择结束后按钮选择

1. Back ( 返回到 Select Order )
2. Calculate ( 推送计算 )

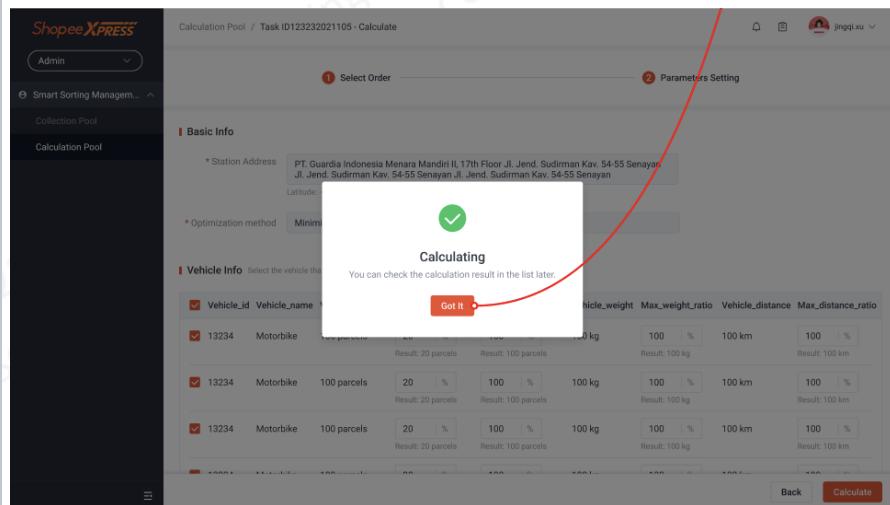
注意！如果Task状态为Calculating / Configuring，则无法进行操作。  
弹窗内容：

Attention! The current task status does not allow operation.  
Buttons: Confirm ( Click after returning to Task list page )

点击Calculate报错：

|   | 场景                | 报错内容  |
|---|-------------------|---|
| 1 | 缺失station address | Error! Station address is required.           |
| 2 | 未勾选车辆             | Error! At least one vehicle must be selected. |
| 3 | 关键性参数为0           | Error! 【必填】参数值不能为0。                           |

推送  
计算  
后的  
弹窗



1. Calculating
  - a. You can check the calculation result in the list later.
  - b. Got it

进度  
条

| Task ID      | Create time         | Status            |
|--------------|---------------------|-------------------|
| 123232021105 | 2021-06-10 15:30:28 | Pending Calculate |
| 123232021105 | 2021-06-10 15:30:28 | Pending Calculate |
| 123232021105 | 2021-06-10 15:30:28 | Calculated        |
| 123232021105 | 2021-06-10 15:30:28 | Pending Confirm   |
| 123232021105 | 2021-06-10 15:30:28 | Failed            |

1. 进度条只展示这个HUB内正在计算的
2. 计算好了后，提醒：
  - a. 2 calculation tasks pending to calculate
  - b. 2 calculation tasks failed
  - c. 2 calculation task pending confirmation

计算  
配置  
-车  
辆  
数  
量  
设  
置

#### 1. 参数设置 (By region 纬度设置)

| 设置 | 单位 | 说明 |
|----|----|----|
| 待定 | 待定 | 待定 |

|                       |  |   |                              |
|-----------------------|--|---|------------------------------|
|                       |  | a. 单位<br>k<br>m<br>一<br>支<br>持<br>十<br>位<br>小<br>数<br>最<br>大<br>支<br>持<br>9<br>9<br>9<br>km | 从 vehicle-type cc<br>修改参数只适用 |
| Max-<br>dista-<br>nce |  | b. 纬度设置<br>c. 地理位置<br>d. 纬度设置   |                              |
| Min-<br>parc-<br>els  |  | a. 单位<br>个<br>一<br>正<br>整<br>数<br>最<br>大<br>支<br>持<br>9<br>9<br>99                          |                              |

|                                     |  |   |
|-------------------------------------|--|---|
| numbers                             | a. 单位辆<br>一整数<br>一包括θ<br>b. 最大支持<br>99<br>c. 地理<br>纬度设置<br>d. 默认为零 | 需要满足<br>$\sum Min_i >$<br>如不满足，则需要提供 $\Delta num$ |
| road<br>path<br>one-<br>way<br>trip | a. 默认为零  |   |

### 3 Module : 计算结果展示&调整

计算结果分为三种group

- 完全匹配 ( 车辆的max\_capacity\min\_capacity\max\_distance )
- orphan 1 : 缺少坐标、无法解析
- orphan 2: 超过约束条件无法塞入

#### 3.1 整体结果返回成功

| 模块 | 图示 | 说明 |
|----|----|----|
|    |    |    |

Calculation Result

The screenshot shows the 'ShopeeXPRESS' interface under 'Calculation Pool / Detail'. The 'Calculation Result' tab is selected. A message box at the top says 'The result below have been confirmed'. Below is a table with columns 'Group' and 'Order Number'. The table contains several rows: one 'Orphan' row with 'Failed to Group due to "Exceed Max\_distance"', and multiple 'OK' rows with 'Group successfully' and their corresponding order numbers (10, 12, 5, 20, 5, 20, 5, 20).

Send all orders back to collection pool

The screenshot shows the 'ShopeeXPRESS' interface under 'Calculation Pool / Detail'. The 'Calculation Result' tab is selected. A confirmation dialog box titled 'Confirm' is displayed in the center. It asks 'Are you sure send all orders back to collection pool? This calculation task will be canceled at the same time.' There are 'Cancel' and 'Send' buttons. The 'Send' button is highlighted with a red box.

1. Tab :

- a. Calculation Result
- b. Parameter Setting
- c. Order Pool

2. 按照分组进行展示，排序

- a. Orphan 2
- b. Orphan 1

c. OK group (OK group 随机)

3. 固定组可以展开查看组内的订单

4. 组外&组内做翻页展示

5. 处理结果：

- a. Send back to collection pool
- b. Recalculate (返回计算池第几页)
- c. Confirm all results (确认所有结果)

6. 如果计算池状态为Confirmed，显示

7. 惊叹号说明：

- a. 最下面有一个感叹号，点击
  - i. Confirm All Results: 确认所有结果
  - ii. Recalculate: The who
  - iii. Send back to collection pool

