**Cost Allocation**

1. Pick all the carrier invoices from CARR\_INV table , where CURR\_STATUS\_CD is ‘APPROVED’
2. For each invoice identify whether it is unbundled or dedicated. A reference table is used to identify this. It has following fields (static data).

* Brewery
* Carrier
* Bus\_enty\_id
* Inv\_Type
* Distr\_pnt\_bus\_enty\_id
* Ref\_Cost

Sample data:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Brewery** | **Carrier** | **BUS\_ENTY\_ID** | **Inv\_Type** | **Distr**  **Pnt**  **Bus**  **Enty id** |  | **Ref\_Cost** |
| Baldwinsville (BLDV) | NFI (NFIL) | 3813 | DEDICATED |  |  |  |
| Cartersville (CRTV) | Werner (WERD) | 5971 | DEDICATED |  |  |  |
| Columbus (COL) | Werner (WERD) | 5971 | DEDICATED |  |  |  |
| Ft Collins (FCL) | Werner (WERD) | 5971 | DEDICATED |  |  |  |
| **Houston (HTN)** | **JB Hunt (HJCS)** | **3682** | **UNBUNDLED** | **51** |  | **PRIMARY** |
| **Houston (HTN)** | **Ryder (RYCG)** | **6555** | **UNBUNDLED** | **51** |  | **LEASE/MAINT** |
| **Houston (HTN)** | **Questar (QSTR)** | **6556** | **UNBUNDLED** | **51** |  | **CNG** |
| Jacksonville (JKSV) | Werner (WERD) | 5771 | DEDICATED |  |  |  |
| Los Angeles/Fairfield (LA) | Biagi (BBIG) | 5901 | DEDICATED |  |  |  |
| Merrimack (MERR) | NFI (NFIL) | 3813 | DEDICATED |  |  |  |
| Newark (NWK) | NFI (NFIL) | 3813 | DEDICATED |  |  |  |
| Newark (NWK) | NFI Long Haul (NAFL) | 6281 | DEDICATED |  |  |  |
| Portland (PORT) | Schneider (SNCY) | 3115 | DEDICATED |  |  |  |
| **St Louis (STL)** | **JB Hunt (HJCS)** | **3682** | **UNBUNDLED** | **46** |  | **PRIMARY** |
| **St Louis (STL)** | **Element (ELMT)** | **6752** | **UNBUNDLED** | **46** |  | **LEASE** |
| **St Louis (STL)** | **Amerit (AMET)** | **6751** | **UNBUNDLED** | **46** |  | **MAINT** |
| **St Louis (STL)** | **U.S. Gain (GANN)** | **6756** | **UNBUNDLED** | **46** |  | **CNG** |
| St Louis (STL) | Werner (WENF) | 6056 | DEDICATED |  |  |  |
| St Louis (STL) | Werner Long Haul (WENL) | 4474 | DEDICATED |  |  |  |
| Williamsburg (WMS) | NFI (NFIL) | 3813 | DEDICATED |  |  |  |

**Dedicated Invoices Calculation:**

1. Pick all the dedicated invoices from CARR\_INV table, CURR\_STATUS\_CD should be ‘APPROVED’ for the primary carrier.
2. Take total count of shipment Ids, and for that shipment total miles should be greater than 1.
3. **Admin Cost:**

|  |  |  |
| --- | --- | --- |
| Grouping | Invoice Category Codes | Calculation |
| ADMIN COST | 'DRVRCHG',  'FRTADJMNT',  'GENEXP',  'GEN\_SPOTTING',  'LABOR',  'LABOR-DUMP/REPK',  'MISC-CHARGES',  'OVERTIME-LABOR',  'SGLTRDRV',  'SLPTRDRV',  'STOPOFF-CHG',  'TOLLCHG',  'THRDPRTYTX',  'DROPLOT',  'OTHERCR',  'UNKNOWN' | Total DTL\_AMT from CARR\_INV\_DTL table and split it across shipment IDs. |

