

CalcPartner

Functional Overview v1.0

CIS - Deloitte

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Revision History

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# Overview

The document is created during the CIS knowledge transfer phase and is regarded to be the artifact of primary application overview. New and existing team members can refer to this document to get more information on terminology and functionality.

This document provides the general overview of the main CalcPartner functionally, business objectives, user workflow and collaboration process, and explains how to perform different tasks within the CalcPartner application. The main goal of the application is explained: providing certified calculation results in the formats required by the government, along with reports and analysis for client review, approval and documentation.

## Terminology

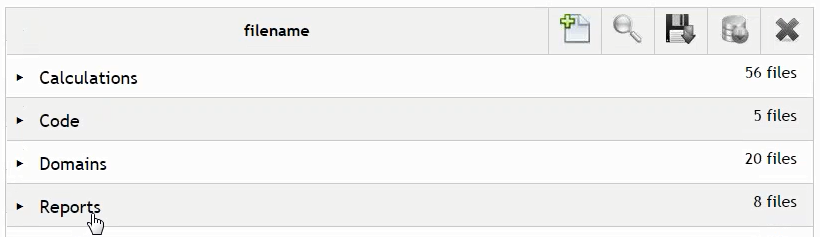
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| --- | --- |
| Term | Definition |
| 340B Drug Discount Program | U.S federal government program that requires drug manufacturers to provide outpatient drugs to eligible health care organizations/covered entities at significantly reduced prices. Eligible organizations/covered entities must register and be enrolled with the 340B program and comply with all 340B Program requirements. Once enrolled, covered entities are assigned a 340B identification number that vendors verify before allowing an organization to purchase 340B discounted drugs. |
| Class of Trade (COT) | Customer category under which a customer is classified by a manufacturer (e.g., wholesaler, federal, retail pharmacy, etc.). |
| Group purchasing organization (GPO) | Entity that helps healthcare providers-such as hospitals, nursing homes and home health agencies-realize savings and efficiencies by aggregating purchasing volume and using that leverage to negotiate discounts with manufacturers, distributors and other vendors. |
| Rebate | Amount paid by way of reduction, return, or refund on what has already been paid or contributed. |
| Direct Selling | Sale of a consumer product or service, person-to-person, away from a fixed retail location, marketed through independent sales representatives who are sometimes also referred to as consultants, distributors or wholesalers. Direct sellers are not employees of the company. They are independent contractors who market and sell the products or services of a company in return for a commission on those sales. |
| DEA | Drug Enforcement Agency |
| Disproportionate Share Hospitals (DSH) | Serves a significantly disproportionate number of low-income patients and receive payments from the Centers for Medicaid and Medicare Services to cover the costs of providing care to uninsured patients. |
| Unit Price | Price of the single item |
| Extended Price | Unit cost multiplied by the number of those items that were purchased. Example: four tablets purchased at a unit cost of $1 have an extended cost of $4 (=$1 × 4 tablets). |

## CalcPartner User Roles

There are two user roles in CalcPartner – Integrator and Analyst. Integrator writes calculations, and Analyst communicates with customers in order to get data and run calculations.

# User Interface

Here are some user interface outlines:



* **Calculations** – Python blocks of code written in accordance with a methodology that customer provides. Calculations are written by Integrators.
* **Code** – blocks of code which are used by the Calculations. These are Python libraries which are imported at the beginning of the calculation. This section contains the logic that defines how transactional data is joined to domain (master) data.
* In Code section there always MUST be a file called **gpcommon**.
* **Domains** – here we store meta-data (in tabular format) which is associated with transactional data. So we have data to operate on.
* **Methodology**. Integrator works with customer to figure out how to use customer’s data in order to come up with Government Price Points that they need to report. That “how to” is called methodology. Integrator translates methodology into actual code that can be executed in Calculation.
* **Reports** – other supersets of Python and HTML.

# Workflow

There are four main workflows in CalcPartner – Data Loading, Data Integration, Calculations, Reports

## Data Format

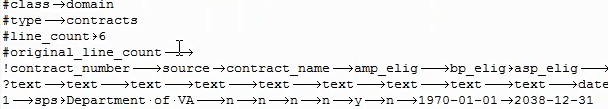
The data format if Tab Separated Values (TSV). The file headers star with the following symbols: #, ##, !, ?

**Hashtag** sign **#** is a key value store (#key->value). Example: #class->domain

**Double hashtag** sign **##** is a key value for the notes field

**Exclamation point** sign **!** is a name of each field in the file

**Question mark** sign **?** is a field type. There are three field types supported by CalcPartner: date, text and float.