8. Total Distance

a. 列表新增加 Total Distance

- i. 代表这个Route的总路
- ii. 单位：KM

b. 只有OK Group才有这个字符串

c. 取值为route\_distance

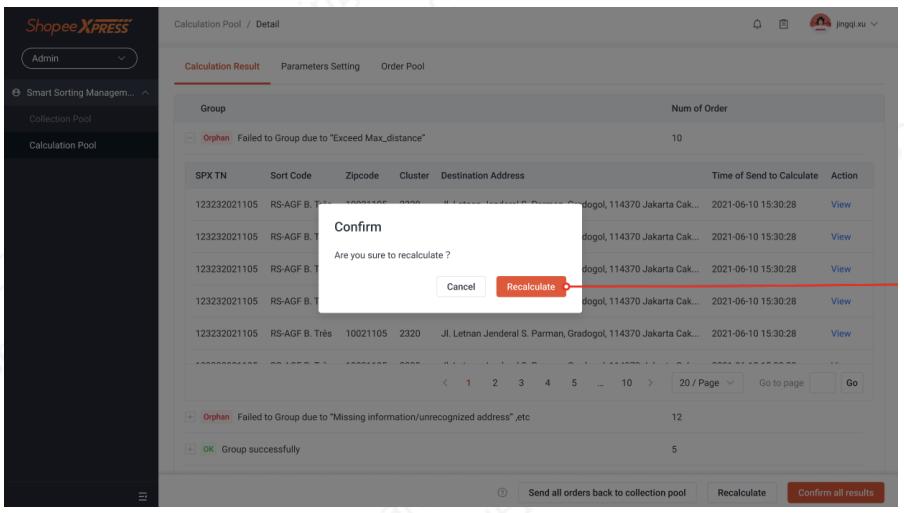
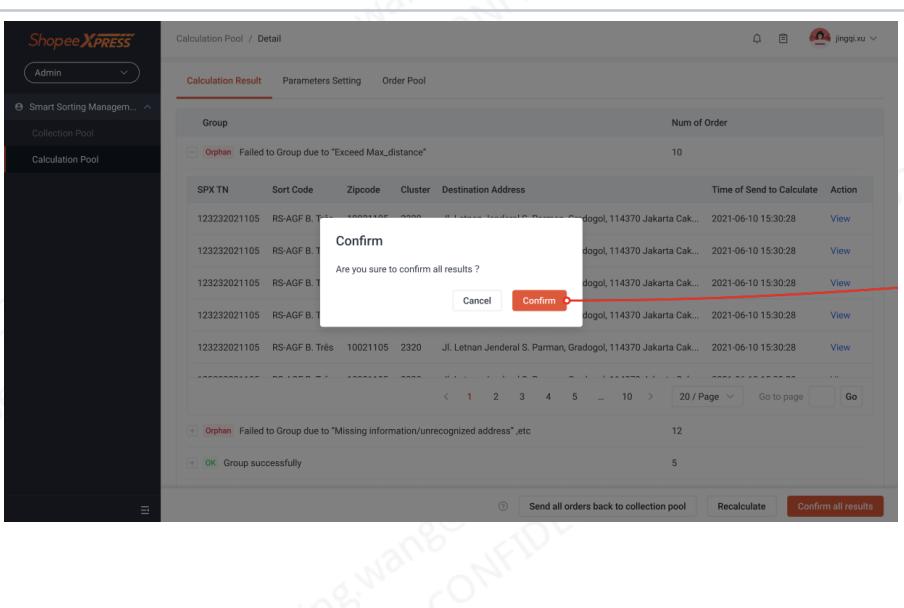
```
"results": {  
    "routes": [  
        "route_id": "自增键，A_ID 对应"  
        "vehicle_id": "车辆ID，根据route.vehicle_id设置"  
        "route_distance": "该route的总距离"  
        "route_weight": "该route总重量"  
        "route_weight_ratio": "该route总重量占总重量的比例"  
        "route_order_number": "该route在总路由中的位置序号"  
        "route_total_time": "预留字段，总耗时"  
        "route_total_cost": "预留字段，总成本"  
        "delivery_point_detail": [  
            {"order_id": "订单编号，如果"  
                "algo_addr_id": "如果algo_addr_id不等于0，则表示是通过该算法生成的地址"  
                "algo_addr_type": "二选一，表示是通过哪个算法生成的地址"  
                "order_sequence": "订单排列顺序，从1开始，每条路线内按此序号排列"  
                "addr": "输入地址，拼完后直接使用"  
                "algo_addr": "算法内部求出的地址，如果algo_addr_id不等于0，则表示是通过该算法生成的地址"  
                "addr_lat": "经维度度，以度为单位，取值范围[-90, 90]"  
                "addr_lng": "经维度度，以度为单位，取值范围[-180, 180]"  
                "order_weight": "该order的权重，取值范围[0, 1000]"  
                "start_time": "预留字段，预计开始时间"  
                "end_time": "预留字段，预计结束时间"  
                "travel_cost": "起始poi到终点的费用，取值范围[0, 1000000]"  
                "travel_time": "起始poi到终点的时间，取值范围[0, 1000000]"  
            },  
            "sub_sequence_detail": [  
                {"start_algo_addr_id": "起始点的算法生成的地址ID，如果起始点是手动输入的，则为0"  
                "end_algo_addr_id": "结束点的算法生成的地址ID，如果结束点是手动输入的，则为0"  
                "distance": "起始点和结束点的距离，取值范围[0, 1000000]"  
                "travel_cost": "起始poi到终点的费用，取值范围[0, 1000000]"  
                "travel_time": "起始poi到终点的时间，取值范围[0, 1000000]"  
            ],  
        ],  
    ]  
},  
}
```

1. 二次弹窗确认：

a. Confirm

- i. Are you sure to send
- 1. Cancel
- 2. Send

2. 点击确认后，回到计算池列表页  
"Calculation Task"

|                     |   |   |
|---------------------|---|---|
| Recalculate         |   | <p>1. 二次弹窗确认<br/>a. Confirm<br/>i. Are you sure to recalculate?<br/>1. Cancel<br/>2. Recalculate<br/>b. 点击Recalculate后跳转至该逻辑</p>  |
| Confirm all results |  | <p>1. 二次弹窗确认<br/>a. Confirm<br/>i. Are you sure to confirm all results?<br/>1. Confirm<br/>2. Cancel<br/>b. 点击Confirm, 将结果推送<br/>2. 下游处理逻辑<br/>a. 分组, 不同的处理逻辑</p> <div data-bbox="1264 918 1498 1214" style="border: 1px solid #ccc; padding: 10px;"> <b>组别</b><br/> <b>OK Group</b><br/> orphan 1 : 缺少坐标、无 <br/><br/> <b>orphan 2:</b> 超过约束条件 </div> |

| 列表  | 处理逻辑   |
|---|--|
| 统一操作  | <p>1. 因为存在多个组, 所以需要可多单勾选, 批量处理<br/>2. 批量处理:<br/>a. Confirm all results (所有组都推送到下一个步骤, 包括orphan)<br/>b. Send back to Collection pool (所有组都返回订单池)<br/>c. Send back to Calculation pool (所有组都返回计算池)</p> |
| <ul style="list-style-type: none"> <li>• OK Group 1</li> <li>• OK Group 2</li> <li>• ...</li> <li>• OK Group N</li> </ul> | <p>1. 后续选择:<br/>a. confirm结果<br/>b. 返回Collection</p>   |

|                                     |  |
|-------------------------------------|--|
| 1. orphan组(缺少坐标/未能识别文本地址/缺少信息等)     | 1. 一次计算结果最多只有一个orphan(缺少坐标/未能识别文本地址/缺少信息等)组<br>2. 后续选择<br>a. confirm结果, 自动组成独立的Group<br>i. inbound时需要打印label标明这个订单为orphan group<br>ii. 放置至专门的cage中<br>iii. 后续通过实物放进AT中进行派送<br>b. 返回订单池 |
| 1. orphan组(因超过Max_distance未能成Group) | 1. 一次计算结果最多只有一个orphan(因超过Max_distance未能成Group)组<br>2. 后续选择<br>a. 返回计算池, 和该批从重新计算   |

如果confirm结果后, Group会从列表中删除, 在订单Inbound后会自动打进AT

最终的情况是列表中没有Group, 说明所有计算结果都已确认(Confirm或者返回订单池)

## 4 Module: AT改动

以下只写新增逻辑, 旧逻辑保持不变

| 模块      | 图示   | 说明   |
|---------|--|--|
| AT list | <p>The screenshot shows a table of assignment tasks. Each row contains information such as Driver Name (e.g., "0", "mengdi.li"), Driver ID (e.g., "25046", "25136"), Delivery Date (e.g., "2021-10-04", "2021-10-01"), Shift (e.g., "Shift 3", "Shift 6"), Sort Code (e.g., "JKT1-BDO..."), Point code (e.g., "TANJUNG..."), District (e.g., "KOJA", "TANJUNG..."), Number of Orders/TOS (e.g., "6", "1"), Number of Assigned Orders/TOS (e.g., "0", "1"), Operator (e.g., "germ.bon...", "ferah.shi..."), Create Time (e.g., "2021-11-0..."), Assigned Time (e.g., "2021-11-0..."), Complete Time (e.g., "/"), and Action buttons (e.g., "View", "Reassign").</p> | <ol style="list-style-type: none"> <li>BR创建的AT, 对AT的操作权限需要放开( complete+reassign)</li> <li>新增一列: Creator (下拉选择)             <ol style="list-style-type: none"> <li>如果admin创建的AT, 值为System</li> <li>如果人为创造的AT, 值为创建人的Email</li> </ol> </li> <li>新增加一列: Vehicle Type (下拉选择)             <ol style="list-style-type: none"> <li>需要展示该AT是按哪种Vehicle Type Capacity进行计算的</li> <li>手动 /</li> </ol> </li> <li>Export             <ol style="list-style-type: none"> <li>新增Creator列</li> <li>新增Vehicle Type列</li> </ol> </li> </ol> <p><b>注意:</b> 一个订单如果未做LMHUB_received, 但是已被推送计算, 在AT中不做展示</p> |