1. **FUEL:**

|  |  |  |
| --- | --- | --- |
| Grouping | Invoice Category Codes | Calculation |
| FUEL | FUELSURCHG  FUEL\_TAX | Average UNIT\_PRICE\_AMT from CARR\_INV\_DTL table. This amount is applied to each shipment based on total miles. Total miles \* avg unit price amt |

1. **Mileage**

|  |  |  |
| --- | --- | --- |
| Grouping | Invoice Category Codes | Calculation |
| Mileage | VARBLMLG | Average UNIT\_PRICE\_AMT from CARR\_INV\_DTL table. This amount is applied to each shipment based on total miles. Total miles \* avg unit price amt |

For each unique ABI\_SHIP\_ID this calculation is done. Total distance = Loaded distance + deadhead

1. **Tractor Cost**

For each invoice , pick count tractor days from CARR\_INV\_SHPMT\_DTL table.

|  |  |  |
| --- | --- | --- |
| Grouping | Field Name | Calculation |
| Tractor Cost | 'CHGDAYCAB',  'SLIPTRCT',  'SLPRCBCHR',  'SGLTRCTOR | Total DTL\_AMT from CARR\_INV\_DTL. Tractor Cost per day = Total amount /Count of tractor days. Split tractor per day cost among all shipments. If there are two shipments in one day, then split the per day cost based on total miles (Pro ration) |

1. **Trailer Cost**

|  |  |  |
| --- | --- | --- |
| Grouping | Field Name | Calculation |
| Trailer Cost | 'DRYVANTR',  'LEASED-TRLR-CHG',  'PLATETRL53',  'REFRTR53',  'ROLLERBEDTRL' | Total DTL\_AMT from CARR\_INV\_DTL. Trailer Cost per day = Total amount /Count of trailer days. Split trailer per day cost among all shipments. If there are two shipments in one day, then split the per day cost based on total miles (Pro ration). |

1. **BackHaul**

|  |  |  |
| --- | --- | --- |
| Grouping | Field Name | Calculation |
| Backhaul | 'BACKHAULCR',  'BALER',  'BHFUELCR',  'INBOUNDMATCR’ | Total DTL\_AMT from CARR\_INV\_DTL table. Split the total amount across all shipment IDs |
|  |
|  |

1. As the Tractor and trailer cost are calculated at line item level for all shipment IDs. Need roll up these costs at shipment ID level.
2. Validations need to be done for all the cost. Validate using the total amount in CARR\_INV\_DTL table. Sum of the amounts in Cost allocation table need to be matched with total amounts in CARR\_INV\_DTL table.

Unbundled Invoices Calculation.

1. Pick all the primary carrier invoices from CARR\_INV table, CURR\_STATUS\_CD should be ‘APPROVED’.
2. Check if all the invoices for that location have been received or not. (Ex: For St Louis location there should be total 4 invoices. For Houston location there should be three carriers )
3. Process the Unbundled invoices, only if all the invoices from different carriers are received. Otherwise do not process.
4. To check the different locations and carriers, refer to TEMP\_CARR\_INV\_TYPE table.
5. Take total count of shipment Ids, and for that shipment total miles should be greater than 1.
6. Split all the costs among the shipment ID s of primary carrier only.
7. **Admin Cost:**

|  |  |  |
| --- | --- | --- |
| Grouping | Invoice Category Codes | Calculation |
| ADMIN COST | 'DRVRCHG',  'FRTADJMNT',  'GENEXP',  'GEN\_SPOTTING',  'LABOR',  'LABOR-DUMP/REPK',  'MISC-CHARGES',  'OVERTIME-LABOR',  'SGLTRDRV',  'SLPTRDRV',  'STOPOFF-CHG',  'TOLLCHG',  'THRDPRTYTX',  'DROPLOT',  'OTHERCR',  'UNKNOWN' | Total DTL\_AMT from CARR\_INV\_DTL table and split it across shipment IDs. |

1. **FUEL:**

|  |  |  |
| --- | --- | --- |
| Grouping | Invoice Category Codes | Calculation |
| FUEL | FUELSURCHG  FUEL\_TAX | Average UNIT\_PRICE\_AMT from CARR\_INV\_DTL table. This amount is applied to each shipment based on total miles. Total miles \* avg unit price amt |