## Data Loading

**Domain data** – The source data is called a domain data, it may be chargebacks, rebates, admin fees, track data for military employers etc. The source data is uploaded to staging area, where there are some checks applied and presented in an upload summary. Then they migrate it to main storage area, where it becomes available for calculations.

**Transactional data** – a set of rules how the domain data should be used.

1. The size of one file is limited to 1Gb. Data file after upload gets turned into Python string and passed to Unicode function. Unicode function has limitation by 1Gb to process the data.

A customer uploads files to CIS FTP server. The path that should be followed is calculation\quarter\month\file\_name.txt

Uploading file goes through the **Validation process:**

* If a **green check icon** appears in the “status” column for the uploaded file: The file has no issues and is ready to be migrated. Click the green arrow to the right on the file line to migrate.
* If a **yellow warning triangle icon** appears in the “status” column for the uploaded file: A number will appear under the “errors” or “warnings” column. Click the number to view the issues. In this situation, the likely issue is a missing “key” specified for the table. The file is typically okay to migrate as is. Click the green arrow to the right on the file line to migrate.
* If a **red circle** with an “X” appears in the “status” column for the uploaded file: The file is not ready to migrate and has errors that need to be reviewed and fixed. A number will appear under the “errors” column. Click the number to view the errors. Edit the file according to the documented errors and re-upload. Continue until a green check appears, indicating all errors have been resolved. Click the green arrow to the right on the file line to migrate.

After successful file upload, the system will store the file and notify a user with a message: <file\_name.file\_type> Uploaded by <user\_name> on <DATE(YYYY-MM-DD)> <TIME(HH:MM:SS)> Completed verification with <X> errors and <X> warnings. If there were errors or warnings a user will have the ability to edit the file. If there were no errors or warnings a user will be directed to go to View Upload Summary automatically.

**Upload Summary** will provide information about data modifications of the file just recently uploaded. Example: removed empty rows or columns at the end of the file.



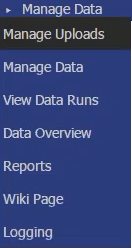
After viewing **Upload Summary**, a user will have the ability to migrate data into CalcPartner itself and put it into the main storage area. After successful migration, a user will see Migrated to CalcPartner message highlighted in green.



Most of warnings are going to be for domain tables that don’t have a key.

CalcPartner can handle any source of data and run Python script on it, but here are the most used sources:

* **Direct Sales data** – the sale from distributor to end user.
* **Rebates** – an amount paid by way of reduction, return, or refund on what has already been paid.
* **Chargeback data** – manufacture sales products (drugs) to wholesaler. The wholesaler will sell products to other distributers, hospitals or pharmacies. Depending on a contract the manufacture has negotiated with end users the wholesaler has to maintain the negotiated prices. Chargeback is a difference between projected price and actual end price.
* **Series of Fees** – Admin fees (for representative of the end user), Discounts, Inventory fees, Tracking fees, GPO (Group Purchasing Organization) fees.

A customer has a **Manage Uploads page** to upload data into the system.

The **Manage Data** page contains the following options: Manage Uploads, Manage Data, View Data Runs, Data Overview, Reports, Wiki Page, Logging.

**Manage Uploads** provides options to load customer data to staging area

Sources of data: Sharefile, 3PLs, email and phone calls

3PLs: ICS, SPS, RxCrossroads

Internal systems: Amalgamate, ScriptPartner

**Manage Data** displays a table of months indicating data existence and **provides** options to manage data.

1. Green and Pink Boxes – A green box indicates data exists for that month and file type. A pink box indicates no data exists for that month and file type.
2. Filenames – All calculation codes, report codes, domain files and calculation files.
3. Magnifying Glass – View one or more months of a specific file as an open .document spreadsheet within CalcPartner3.
4. Black Floppy Disk – Download one or more months of a specific file as a text document.
5. Red X – If you have selected one or more months of a specific file, use the red x to ‘unselect’ all selections.

**View Data Runs** is a page with Calculation outputs. When Data Run is created it gets assigned a number which is displayed in the URL and output stored in SQLite database file. Each Run has metadata associated with it Run Title, Start Date (defined in months), End Date (defined in months).

## Run As Date concept

Concept of Run As Date is going to define a version of data. When we continuously uploading new Calculations we uploading new versions. There is a database that keeps track of those versions and will always be looking for the newest one.