| AT detail          | <p><b>Assignment Task ID:</b> AT2021110410N99</p> <p><b>Status:</b> Assigned    <b>Sort Code:</b> Test-new-sort-c    <b>District:</b> KOJA    <b>Number of Order:</b> 1</p> <p><b>Operator:</b> kaijin.liu@shopee.com    <b>Driver:</b> [27789]David    <b>Zone ID:</b> 0</p> <p><b>Zone Name:</b> .    <b>Point Code:</b> 0    <b>Tag:</b> Manual</p> <p><b>Add New Order</b> <input type="text" value="Please Scan or Input"/> <span>SPX TN ▾</span> <input type="button" value="Input"/></p> <p><b>Order Detail</b></p> <table border="1"> <thead> <tr> <th>Sequence</th> <th>SPX Tracking Num/TO</th> <th>Location Type</th> <th>Order Quantity</th> <th>Status</th> <th>Assigned Time</th> <th>Zone ID</th> <th>Zone no</th> <th>Action</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>SPXID123232021105</td> <td>Home</td> <td>1</td> <td>LMHUB_received</td> <td>2021-06-10 15:30:28</td> <td>-</td> <td>-</td> <td><input type="button" value="View"/> <input type="button" value="Remove"/></td> </tr> <tr> <td>2</td> <td>SPXID123232021105</td> <td>Home</td> <td>1</td> <td>LMHUB_received</td> <td>2021-06-10 15:30:28</td> <td>-</td> <td>-</td> <td><input type="button" value="View"/> <input type="button" value="Remove"/></td> </tr> <tr> <td>3</td> <td>SPXID123232021105</td> <td>Home</td> <td>1</td> <td>LMHUB_received</td> <td>2021-06-10 15:30:28</td> <td>-</td> <td>-</td> <td><input type="button" value="View"/> <input type="button" value="Remove"/></td> </tr> <tr> <td>4</td> <td>SPXID123232021105</td> <td>Home</td> <td>1</td> <td>LMHUB_received</td> <td>2021-06-10 15:30:28</td> <td>-</td> <td>-</td> <td><input type="button" value="View"/> <input type="button" value="Remove"/></td> </tr> <tr> <td>5</td> <td>SPXID123232021105</td> <td>Home</td> <td>1</td> <td>LMHUB received</td> <td>2021-06-10 15:30:28</td> <td>-</td> <td>-</td> <td><input type="button" value="View"/> <input type="button" value="Remove"/></td> </tr> <tr> <td>6</td> <td>SPXID123232021105</td> <td>Home</td> <td>1</td> <td>LMHUB received</td> <td>2021-06-10 15:30:28</td> <td>-</td> <td>-</td> <td><input type="button" value="View"/> <input type="button" value="Remove"/></td> </tr> </tbody> </table> <p style="text-align: center;"><span>&lt;</span> <span>1</span> <span>2</span> <span>3</span> <span>4</span> <span>5</span> ... <span>10</span> <span>&gt;</span> <span>20 / Page</span> <span>Go to page</span> <span>Go</span></p>  | Sequence           | SPX Tracking Num/TO | Location Type  | Order Quantity  | Status  | Assigned Time | Zone ID   | Zone no | Action    | 1            | SPXID123232021105 | Home  | 1            | LMHUB_received | 2021-06-10 15:30:28 | -            | - | <input type="button" value="View"/> <input type="button" value="Remove"/>   | 2            | SPXID123232021105 | Home      | 1            | LMHUB_received | 2021-06-10 15:30:28   | -            | -   | <input type="button" value="View"/> <input type="button" value="Remove"/> | 3            | SPXID123232021105 | Home  | 1            | LMHUB_received | 2021-06-10 15:30:28 | -            | - | <input type="button" value="View"/> <input type="button" value="Remove"/>   | 4            | SPXID123232021105 | Home      | 1            | LMHUB_received | 2021-06-10 15:30:28   | -            | -   | <input type="button" value="View"/> <input type="button" value="Remove"/> | 5            | SPXID123232021105 | Home  | 1            | LMHUB received | 2021-06-10 15:30:28 | -            | - | <input type="button" value="View"/> <input type="button" value="Remove"/>   | 6  | SPXID123232021105 | Home | 1 | LMHUB received | 2021-06-10 15:30:28 | - | - | <input type="button" value="View"/> <input type="button" value="Remove"/> | <ol style="list-style-type: none"> <li>只有LMHUB_received的才能加入AT</li> <li>点击Complete后, 如该AT中还有已计算, 但是未做inbound的订单, 需要提醒             <ul style="list-style-type: none"> <li>*内容: Attention! There are some orders in AT that have not been processed inbound. Are you sure you want to complete the AT?</li> <li>按钮:                     <ul style="list-style-type: none"> <li>i. Yes (complete AT)</li> <li>ii. No (返回列表)</li> </ul> </li> </ul> </li> <li>点击属于AT中的订单, 删除, 需要提醒:             <ul style="list-style-type: none"> <li>*内容: Are you sure want to delete the order? After deleting the order, it may affect the delivery sequence.</li> <li>按钮:                     <ul style="list-style-type: none"> <li>i. Yes (删除订单)</li> <li>ii. No (返回列表)</li> </ul> </li> </ul> </li> <li>新增加Route字段, 如无Route, 为空</li> <li>新增加Sequence字段, 记录AT中order的排序             <ul style="list-style-type: none"> <li>列表按照计算结果sequence进行排序, 未参与计算或者无结果的order/TO, 排在后面; 两个route按照加入AT时间进行排序,-</li> <li>如果有RE结果: 展示排序数字</li> <li>如果没有结果或者为0: 展示 -</li> </ul> </li> </ol> |
|--------------------|--|--------------------|---------------------|----------------|---|---------|---------------|---|---------|-----------|--------------|-------------------|---|--------------|----------------|---------------------|--------------|---|---|--------------|-------------------|-----------|--------------|----------------|---|--------------|-----|---|--------------|-------------------|---|--------------|----------------|---------------------|--------------|---|---|--------------|-------------------|-----------|--------------|----------------|---|--------------|-----|---|--------------|-------------------|---|--------------|----------------|---------------------|--------------|---|---|--|-------------------|------|---|----------------|---------------------|---|---|---|---|
| Sequence           | SPX Tracking Num/TO  | Location Type      | Order Quantity      | Status         | Assigned Time   | Zone ID | Zone no       | Action  |         |           |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |  |                   |      |   |                |                     |   |   |   |   |
| 1                  | SPXID123232021105  | Home               | 1                   | LMHUB_received | 2021-06-10 15:30:28   | -       | -             | <input type="button" value="View"/> <input type="button" value="Remove"/> |         |           |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |  |                   |      |   |                |                     |   |   |   |   |
| 2                  | SPXID123232021105  | Home               | 1                   | LMHUB_received | 2021-06-10 15:30:28   | -       | -             | <input type="button" value="View"/> <input type="button" value="Remove"/> |         |           |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |  |                   |      |   |                |                     |   |   |   |   |
| 3                  | SPXID123232021105  | Home               | 1                   | LMHUB_received | 2021-06-10 15:30:28   | -       | -             | <input type="button" value="View"/> <input type="button" value="Remove"/> |         |           |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |  |                   |      |   |                |                     |   |   |   |   |
| 4                  | SPXID123232021105  | Home               | 1                   | LMHUB_received | 2021-06-10 15:30:28   | -       | -             | <input type="button" value="View"/> <input type="button" value="Remove"/> |         |           |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |  |                   |      |   |                |                     |   |   |   |   |
| 5                  | SPXID123232021105  | Home               | 1                   | LMHUB received | 2021-06-10 15:30:28   | -       | -             | <input type="button" value="View"/> <input type="button" value="Remove"/> |         |           |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |  |                   |      |   |                |                     |   |   |   |   |
