Cost Allocation Solution

FCASS

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DOCUMENT PURPOSE

This document describes FCASSft (Fast Cost Allocation Software Solution) and how to run it.
FCASSft is referred to as FCASS in this document.

FCASS is a fast standalone Cost Allocation solution suitable for small to medium size cost allocations. The size of the allocation that can be processed depends on the complexity of the allocation and input data, not on financial value. The solution can process millions of financial transactions in less than one minute. While the solution is focused on Cost Allocation, it can also be used to perform fast aggregation of financial data to support other reporting.

URL for FCASSft: www.users.on.net/~acroft/FCASS email: acroft@fzipft.com

LICENCE

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SUMMARY OF BENEFITS OF FCASS

1. Standalone Cost Allocation solution including budget allocation with useful set of reports
2. Provides solution to maintain Cost Allocation Model and Financial data
3. Simple interfacing using CSV files
4. Small and very simple installation, can be run from USB key
5. Quick to start running
6. Fast
7. Free to use for Educational usage
8. Runs on Windows 32 bit and 64bit from Windows XP and upwards (including Windows 10)
9. No dependencies on other software
10. Internet access is NOT required. No information is read from, or transmitted to internet.

GETTING STARTED

The following steps identify an approach to developing and running a Cost Allocation model;

1. Gain understanding of Cost Allocation and Read FCASS documentation

2. Install the sample data with the two programs - FCASSE to Edit and Save data; FCASSA to run Allocation and produce Allocation reports; Look at reports using Spreadsheet program.

   The provided installation zip file contains sample data that is ready to run.

   Installation is performed by unzipping the installation zip file, onto a USB key or a PC directory without running any installation program. (For more information refer section 3.)

   After unzipping, **Run FCASSE and FCASSA** on **Programs directory** of installation against sample data.

3. Develop model
   a. Define Dimensions (record type DIM, DIMH, DIMT)
   b. Define Model Structure - Stage, Cost Pool Groups, Cost Pools (record type STG, CPG, CP and selections of transactions CPGS, CPS)
   c. Define Allocation Bases - the way that the Cost Pools allocate costs (record type AB, ABL) and Measures that will be used (NM, IM and selections IMS)
      Update Cost Pools with AB Codes to link them together
   d. Obtain Financial Transactions - use sample size of transaction in correct format (record type TX)
   e. Define Reports to be run - (record type REP and CPY)
   f. Try out model by running FCASSA
   g. Revise model to include Dimension changes (record type CPGIDC, CPDC)
   h. Try out model
   i. Revise model to include Budgets - will require extra Cost Pools for variances (record type CP, CPBV, ABL(for Unit Budget at ABL) and setting Option 1(OO)
   j. Try out model
   k. Increase number of Financial Transactions

1. COST ALLOCATION BUSINESS CONTEXT

1.1. BACKGROUND

The financial measurement of a business's activity is captured using General Ledger Journals and/or Expense/Revenue transactions.

A business needs to know the profitability of the enterprise for statutory purposes and this is available from General Ledger Reporting. In addition, to manage its activity, the business needs to know the profitability of products/services (and product groupings), customers (and customer groupings) and potentially channel (shop, online, telesales) and location. The business may also want to know the cost of their internal activities. This Management Accounting information is used to assist making business decisions and so it is important that accurate information is available.

Ideally, each financial transaction would contain all of the required data dimensions (i.e. Product, Customer, Channel, Location etc.) so that reporting can be performed against these dimensions. While this may be possible in some cases for Revenue (i.e. sales), this is often not the case for Expenses as at the time of the expense it may not be possible to say for example, to which product it may belong.

Some examples where **not** all data dimensions are known :-

1. Data Dimensions are known at time of business activity but not captured in finance transactions
2. Manufacturing and Network Costs may not be directly related to a single product or customer
3. Expenses for the cost of goods sold may be attributed against some but not all products, customers, or locations
4. Overhead and Internal IT costs are unlikely to relate directly to a product and customer. In reality, parts of the costs may be for particular products or customer groups
5. Revenue will have the customer (although often a customer grouping), but this may be for a bundle of products and this must be unbundled to the individual product
6. Investment Revenue does not relate to a product, customer or location
7. Loan costs do not relate to a product, customer or location
8. Depreciation expense relates to Asset. This will not be captured against a product, customer, location
9. Human Resources and Administrative costs will not contain a product, customer, location

So, data dimensions need to be derived and this is performed using Cost Allocation.
The data dimensions that are derived are Cost Objects, and this derivation is performed by allocation processing using allocation rules.