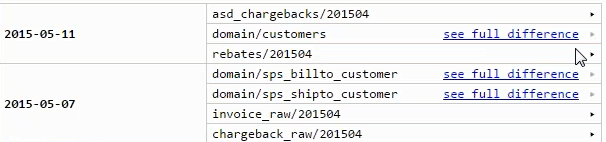
Scenario for Run As Date concept: We have current data but a customer asks to run Calculation using an older methodology.

The reason to have Run As Date is the case when we need to be able to calculate or re-run any calculation for 10 years. Because of 10-year data retention and the Performance Rule for CMS (Centers for Medicare & Medicaid Services).

We must put Run As Date when we need to perform any re-calculation of the existing date or re-generate an output (the reason can be validation or domain file comparison within different time).

1. **Run As Date** puts a timestamp on the calculation at which it uses the condition of the data up until that time. Once the date is set, any changes made to the data after that date will not be captured in the calculation.

**Data Overview** will provide information about files uploaded into CalcPartner, grouped by dates. And also provide an ability to see a full difference between the files where a user can choose a set of keys and see what different rows are in the files. See pic below.



## Integrations

As a new customer arrives or an existing customer wants to add new methodology, a system integrator together with analyst and Operation Managers agree upon the methodology. Then CIS integrator updates CalcPartner logic for methodology changes. The next step will be performing test calculations for functionality and receive approval from Analysts and Operation Managers

## Calculations

Calculations are basically super sets in Python written to operate data according to a methodology set by the customer.

The point of Calculations is to generate Government Pricing (GP) information every pre-defined period of time.

All data in CalcPartner is in support of generating GP. Calculations use that data to generate GPs which are being outside of context of CalcPartner delivered to the Government by Analysts.

Every month a customer gets a new data run. We don't override original calculations, they all (source data, algorithm and result) are stored for reference, and their versions are maintained. You can always run calculations for a specific date.

|  |  |
| --- | --- |
|  | Page with Calculation properties:   * Run title – a name for the Run * Start - defines a start date for processing transactions * End - defines an end date for processing transactions * Run as – defines the version of data |
|  | Page with text editor for user to make notes |
|  | Page with a list of calculations:   * Ability to execute a cslculation * Ability to view the output and log of a calculation * Ability to download a log * Ability to stop a calculation which is executing Bucketize calculations |
|  | Page with outputs from calculations executed in the run. Data is stored in a SQLite database.  The page displays the following information and provides options:  Name – a list of all available calculations sorted in alphabetical order  View – allows to view the source code of a calculation  Download – provides two options to download a calculation (in text or database format)  Modified – provides information about a user and modification date (YYYY-MM-DD) and time(HH:MM:SS)  Delete output – ability to delete selected outputs |
|  |  |
|  | Page with a list of domains and ability to view each of them |

On the Calculations page you will see the following control panel:



Control panel displays name of each calculation and gives the ability to view the output of the Calculation and see the log, Download Calculation log, Run the Calculation, Bucketize Calculation and the ability to Stop an execution Calculation.

# What If Scenario

‘What If Scenario’ gives Analyst the ability to exercise the data with a customer. Making a run a ‘What if Scenario’ is a permanent change and you cannot convert this back to a regular run.

In case of ‘What If Scenario’ there will be no practical loads to the Main Storage. After exercising we should upload the file again and replace the data.s

## Reports

Access this page to produce a report displaying the calculation results. The results will be sent to the customer as an operation outside of context of CalcPartner.

## Data tables attributes

|  |  |
| --- | --- |
| chbk\_detail\_id | Unique key for the chargeback |
| dea\_id | Drug Enforcement Agency number |
| cust\_id | Customer identifier |
| gln\_id | Global located number |
| hin\_id | Health industry number (also customer identifier) |
| spec\_id | Different type of ID provided by customer (in some cases that’s the ID that wholesaler gives) |
| dsh\_id | Disproportionate Share Hospital identifier |
| cust­\_id | Internal customer identifier |
| ndc\_id | National Drug Codes in the States (NDC-9, NDC-11)  NDC-11 number structure:  Example 11111222233  11111 – manufacture code (first five digits)  2222 – product identifier by active ingredient, form, taste, formula, etc. (the following four digits)  33 – size (the last two digits) |
| chbk\_amt | Amount of money that’s missing (the chargeback) |
| line\_amt | Drug was sold at this amount of money |

# Admin User

Admin user had a predefined set of options described below.

|  |  |
| --- | --- |
|  | Manage users – adding users, setting passwords, providing access to individual clients, promoting to admin role or deleting selected users |
| Manage customers – create a new client or edit existing ones.  Customer called ‘System’ must exist before everything else. It contains gpcommon file which is shared Python library across all client. |
| Logs – detailed information when the system was started, what actions were performed. Information provided on this page is independent of client. |
| System status – information about system components, such as CPU load, RAM consumed, Swap consumed. Updates every 2 seconds |
| Access Report - list of users and clients they have access to |