| 6                  | SPXID123232021105  | Home               | 1                   | LMHUB received | 2021-06-10 15:30:28   | -       | -             | <input type="button" value="View"/> <input type="button" value="Remove"/> |         |           |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |  |                   |      |   |                |                     |   |   |   |   |
| Reassignment       | <p><b>Assignment Task</b></p> <p><b>Assignment Task ID:</b> Please Input    <b>Driver Name:</b> Please Input    <b>Driver Station:</b> Please Select</p> <p><b>Vehicle Type:</b> Please Select    <b>Delivery Date:</b> Start Time - End Time    <b>Shift:</b> Please Select</p> <p><b>Operator:</b> Please Input    <b>Create Time:</b> Start Time - End Time</p> <p><b>Export</b> <input type="button" value="Create"/> <b>Reassign</b></p> <p><b>Reassign</b></p> <table border="1"> <thead> <tr> <th>Assignment Task ID</th> <th>Vehicle Type</th> <th>Shift</th> <th>Sort Code</th> <th>Point</th> <th>Action</th> </tr> </thead> <tbody> <tr> <td>123232021105</td> <td>ABC</td> <td>Day Shift</td> <td>JKT1-BDO-455</td> <td>-</td> <td><input type="button" value="View"/> <input type="button" value="Reassign"/></td> </tr> <tr> <td>123232021105</td> <td>ABC</td> <td>Day Shift</td> <td>JKT1-BDO-455</td> <td>-</td> <td><input type="button" value="View"/> <input type="button" value="Reassign"/></td> </tr> <tr> <td>123232021105</td> <td>ABC</td> <td>Day Shift</td> <td>JKT1-BDO-455</td> <td>-</td> <td><input type="button" value="View"/> <input type="button" value="Reassign"/></td> </tr> <tr> <td>123232021105</td> <td>ABC</td> <td>Day Shift</td> <td>JKT1-BDO-455</td> <td>-</td> <td><input type="button" value="View"/> <input type="button" value="Reassign"/></td> </tr> <tr> <td>123232021105</td> <td>ABC</td> <td>Day Shift</td> <td>JKT1-BDO-455</td> <td>-</td> <td><input type="button" value="View"/> <input type="button" value="Reassign"/></td> </tr> <tr> <td>123232021105</td> <td>Hun</td> <td>Day Shift</td> <td>JKT1-BDO-455</td> <td>-</td> <td><input type="button" value="View"/> <input type="button" value="Reassign"/></td> </tr> <tr> <td>123232021105</td> <td>Hun</td> <td>Day Shift</td> <td>JKT1-BDO-455</td> <td>-</td> <td><input type="button" value="View"/> <input type="button" value="Reassign"/></td> </tr> <tr> <td>123232021105</td> <td>Hun</td> <td>Day Shift</td> <td>JKT1-BDO-455</td> <td>-</td> <td><input type="button" value="View"/> <input type="button" value="Reassign"/></td> </tr> </tbody> </table> <p><b>Driver:</b> Please Select    <input type="button" value="Cancel"/> <input type="button" value="Confirm"/></p> <p>Total: 12,200    <span>&lt;</span> <span>1</span> <span>2</span> <span>3</span> <span>4</span> <span>5</span> ... <span>10</span> <span>&gt;</span> <span>20 / Page</span> <span>Go to page</span> <span>Go</span></p> | Assignment Task ID | Vehicle Type        | Shift          | Sort Code   | Point   | Action        | 123232021105  | ABC     | Day Shift | JKT1-BDO-455 | -                 | <input type="button" value="View"/> <input type="button" value="Reassign"/> | 123232021105 | ABC            | Day Shift           | JKT1-BDO-455 | - | <input type="button" value="View"/> <input type="button" value="Reassign"/> | 123232021105 | ABC               | Day Shift | JKT1-BDO-455 | -              | <input type="button" value="View"/> <input type="button" value="Reassign"/> | 123232021105 | ABC | Day Shift   | JKT1-BDO-455 | -                 | <input type="button" value="View"/> <input type="button" value="Reassign"/> | 123232021105 | ABC            | Day Shift           | JKT1-BDO-455 | - | <input type="button" value="View"/> <input type="button" value="Reassign"/> | 123232021105 | Hun               | Day Shift | JKT1-BDO-455 | -              | <input type="button" value="View"/> <input type="button" value="Reassign"/> | 123232021105 | Hun | Day Shift   | JKT1-BDO-455 | -                 | <input type="button" value="View"/> <input type="button" value="Reassign"/> | 123232021105 | Hun            | Day Shift           | JKT1-BDO-455 | - | <input type="button" value="View"/> <input type="button" value="Reassign"/> | <ol style="list-style-type: none"> <li>如果该AT是自动生成的, 新增             <ul style="list-style-type: none"> <li>AT Vehicle Type 字段展示</li> <li>提醒: This AT is for XWH driver.</li> <li>注意这里只是建议, 如果driver车辆不满足, 不做阻拦</li> </ul> </li> </ol> |                   |      |   |                |                     |   |   |   |   |
| Assignment Task ID | Vehicle Type   | Shift              | Sort Code           | Point          | Action  |         |               |   |         |           |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |  |                   |      |   |                |                     |   |   |   |   |
| 123232021105       | ABC  | Day Shift          | JKT1-BDO-455        | -              | <input type="button" value="View"/> <input type="button" value="Reassign"/> |         |               |   |         |           |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |  |                   |      |   |                |                     |   |   |   |   |
| 123232021105       | ABC  | Day Shift          | JKT1-BDO-455        | -              | <input type="button" value="View"/> <input type="button" value="Reassign"/> |         |               |   |         |           |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |  |                   |      |   |                |                     |   |   |   |   |
| 123232021105       | ABC  | Day Shift          | JKT1-BDO-455        | -              | <input type="button" value="View"/> <input type="button" value="Reassign"/> |         |               |   |         |           |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |  |                   |      |   |                |                     |   |   |   |   |
| 123232021105       | ABC  | Day Shift          | JKT1-BDO-455        | -              | <input type="button" value="View"/> <input type="button" value="Reassign"/> |         |               |   |         |           |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |  |                   |      |   |                |                     |   |   |   |   |
| 123232021105       | ABC  | Day Shift          | JKT1-BDO-455        | -              | <input type="button" value="View"/> <input type="button" value="Reassign"/> |         |               |   |         |           |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |  |                   |      |   |                |                     |   |   |   |   |
| 123232021105       | Hun  | Day Shift          | JKT1-BDO-455        | -              | <input type="button" value="View"/> <input type="button" value="Reassign"/> |         |               |   |         |           |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |  |                   |      |   |                |                     |   |   |   |   |
| 123232021105       | Hun  | Day Shift          | JKT1-BDO-455        | -              | <input type="button" value="View"/> <input type="button" value="Reassign"/> |         |               |   |         |           |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |  |                   |      |   |                |                     |   |   |   |   |
| 123232021105       | Hun  | Day Shift          | JKT1-BDO-455        | -              | <input type="button" value="View"/> <input type="button" value="Reassign"/> |         |               |   |         |           |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |              |                   |           |              |                |   |              |     |   |              |                   |   |              |                |                     |              |   |   |  |                   |      |   |                |                     |   |   |   |   |