In summary :-

a. From a business perspective, cost allocation (allocating expense/revenue) is used to determine a business outcome(cost objective) such as profitability of a product, customer, channel, location so that the business can be managed
b. From a technical perspective **cost allocation is used to add data dimensions to data** so the data can be reported by those data dimensions

Politics of Allocation:
While it may seem obvious that data dimensions should be determined and hence "costs" allocated to determine profitability of products or customers etc., the inclusion of some costs and the basis on which they are to be allocated is debatable.

It is clear that those costs directly associated with a product or customer etc., should be included in the profitability calculations. It is less clear what to do about other costs.

As the KPIs of product managers or customer managers may be dependant on profitability, it is in their interest to add revenue and remove costs from their product or customer. Therefore, the basis on which to include revenue and costs will become political in nature.

So, the reasons for allocations should be justifiable and the Allocation toolset must support this through traceability.

Incremental Costs:
A further discussion relates to incremental costs. When there is a new product that uses existing product capabilities, should only the incremental cost associated with a product be allocated, or, all products are allocated indirect costs?

Cost Allocation Model Methodology and Philosophy:
There are multiple methodologies for cost allocation including Activity Based Costing. The methodology to use needs to be established for each model that is developed. A cost allocation solution should be able to support any methodology.

For a single enterprise there may be multiple models, used to report on different outcomes.
For example; Internal Management, Product/Service, Customer Reporting and additional Statutory.
There may also be additional models to support what if analysis e.g. product decommissioning.

Cost Allocation Models often begin as simple models and then are iterated to more accurately reflect the revenue, expense and profit of a cost object such as product.

Unless carefully managed, models can collapse under increasing complexity because no one understands the model, the allocations cannot be justified, and maintenance of the model is time and cost prohibitive.

One of the reasons models increase in complexity, is to more accurately represent the real world costs. For example, initially all IT costs may be spread across products based on percentage of revenue. Then it is identified that one computer system which has a high expense, only relates to a specific group of products. These costs are selected to a new Cost Pool and then allocated to the smaller set of products.

Complexity may be brought on by additional requirements. For example, a specific customer group may initially have all costs in one cost pool. It is identified that profitability is now required by Channel (shop vs online vs telesales). The costs now need to be collected into multiple cost pools with more drivers.

The act of developing a model results in an investigation of how a business works, and this may result in positive outcomes with decisions to improve a business that do not require calculations.

Cost allocation models are often run periodically, such as monthly. This results in a delay to any business reporting of at least a month as there is end of month processing to be performed in the core business financial solution and the derivation of driver/measure data (such as number of sales of individual

products) that must be captured. Alternatively the processing cycle can be more frequent but then there will be an increased need to do pro-rata allocations of periodic costs (e.g. payroll) or revenue (e.g. revenue from monthly contracts).

Cost allocation can allocate any financial figure, including expenses, revenue, assets or liabilities.

Cost Allocation will give a precise, but inaccurate answer as it is dependant on the allocation rules that are defined, and these are unlikely to accurately represent the real world.

If costs or revenue are not captured by the business with the correct dimensions, consideration should be given to improving the data capture of the business transactions, noting that the improved detail in the data capture may increase cost of capture.

Terminology:
The following documentation uses a consistent approach of Measures for Units that are used to identify the proportion of a value to allocate. In the real world the term Driver may be used.
In the real world Driver is sometimes used instead of Allocation Base.

The term “Internally Generated Measure” is used for a calculated driver value based on existing internal values. The term “Mark Up” has been used in some businesses and documentation to represent the same concept.

Cost Allocation Reading:
The following documents provide an overview of various aspects and examples of Cost Allocation.

1. http://www.pearsoned.ca/highered/divisions/virtual_tours/horngren/man_acc/Ch05ManAcc.pdf
2. http://www.utm.edu/staff/rkilgore/newwpage/Student%20Powerpoints/horngren_ima16_stppt12.ppt
3. https://www.ey.com/Publication/vwLUAssets/EY-the-allocation-game-white-paper-july-2017/$FILE/EY-the-allocation-game-white-paper-july-2017.pdf
4. Management Accounting Chapter 6 The Traditional Two Stage Cost Allocation Approach : https://maaw.info/Chapter6.htm

5. https://www.accountingtools.com/articles/2017/5/4/cost-pool
6. https://www.accountingtools.com/search?q=allocation%20base
7. https://www.accountingtools.com/articles/2017/5/8/volume-based-allocation?rq=allocation%20base
8. https://www.publicconsultinggroup.com/products/allocap-cost-allocation-plan-software/
9. https://www.gfoa.org/pricing-internal-services
10. http://mrsc.org/Home/Explore-Topics/Finance/Accounting-and-Internal-Controls/Cost-Allocation.aspx