1. **Mileage**

|  |  |  |
| --- | --- | --- |
| Grouping | Invoice Category Codes | Calculation |
| Mileage | VARBLMLG | Average UNIT\_PRICE\_AMT from CARR\_INV\_DTL table. This amount is applied to each shipment based on total miles. Total miles \* avg unit price amt |

For each unique ABI\_SHIP\_ID this calculation is done. Total distance = Loaded distance + deadhead

1. **Tractor Cost**

For each invoice, pick count tractor days from CARR\_INV\_SHPMT\_DTL table.

|  |  |  |
| --- | --- | --- |
| Grouping | Field Name | Calculation |
| Tractor Cost | 'CHGDAYCAB',  'SLIPTRCT',  'SLPRCBCHR',  'SGLTRCTOR | Total DTL\_AMT from CARR\_INV\_DTL. Tractor Cost per day = Total amount /Count of tractor days. Split tractor per day cost among all shipments. If there are two shipments in one day, then split the per day cost based on total miles (Pro ration) |

1. **Trailer Cost**

|  |  |  |
| --- | --- | --- |
| Grouping | Field Name | Calculation |
| Trailer Cost | 'DRYVANTR',  'LEASED-TRLR-CHG',  'PLATETRL53',  'REFRTR53',  'ROLLERBEDTRL' | Total DTL\_AMT from CARR\_INV\_DTL. Trailer Cost per day = Total amount /Count of trailer days. Split trailer per day cost among all shipments. If there are two shipments in one day, then split the per day cost based on total miles (Pro ration). |

1. **BackHaul**

|  |  |  |
| --- | --- | --- |
| Grouping | Field Name | Calculation |
| Backhaul | 'BACKHAULCR',  'BALER',  'BHFUELCR',  'INBOUNDMATCR’ | Total DTL\_AMT from CARR\_INV\_DTL table. Split the total amount across all shipment IDs |
|  |
|  |

1. **CNG**

|  |  |  |
| --- | --- | --- |
| Grouping | Field Name | Calculation |
| CNG | 'CNG\_CONV\_FCTR',  'CNG\_FIXED\_COMP',  'CNG\_FIXED\_ELEC',  'CNG\_FIXED\_MAINT',  'CNG\_FIXED\_MGT',  'CNG\_FIXED\_RE',  'CNG\_INDEX\_PRICE',  'GGE\_PURCHASED',  'FUELSURCHG' | Total DTL\_AMT from CARR\_INV\_DTL table, dtl\_amt should be greater than zero. Split the total amount across all shipment IDs |

For CNG cost, the invoice category codes are picked for the CNG carrier only.( Ex: For St Louis location 6756 carrier ID invoice. For Houston location 6556 carrier ID invoice are considered.). This total cost is split across the shipment IDs of primary carrier.

1. **Lease**

|  |  |  |  |
| --- | --- | --- | --- |
| Grouping | Field Name | Location | Calculation |
| LEASE | Consider all other than for this invoice CNG MLG | Houston | Total DTL\_AMT from CARR\_INV\_DTL. Lease Cost per day = Total amount /Count of tractor days. Split Lease per day cost among all shipments. If there are two shipments in one day, then split the per day cost based on total miles (Pro ration) Consider dtl\_amt should be greater than zero. |
| CNGTRCTOR | St. Louis |

As the Lease cost is based on location category codes for total amount will differ.

1. **Maint**

|  |  |  |  |
| --- | --- | --- | --- |
| Grouping | Field Name |  | Calculation |
| MAINT | CNG MLG | Houston | Total DTL\_AMT from CARR\_INV\_DTL table, dtl\_amt should be greater than zero. Split the total amount across all shipment IDs |
| All codes for that invoice, dtl\_amt should be greater than zero | St. Louis |

1. As the Tractor, Lease and trailer cost are calculated at line item level for all shipment IDs. Need roll up these costs at shipment ID level.
2. Validations need to be done for all costs. Validate using the total amount in CARR\_INV\_DTL table. Sum of the amounts in Cost allocation table need to be matched with total amounts in CARR\_INV\_DTL table.
3. All the valid invoices will be processed further for voucher generation.