|         |  |  |
|---------|--|--|
| AT之间的调动 |  | <p>只有AT_status = created &amp; processing</p> <p>单个移动：列表页order view新增加Move，点击后输入AT ID</p> <p>多选移动：多选，点击Move，输入AT ID</p> <p>报错：</p> <ol style="list-style-type: none"> <li>AT不存在：AT number not exists</li> <li>AT状态已complete：AT is already completed</li> </ol> |
|---------|--|--|

## 5 Module: inbound模块修改

暂时不做修改，维持RE的逻辑即可

|                   | 说明   |
|-------------------|--|
| Normal receive    | <ol style="list-style-type: none"> <li>不可收Route_item=pending &amp; initial的订单           <ol style="list-style-type: none"> <li>Route_item=pending报错：The sort result has not been calculated yet. Please try later !</li> <li>Route_item=initial报错：The sort result has not been started yet. Please put this order into calculation process.</li> </ol> </li> <li>对于Route_item != pending &amp; initial的订单           <ol style="list-style-type: none"> <li>有计算结果Route_item=calculated：inbound后直接打印AWB</li> <li>无计算结果：inbound后不打印？需要确认</li> </ol> </li> </ol> |
| exception receive | 1. 可以收Route_item=pending & initial的订单，不打印AWB   |
| on hold receive   | <ol style="list-style-type: none"> <li>如onhold次数超过或者=3次 ( on_hold_times &gt;=3 )           <ol style="list-style-type: none"> <li>告知建议退回</li> <li>*报错文案：The number of delivery attempts for this order has been greater than 3, and it is recommended to return</li> </ol> </li> <li>如超过&gt; = 3次，不阻拦receive，只是提示处理</li> </ol>   |

## 6 Module: AWB模块

| 模块             | 截图   | 说明   |
|----------------|--|--|
| AWB - OK group |  <p>The image shows a rectangular AWB label divided into four quadrants by a vertical and horizontal line. The top-left quadrant contains the text 'ROTA' above 'A_10'. The top-right quadrant contains 'ORDEM' above '100'. The bottom-left quadrant contains the date '10/09/2021'. The bottom-right quadrant contains the tracking number 'BR12345678X'. To the left of the label, there is a dimension of '4CM' vertically and '7CM' horizontally, indicating the size of the label.</p> | <p>在LM INBOUND时，因算法已反馈结果，需要贴上AWB以供之后的操作流程进行使用</p> <p>label包括以下几个信息</p> |

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| AWB - orphan group (包括缺少地址的和超过阈值的) |  | <p>需要打<br/>标标明<br/>为<br/>orpha<br/>n<br/>group</p> <p>Label<br/>包含以<br/>下信息</p> <p>1. L<br/>M<br/>-<br/>T<br/>N:<br/>s<br/>hi<br/>p<br/>m<br/>e<br/>nt<br/>_id</p> <p>2. M<br/>ar<br/>k<br/>:<br/>空</p> <p>3. la<br/>b<br/>el<br/>_d<br/>at<br/>e<br/>:<br/>返<br/>回<br/>结<br/>果<br/>的<br/>时<br/>间</p> <p>templa<br/>te ID:<br/><a href="https://ops.ssc.uat.shopeemobile.com/awb/editor/400002865">https://ops.ssc.uat.shopeemobile.com/awb/editor/400002865</a></p> |
|------------------------------------|--|--|

## 7 Corridor and Cage number

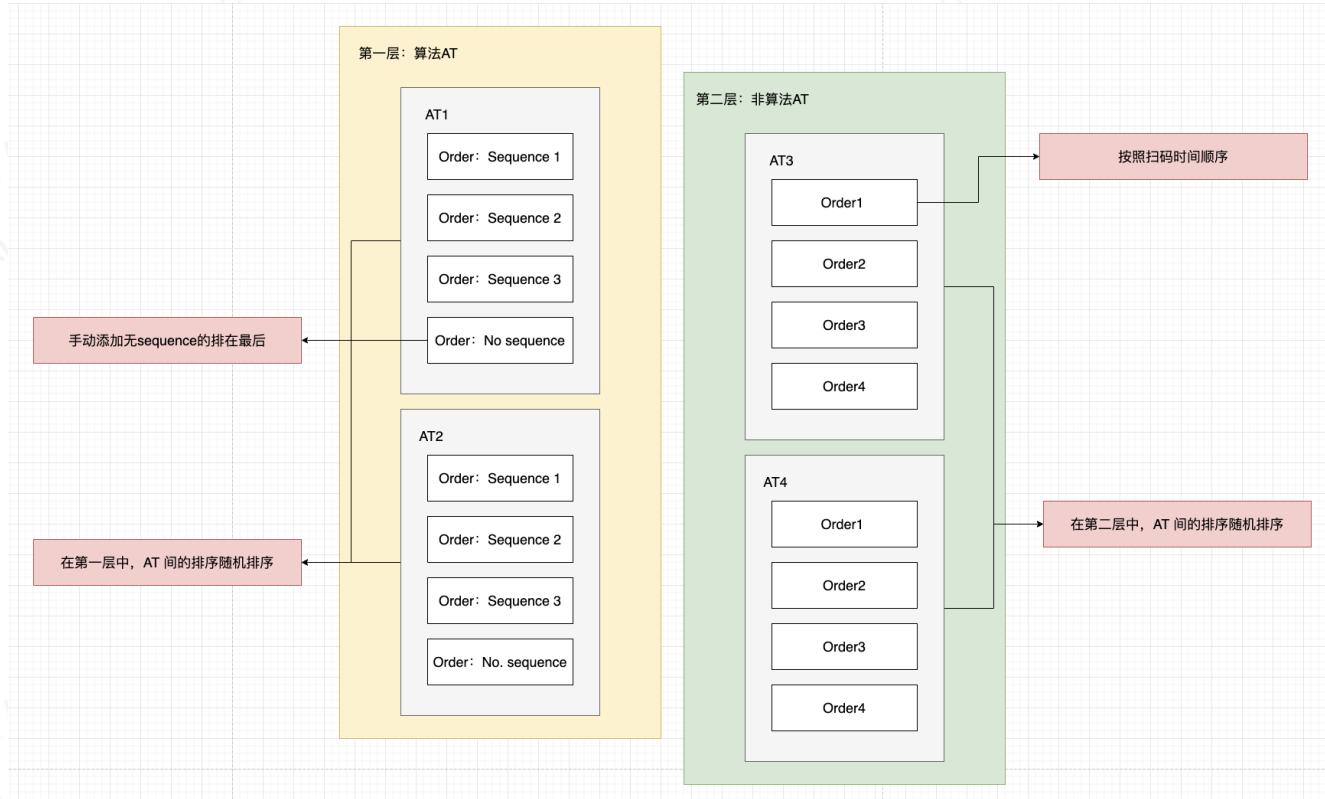
[BR] Adjust assignment task ID logic based on corridor/cage concept

复用即可

## 8 Module: 骑手APP修改

1. TODO LIST 排序信息的展示 ( ROTA ( first\_round ) /ROTA ( second\_round ) /ORDEM: AT中该订单的排序--route\_sequence )
2. order Detail 排序信息的展示 ( ROTA ( first\_round ) /ROTA ( second\_round ) /ORDEM: AT中该订单的排序--route\_sequence )

### 排序规则



| 模块        | 图示 | 说明   |
|-----------|----|--|
| TODO LIST |    | <ol style="list-style-type: none"> <li>默认排序为骑手扫描时间倒排（现有逻辑）</li> <li>当骑手点击recommend时，按照RE给的顺序进行排序             <ol style="list-style-type: none"> <li>如只有一个 smart routing AT，按照顺序展示，先派送的在上面，后派送的在下面</li> <li>如有多个 smart routing AT，AT纬度随机排序，只保证一个 AT中的订单在一起，且按照sequence排</li> <li>如果混杂 smart routing AT和非 smart routing， smart routing 排在前面，之后再按照ab的顺序排；</li> <li>AT 之间要做区隔</li> </ol> </li> <li>TODO LIST中订单需要展示：             <ol style="list-style-type: none"> <li>X=Y                     <ol style="list-style-type: none"> <li>X: 订单所属AT纬度排序</li> <li>Y: AT中sequence排序</li> <li>Y为空（无结果）: 不展示</li> </ol> </li> </ol> </li> </ol> |

|      |  |   |
|------|--|---|
| 订单明细 |  | <p>1. TODO LIST中订单需要展示:</p> <ol style="list-style-type: none"> <li>X→Y           <ol style="list-style-type: none"> <li>X: 订单所属AT纬度排序</li> <li>Y: AT中sequence排序</li> <li>Y为空(无结果): 不展示</li> </ol> </li> </ol>   |
| 骑手接单 |  | <p>1. TODO LIST中订单需要展示:</p> <ol style="list-style-type: none"> <li>X→Y           <ol style="list-style-type: none"> <li>X: 订单所属AT纬度排序</li> <li>Y: AT中sequence排序</li> <li>X和Y为空(无结果): 不展示</li> </ol> </li> </ol> |