Sample Enterprise Usage –

1. https://www.tasnetworks.com.au/config/getattachment/8c41dc0e-5061-431a-8f21-61d4c0e15131/cost-allocation-method-1-july-2015.pdf
2. https://www.aer.gov.au/system/files/Endeavour%20Energy%20-%200.06%20Cost%20Allocation%20Method%20-%20March%202018%20-%20Public.pdf

1.2. ARCHITECTURE OF COST ALLOCATION SOLUTION

A standalone Cost allocation solution consists of three major components to manage and process information on multiple Cost Allocation Models:-

a. Data Capture and Maintenance
b. Cost Allocation and Allocation Reporting
c. Final Reporting

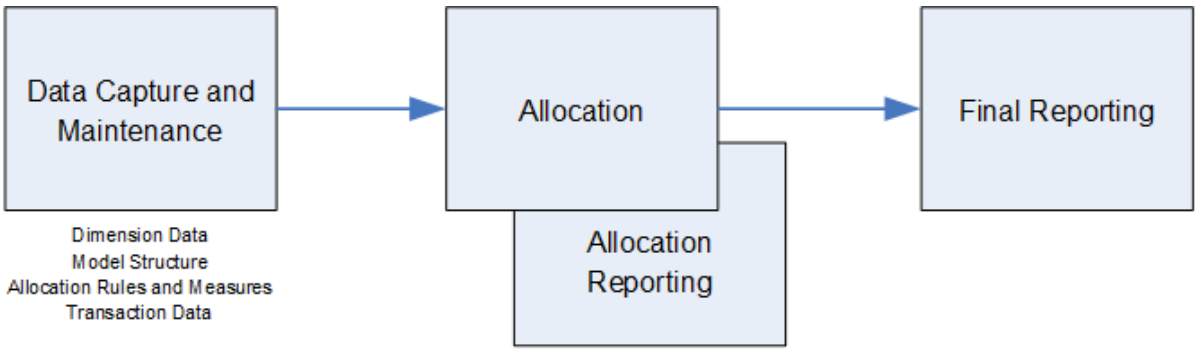


Figure 1 - Solution Components

1.2.1. DATA CAPTURE AND MAINTENANCE

The cost allocation solution has four different types of data to be captured or maintained;

a. Dimension data – e.g. Product Hierarchy, Customer Hierarchy, Cost/Profit Centre Hierarchy, General Ledger Account Hierarchy, Resource Hierarchy, Activity Hierarchy, Location Hierarchy
b. Model Structure – i.e. Stages, Cost Pool Groups, Cost Pools, Selection rules
c. Allocation Rules and Measures – i.e. Allocation Base, Measure Data e.g. number of returns of product
d. Transaction data – Financial transactions recorded against dimensions

It would be expected that in a large enterprise, most of the data (Dimensional, Transactional) would be sourced from pre-existing systems. Only the Model Structure and Allocation Rules would be maintained manually. (It is conceivable, but unlikely, that Allocation Measure data would be automatically integrated from source systems.)

For a large enterprise, the maintenance of a Cost Allocation Model may be partly de-centralised and controlled using a sophisticated security model, approval mechanism and data change management, and allow maintenance at least of driver/measure values to be decentralised. The resulting sub system would typically be a multi-user solution with access controlled by roles and accessed using an Internet browser.

For FCASS, a small single user sub system to maintain data has been developed called FCASSE.
It has limited security control, no approvals or data change management but is suitable for centralised model maintenance or educational usage. It contains functionality to maintain all data i.e. Dimensional Data, Model Structure, Allocation Rules as well as Transactional data. It could be replaced by something more suitable. It maintains all data in CSV files.

In a business environment, the cost allocation system would be performed periodically such as monthly. Cost allocation can be run over different time periods for different purposes e.g. weekly, for weekly profitability (but may need to use estimates of some costs such as payroll), half yearly for statutory reporting and yearly.

For a business enterprise, all of the data will change over time, some more often than others.

a. Dimension data is typically reasonably static but one subset; Organisation data (Cost Centre, Profit Centre) can have significant changes over time due to internal business re-organisations.
b. Cost Allocation Model Structure data should remain relatively static
c. Allocation Measures - the allocation measures will change over time e.g. number of returns for Product x for the month of May, although some may be quite static e.g. floor space per Cost Centre
d. Transactional data will change often dependant on the period of time chosen.