# 

# Report Submission Dates

|  |  |
| --- | --- |
| Frequency | Report |
| Monthly | Average Manufacturer Price (AMP) |
| Quarterly | Average Manufacturer Price (AMP)  Average Sales Price (ASP)  Best Price (BP)  Customary Prompt Pay Discount (CPPD)  Unit Rebate Amount (URA) |
| Quarterly + 15 days | Non-Federal Average Manufacturer Price (NFAMP) |
| Quarterly + 60 days | Industry Funding Fee (IFF)  340B Price reports |
| Annually | Annual Non-Federal Average Manufacturer Price (ANFAMP)  Federal Ceiling Price (FCP) |

|  |  |  |
| --- | --- | --- |
| Frequency | Calculation name | Description |
| M | Average Manufacturer Price (AMP) | A calculated price point that in theory represents the average price a drug manufacturer charges eligible domestic entities for a specified drug. |
| M | Drug Data Reporting (DDR) Monthly | A web- based reporting application through which all product and pricing data are transmitted to CMS for purposes of the Medicaid Drug Rebate Program |
| Q | Best Price (BP) | As it pertains to the Medicaid Drug Rebate Program, BP is the lowest price paid per product code, regardless of package size, to the manufacturer during the period by any entity in the U.S. in any pricing structure except those statutorily excluded such as purchases made by the federal government. Best Price is utilized in the determination of Medicaid Rebates and Public Health Service entity pricing. |
| Q | Prompt Pay Discount (PPD) | A discount off the purchase price of a drug routinely offered by the manufacturer to a wholesaler for prompt payment of purchased drugs within a specified timeframe and consistent with customary business practices for payment. |
| Q | Drug Data Reporting (DDR) Quarterly | A web- based reporting application through which all product and pricing data are transmitted to CMS for purposes of the Medicaid Drug Rebate Program. Same as DDR Monthly but recorded on a quarterly basis. |
| Q | Average Sales Price (ASP) | A measure of a pharmaceutical's price that is equal to a manufacturer's sales to all purchasers divided by units sold. The ASP calculation excludes sales that are excluded from the Medicaid "Best Price" calculation. For purposes of the Medicare Part B Program, CMS utilizes ASP to derive reimbursement for drugs administered in hospital outpatient departments under Medicare Part B |
| Q | Unit Rebate Amount (URA) | The unit amount computed by CMS to which the utilization information may be applied by states in invoicing the labeler for the rebate payment due |
| Q | Public Health Services (PHS) | A division of the Department of Health and Human Services, consisting of the Office of Public Health and Science (headed by the Assistant Secretary for Health and including the Surgeon General), ten regional health administrators and eight operating divisions. PHS's mission is to protect and advance the public's health. It has grown from a small collection of marine hospitals to the largest public health program in the world. PHS is calculated 2 quarters in advance. Ex. Using data from Q2, we are calculating the PHS price for Q4 |
| Q | Non-Federal Average Manufacturer Price (NFAMP) | The average price of a single form and dosage unit of a drug that is paid by non-federal entities for the NDC-11 in question, taking into account any cash discounts, chargebacks, rebates or similar price reductions during that period to wholesaler. |
| Q | Industry Funding Fee (IFF) | A fee paid by pharmaceutical manufacturers that is a reimbursement to the General Services Administration (GSA) for costs associated with operating the FSS program. As of January 1, 2011, the IFF equals 0.5% (one-half of one percent) of the total quarterly FSS sales reported through the GSA Sales Portal. As of October 1, 2010, all sales are reported and IFF fees are paid electronically via the GSA portal. The IFF fee is embedded in the manufacturer's FSS price. The FSS price inclusive of the IFF Fee is calculated by taking the FSS price divided by 0.995 |
| Y | Annual Non-Federal Average Manufacturer Price (ANFAMP) | The average price of a single form and dosage unit of a drug that is paid by non-federal entities for the NDC-11 in question, taking into account any cash discounts, chargebacks, rebates or similar price reductions during that period to wholesaler. Same as NFAMP but recorded on an annual basis and only performed during third quarter |
| Y | Federal Ceiling Price (FCP) | The maximum price manufacturers can charge for FSS-listed brand name drugs to the Big 4, even if the FSS price is higher. FCP must be at least 24 percent below the non-Federal average manufacturer price. FCP prices are not publicly available |