## 8 Module: 操作落表

1. AT之间拖拽记录

## 9 问题记录 & edge case

### Question

|   | Q  | A   |
|---|--|---|
| 1 | 为什么RE有三个池子<br><ul style="list-style-type: none"> <li>• 收集池 ( RE web )</li> <li>• 计算池 ( RE web )</li> <li>• exception pool ( admin )</li> </ul> | 因为RE不支持OPS手动添加订单到计算池中<br><br>所以只能在admin添加exception pool批量推送到RE计算池中<br><br>自研后，exception pool 和 收集池可溶为一个 |

### Edge case

|  | 场景 | 订单状态 | 触发逻辑 & 解决方案 |
|--|----|------|-------------|
|--|----|------|-------------|

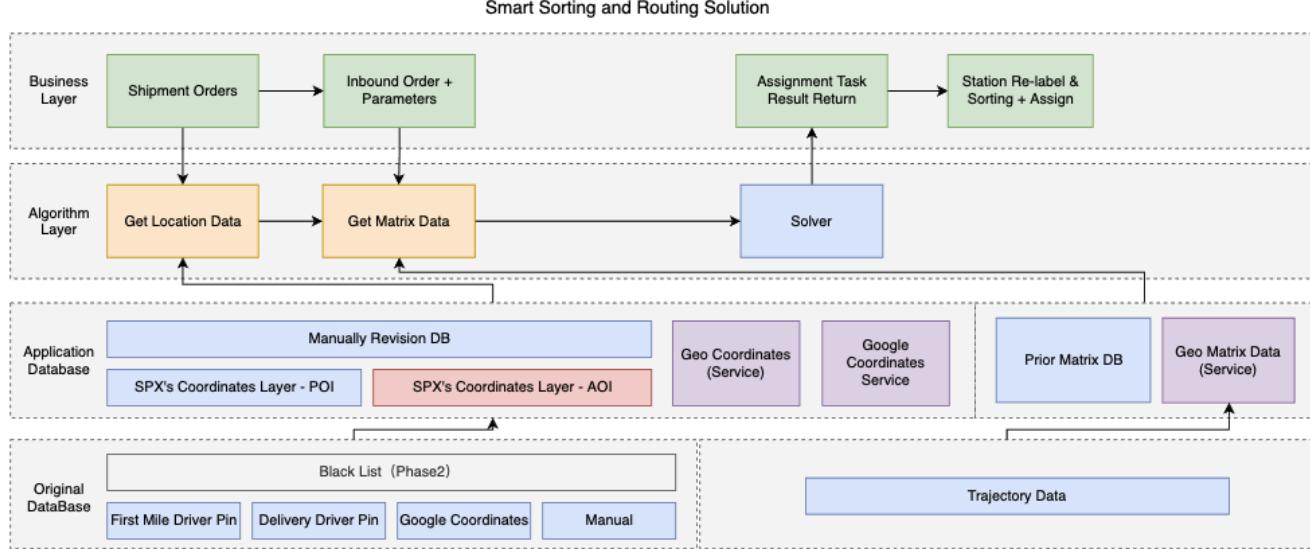
|   |  |   |  |
|---|--|---|--|
| 1 | LM SOC 一体<br>( Auto - LH )             | /   | <p><b>1. 现状:</b> 系统自动打TO, 自动LH<br/> <b>2. 修改为:</b> 站内识别若两个站点间存在Auto LH, 直接发送SOC_LHTransported的Tracking, 依赖人工inbound</p>  |
| 2 | SOC 转 SOC                              | /   | 识别是否下一站为Delivery Station, 若下一站为Delivery station, 则在SOC_LHTransported 是将订单推送给订单池  |
| 3 | onhold 小于3次                            | <ol style="list-style-type: none"> <li>1. Tracking_status状态由 Onhold 状态变为 LMHUB_received</li> <li>2. Route_item=end &amp; Calculated</li> <li>3. on_hold_times &lt;3</li> </ol>  | <p>做inbound后<br/>OPS手动加进订单池, 重新推送计算</p>  |
| 4 | onhold 大于3次                            | <ol style="list-style-type: none"> <li>1. Tracking_status状态由 Onhold 状态变为 LMHUB_received</li> <li>2. Route_item=end &amp; Calculated</li> <li>3. on_hold_times &gt;=3</li> </ol> | <p>做inbound后, 提醒, 不强制阻拦<br/>OPS手动加进订单池, 重新推送计算</p>   |
| 5 | 未经过SOCLH_transported<br>但是exception_in | <ol style="list-style-type: none"> <li>1. Tracking_status =LMHUB_received</li> <li>2. Route_item= 暂未生成</li> </ol>   | OPS手动加进订单池, 推送计算   |
| 6 | 计算出结果<br><br>LM_HUB received后<br>未进AT  | <ol style="list-style-type: none"> <li>1. racking_status =LMHUB_received</li> <li>2. Route_item=Calculated (情况1)</li> <li>3. Route_item=initial (情况2)</li> </ol>                | <p>在LMHUB_received后发现没进所属AT的订单, 原因有2:</p> <ol style="list-style-type: none"> <li>1. 系统抖动原因</li> <li>2. 所属AT已Complete</li> </ol> <p>解决方案:</p> <ol style="list-style-type: none"> <li>1. 手动重新加入计算池内进行计算</li> </ol>                                       |
| 7 | 计算出结果<br><br>一直未做LMHUB received        | <ol style="list-style-type: none"> <li>1. tracking status =SOCLH_transported</li> <li>2. Route_item=Calculated</li> </ol>   | <p>计算出结果后, 因订单未做LM HUB 收货, 场景有2:</p> <ol style="list-style-type: none"> <li>1. 订单运错HUB</li> <li>2. 包裹丢了</li> </ol> <p>解决办法:</p> <ol style="list-style-type: none"> <li>1. 将包裹退回正确站点派送</li> <li>2. 将包裹通过exception in inbound, 不打label, 继续派送;</li> </ol> |

## Design 2: Strategy Design

总设计图纸: [https://app.diagrams.net/#G1Gaye1XKv9WArYz-0ZZh0sm\\_oyb0q60Nh](https://app.diagrams.net/#G1Gaye1XKv9WArYz-0ZZh0sm_oyb0q60Nh)

### 1 数据设计 Data Requirement Document

LM解决方案依赖一系列底层数据及外部服务, 因此需要兼容各类数据源, 进行底层数据- (数据策略) -应用层数据-算法- (算法策略) 的分层架构。整体架构与Smart Sorting一致:



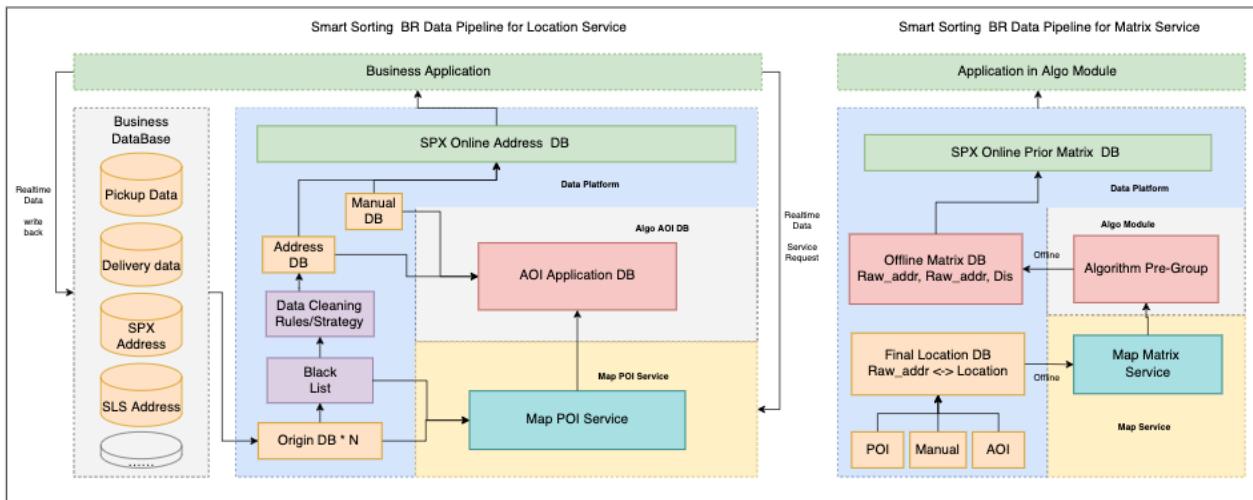
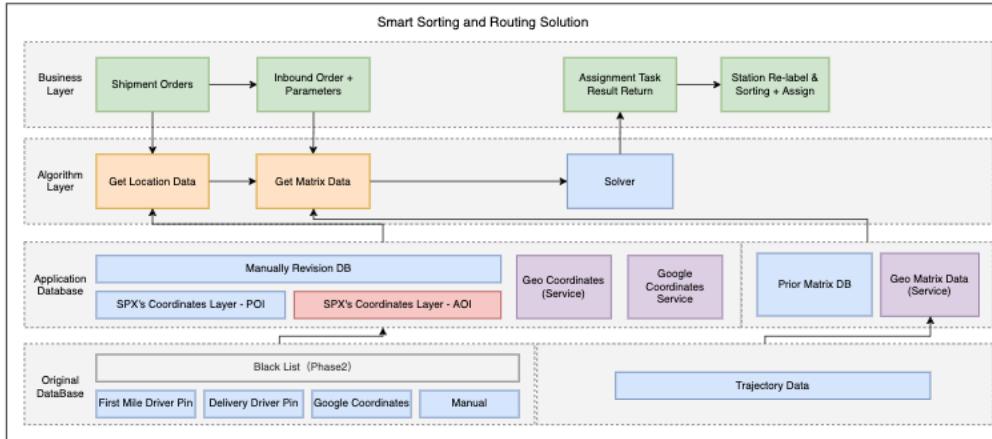
其中，考虑数据迭代的便捷性和稳定性，数据流遵循如下逻辑：

1. 业务生产数据统一由SPX Data Team进行口径整合，各服务方（SPX原始地址库、Algo结构化地址、Map）与业务生产数据隔离。
2. SPX地址库服务侧重于底层数据清理及管理，Data平台整合并收口强业务逻辑的清洗规则，通过清洗策略+黑名单数据库清洗出可用原始地址相关数据；同时对业务侧人工纠错录入的数据进行管理。
3. Data平台负责SPX地址库的清洗、测算及推送上线管理，且承接算法AOI经纬度地址库的推送及上线、算法先验Matrix数据库的推送及上线。算法数据库不直接推送给工程，而统一并入数据平台进行测算、允上线管理。

### 1.1 Address Database Generation SPX业务库及地址库清洗

SPX内部原始地址库和地址库清洗需要Data平台承接，地址库管理架构如图：

## 02 Overall Data Flow Design



从业务库清洗为各数据源的原始地址DB，以及从原始DB清洗为待上线的地址库，需要遵循统一的清洗逻辑，便于后续管理；所有不同数据源只做权重考虑，清洗逻辑保持整体的一致性。

业务数据具体生产逻辑及地址库清洗逻辑，遵循子PRD定义：[Address Database Requirement Document](#).

### 1.2 Driver Trajectory 数据上报

BR地区Delivery Trajectory需要保留和SEA AREA相同的上报逻辑及推送逻辑。本次项目中不需要额外开发量，但需要更改配置。

1. 需要QA进行压力测试。
2. 前期需要按照1s上报轨迹

子PRD参考：[SPX send Geo driver trajectory data](#)

### 1.3 AOI DB

AOI Database为基于Geo POI Database搭建的AOI应用层，内部的迭代策略由Algo Team根据模型需求定义；其主要有两个应用场景：

1. 进行经纬度查询，提供更高准确度的经纬度信息
2. 进行订单合并，多个order合并为一个delivery point（即一个AOI概念）

AOI的生产及维护在Algo Team内闭环，仅为SPX提供数据服务；AOI的同步、更新、上线由Data Platform承接. AOI的具体定义由Algo Team设计，保留生产必要主键字段

| Column | Column Type | DESC   |
|--------|-------------|--|
| id     | STRING      | 拼完正则的总地址, (Avenue, No, Component), Neighborhood, Zipcode, City, State的hash |
| addr   | STRING      | 拼完正则的总地址, (Avenue, No, Component), Neighborhood, Zipcode, City, State      |

|            |         |                             |
|------------|---------|-----------------------------|
| address    | STRING  | 归一化后的 Avenue, No, Component |
| address_l1 | STRING  | 地址L1                        |
| address_l2 | STRING  | 地址L2                        |
| address_l3 | STRING  | 地址L3                        |
| address_l4 | STRING  | 地址L4                        |
| zipcode    | STRING  | 地址ZIP CODE                  |
| lng        | DECIMAL | 地址对应经度                      |
| lat        | DECIMAL | 地址对应纬度                      |
| center_cnt | INT     | 中心点数                        |
| resource   | STRING  | 数据来源                        |

#### 1.4 SPX AOI DB 及POI DB的上线方案:

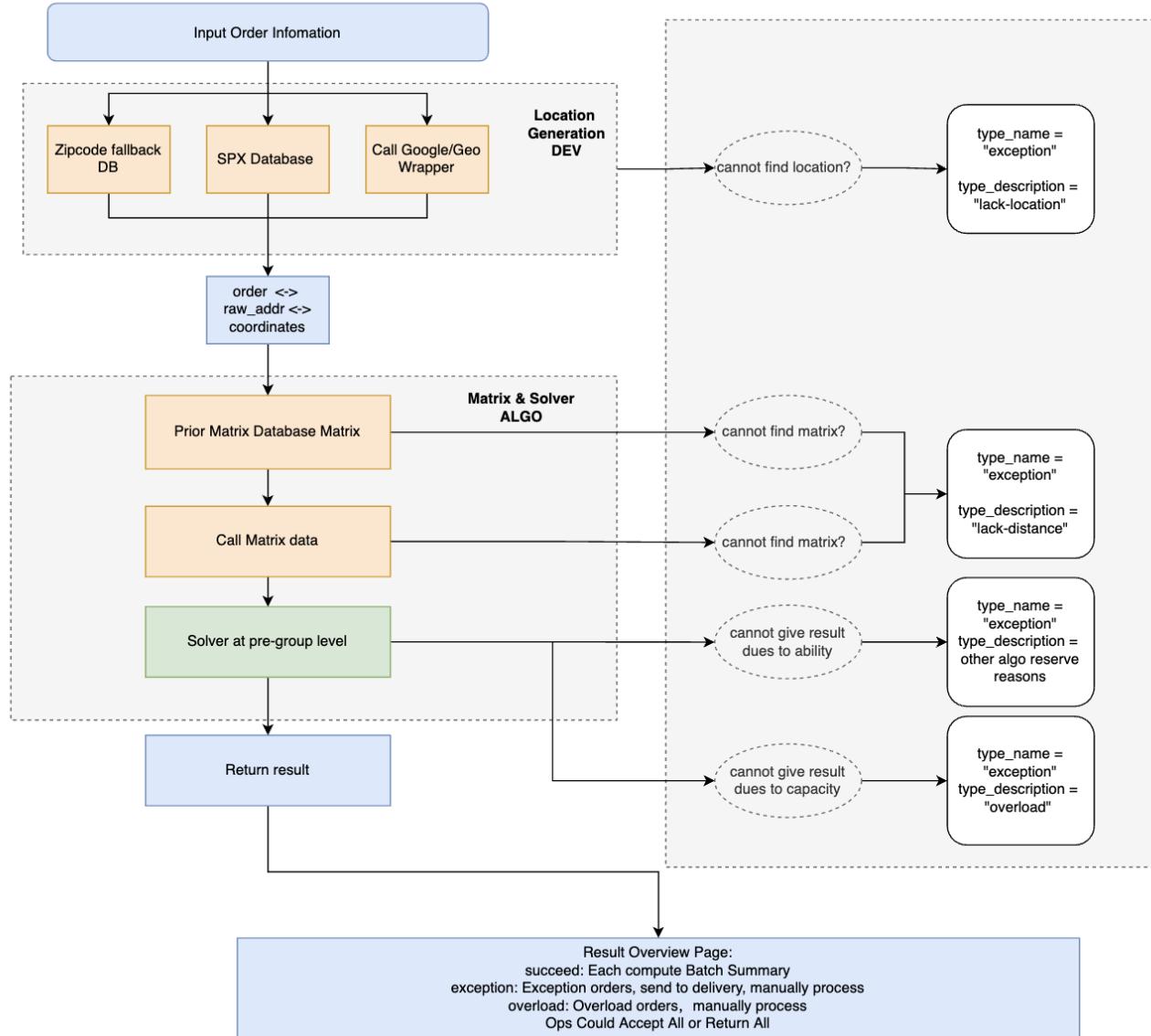
[Location Database Online Design](#)