1.2.2. COST ALLOCATION AND ALLOCATION REPORTING

Using data captured and provided as files, the Cost Allocation and Allocation Reporting sub system runs the cost allocation model, allocation reports and extracts from the allocation. The allocation reports are used to confirm that the allocation has run successfully and include reports that can show the traceability of the allocation.

For FCASS, cost allocation and allocation reporting is the core of the solution and performed by the program called FCASSA. FCASSA can efficiently manage millions of finance transactions. If run online, additional reports can be run in an adhoc manner.

The results of the allocation (including reports) are output to files and can be input to a Final Reporting sub system.

1.2.3. FINAL REPORTING

Final Reporting takes the results of the allocation and produces reports in required presentation formats, which may include graphics and online drill down capability for management reporting.

It may also support period comparisons.

Commercial Cost Allocation solutions may be part of an overall Business Performance Management solution.

FCASS does not provide a solution for this. A cheap solution may be to use an end user reporting solution such as Excel (perhaps with Powerpivot) which uses as input CSV files created by the allocation reports.

2. FCASS OVERVIEW

This section describes data and functions as they relate to Cost Allocation and FCASS.

2.1. DATA DIMENSIONS

In an Accounting system, financial transaction data is captured against various data dimensions e.g. General Ledger Account, Cost Centre, Profit Centre, Activity, Source, Product, Customer Group. These dimensions are organised in hierarchies defined by parent relationships (up to 15 levels in FCASS).

As identified previously, not all of the data dimensions will be present in a transaction. In order to report on data the required dimensions need to be derived. The data dimensions that are derived are Cost Objects and this determination is performed using the allocation process.

2.2. COST POOLS

In Cost Allocation, a Cost Pool is a collection of costs that are to be processed in the same manner.

Financial transactions are initially selected into Cost Pools using hierarchical dimension selections (i.e. if a dimension code is identified in a selection then all of its children are also selected.)
Example - Select into Human Resources Overhead Cost Pool all Labour Expenses (a high level GL Account) for Human Resources Cost Centre (high level Cost Centre).

The costs are then allocated from each Input Cost Pool using the Allocation Base and Allocation Lines for the Cost Pool, to Cost Pools in the next stage of processing. **This process continues until all the allocations have been performed.** Each Allocation Base represents a "rule" for allocation e.g. "Product Sales Staff" and each Allocation Line identifies a proportional allocation to another Cost Pool where these would each represent a Product/Product derivative. The Cost Pools and their Allocations may be organised into Cost Pool Groups and Stages to structure the model.

The following diagram shows the flow of Transaction data from; selection into a Cost Pool, storage in a Value Cube, allocation using the Allocation Base to further Cost Pools.