## 2 Solution Logic Design

线上核心链路包括以下主要模块：

1. Location获取模块，在下单环节调取并存储获取到的经纬度信息
2. Matrix获取模块，属于算法模块的数据获取模块，在运算环节离线+实时获取地址之间的距离、行驶时间等信息
3. Solver求解模块，属于算法模块的核心运算模块，基于Location及Matrix信息求解

## 03 Module Interaction



### 2.1 Location Generation Requirement Document

线上经纬度匹配逻辑 [BR][Data+Dev]Location Generation Design

### 2.2 Matrix Generation Requirement Document

定义获取Matrix的具体方法，包含在算法内部模块内，具体见算法技术方案：VRP算法实现框架设计

### 2.3 Algo Interactive parameter Definition

算法交互模块的出入参定义（及上述图Matrix & Solver Algo的出入数据定义）

入参和出参见文档（有变更需联系PM和指定研发更改）：[BR]算法模块出入参及字段设计

### 2.4 Result Data Definition 用于生产及分析迭代的结果字段定义

Data需落表（分析）：Result Data Requirement Document

生产需落表（用于生产的算法结果）：各环节结果回写表

## 3 算法求解目标及约束定义

算法需要支持“Oneway”（司机送完最后一单后不回到站点）和“Roundtrip”（司机送完最后一单后需要回到站点，需要计算回程距离）模式，且最终决定用是“oneway”还是“roundtrip”由BE统一配置。

### 3.1 算法求解目标：

- min\_distance, 全局总行驶距离最短, default
- min\_vehicle\_number, 全局总车辆数最少, 当期不做重点.

注：实际使用中，用户希望使用最少的车辆获取全局最短的距离，在这个优化条件下会倾向于选择打大车。~~由于大车的cost相对较高，因此在选择车辆类型时，在相同车辆载重能力的基础上，优先选择实际装载率（计算parcel数/vehicle\_max\_parcels）更大的车辆类型。~~

Phase 1 0427上线版本中，实际求解逻辑为：

基于min\_distance的求解目标，实际优化方向：

1. 选择尽可能少的车辆
2. 在最少车辆的基础上优化总距离，使得总行驶距离最短

0511版本需要在1, 2基础上补充下述车辆选择优先级逻辑（不影响routing逻辑，只做后处理）

- 当计算的车辆约束（实际生效约束，即若车辆载重量是500件但实际计算约束为100件订单；车辆载重为600kg但实际计算约束为100kg；车辆最远行驶距离为300km但实际计算约束最远行驶距离为100km等上述类似情况）可以满足当前该route配送时，在可完成当前配送的所有可选车辆类型(vehicle\_id)中，优先使用max\_weight(车辆载重)小的车型。

### 3.2 算法求解的业务约束：

1. 资源约束：
  - a. 每个Hub会配置多个车型和可选数量，作为求解的资源池(vehicle\_id定义unique车辆类型);
  - b. 每类车型对应最大、最小载重数量和重量的约束
    - i. "min\_parcels":车辆最小负载订单数量
    - ii. "max\_parcels":车辆最大负载订单数量
    - iii. "**min\_weight\_ratio**":**车辆最小载重比例，用户phase1不设定，因此默认为0**
    - iv. "max\_weight":车辆最大载重量
  - c. 每个新资源单位的引入需要满足该资源单位最小负载约束条件；
  - d. 每个资源单位有最大行驶距离的约束条件 ( max\_travel\_distance )，求解不能突破每个资源单位的相关运力限制
  - e. 预留每个车辆的最长作业时间max\_travel\_time；当期不做重点
2. 资源调整：单次计算中无法调整资源单位的配置信息复算，只能在限制时间内基于已有资源信息返回最优解和不可解部分。
3. 不可解的定义：
  - a. [lack-location]经纬度信息缺失，无法计算：赋予type\_name=exception，进入special AT；该类订单在进入算法模块之前已经被过滤，故算法模块内不需要考虑。
  - b. [lack-matrix]经纬度信息完善但matrix信息缺失，无法计算：赋予type\_name=exception，进入special AT
  - c. [overload]信息完善，但超过求解范围约束，无法当批次给出结果：赋予type\_name=overload，在结果overview页面可被用户选择进入special AT单独处理，或打回计算池进入下批处理。

算法模块下的订单计算结果只有三种类型：succeed, overload, exception; exception的具体定义算法可延展，当前exception至少包含两种类型:[lack-location, lack-matrix]，其他类型在此之上添加，要求穷举，不能overlap。

### 3.3 算法方案设计

具体见技术方案，产品侧对算法模型方案及细节不做定义：[VRP算法实现框架设计](#)

## 上线方案

### 数据处理

| 模块    | 简述   | dev                     | check_list | comment |
|-------|--|-------------------------|------------|---------|
| 地址库管理 | <input checked="" type="checkbox"/> SPSSO-2848 - [BR] Parameter adjustment for the Live testing <span style="border: 1px solid #ccc; padding: 2px;">DONE</span> 用于地址库清洗的策略调整（系数调整） | haoxing.yang@shopee.com | 地址库        |         |

|                        |   |                          |                     |  |
|------------------------|---|--------------------------|---------------------|--|
| BR User 地址写法变更         | User透传地址会把无符号的书写方式统一为有符号的书写方式，未来下单的地址L1, 2都会变化，SPX地址库涉及匹配逻辑，需要相应变化（刷新DB或设置映射） <a href="https://docs.google.com/spreadsheets/d/1O7WJnsk3RxszQYITyYAdtdPetiy-0LqR/edit#gid=1212267665">https://docs.google.com/spreadsheets/d/1O7WJnsk3RxszQYITyYAdtdPetiy-0LqR/edit#gid=1212267665</a> | haoxing.yang@shoppee.com | 地址库                 |  |
| Live test report       | Live test report requirement  | haoxing.yang@shoppee.com | Live testing report |  |
| Station 信息 - Phase1    | Phase1需要手工获取live testing的hub信息（地理位置+经纬度）  |                          | station信息正确         |  |
| whitelist 配置 - Phase 2 | Algo-monitor灰度状态下需要live环境配置的依赖项：<br>1. 白名单类型选择monitor<br>2. 其他live相关配置（服务范围，station信息，network依赖等，确保订单可正常流转至分单模块）<br>3. 若处于 Live Testing阶段，需要确保station信息和RE配置一致<br>4. 需要检查地址库是否ready   |                          | 需研发补充               |  |

## Check List

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## 附录

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### 待办事项

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-----我是一份有底线的PRD-----