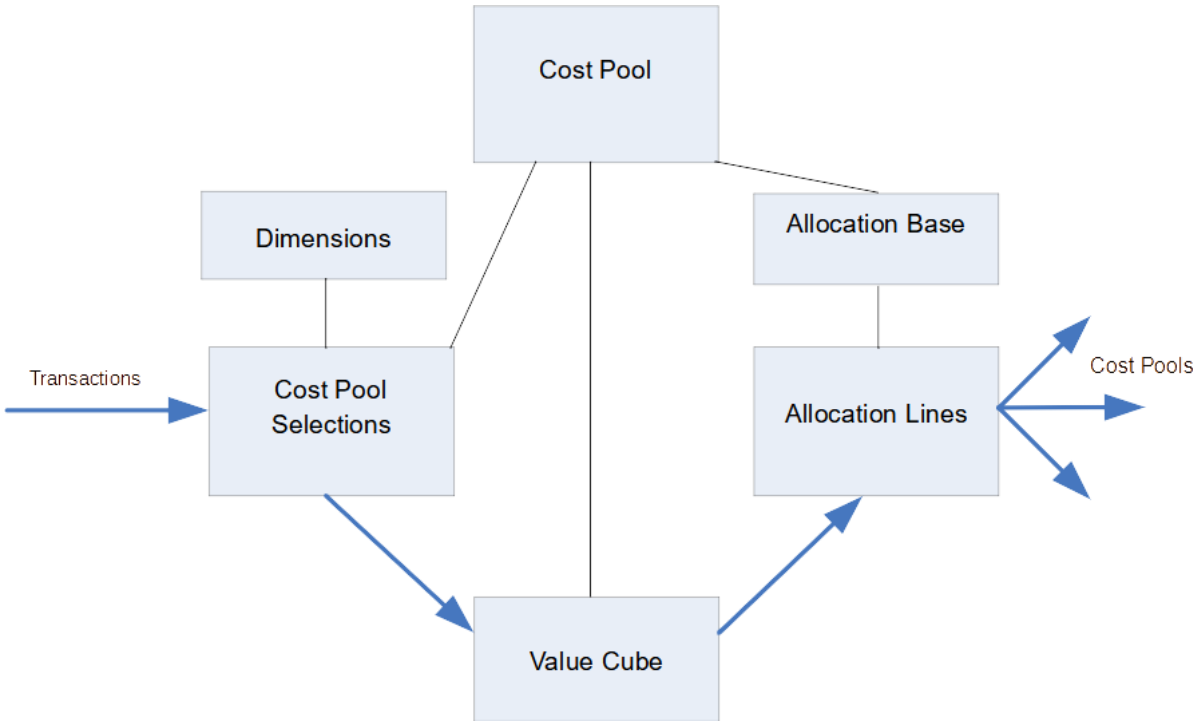


Figure 2 - Flow of Transaction Data

In FCASS the following records exist for a Cost Pool :

a. Cost Pool record
b. Cost Pool Selections to select Transactions into a Cost Pool (Input of Financial Transactions)
c. Value Cube that contains the value and dimensions of data
d. Allocation Base and Allocation Line records that allocate Cost Pool value to other Cost Pools (Output)

2.3. SO HOW DOES ALLOCATION WORK?

Example:
The Value in the Cost Pool "Product Sales Support" is 200 and the Cost Pool is using the Allocation Base "Product Sales Staff" to allocate the value.
The allocation will be based on the number of staff involved with each product. There are 4 products A,B,C,D with number of staff 6, 8, 4, 2 respectively.
Each Product has its own Cost Pool. So, the Allocation Lines would be:

a. measure 6 allocate to CostPool_ProductA
b. measure 8 allocate to CostPool_ProductB
c. measure 4 allocate to CostPool_ProductC
d. measure 2 allocate to CostPool_ProductD

To determine the proportions to allocate, add up all the measure values (6+8+4+2)=20, and divide by total, so 6/20, 8/20, 4/20, 2/20. Therefore the values allocated are 200*6/20, 200*8/20,200*4/20 and 200*2/20 → 60, 80, 40, 20 respectively to the destination Cost Pools.

A Value Cube?:
However, a Cost Pool does not have a single value, rather a multidimensional "cube" of values, the dimensions of which are initially determined by the dimensions of the captured transaction.

So when a Financial Transaction with a value of 80 has dimensional codes of "CST23", "PRA91", "210030", "LAB23" the cube will contain a point with these dimensions which will be the accumulation of value for transactions with the same dimensional codes. The definition of what dimensions are in the cube are defined by the list of dimensions used, and refined using the CPGIDC (Cost Pool Group Input Dimension Change) record which specifies any summarisation and the dimensions to be captured in the input value cubes. They are also modified throughout the allocation using CPDC (Cost Pool Dimension Change) records.

When the allocation occurs, the defined proportion of all of a value cube is allocated to the destination cost pool.
So, using the above example, if 30% of the value cube is to be allocated to Cost Pool_ProductA then the destination Cost Pool Value Cube will have all the points with the same dimensions from the source value cube, but only 30% of the value. This results in the size (number of points) of value cubes increasing the later in the allocation a Cost Pool exists as additional points are added.

At the end of the selection into Input Cost Pools, or at the end of the cost allocation the value cubes can be reported or extracted. So, for example, a Final Cost Pool for Product will have a value cube that can be reported against General Ledger Account or other dimensions in the cube.

As data is allocated to a new cost pool a CPDC (Cost Pool Dimension Change) can be defined that identifies changes to dimensions. So for example if all the data in a Cost Pool relates to a particular product a CPDC can be defined for that cost pool that sets the product dimension equal to the particular product. In this way, the data dimension values (such as product code) are derived.

2.4. ALLOCATION MEASURE

The allocation rule for a Cost Pool is defined in an Allocation Base and this defines how the value cube should be allocated. Each Allocation Base has zero or more Allocation Lines and each Allocation Line defines an allocation to another Cost Pool. (The previous example had 4 Allocation lines.)

On the Allocation Line, the allocation measure is used to determine the proportion to allocate (as described previously). Each measure will have a description that identifies what the measure represents e.g. Number of Units sold of a product A.

So, for each processing period the Allocation measures would be maintained to represent the latest set of measures.

There are three Measure types; Constant Measure, Named Measure and Internally Generated Measure.

Constant Measure (Constant Fixed value):
Constant measure values can be entered for each allocation line. (In fact these would be maintained externally.) e.g. 34. A Description can be entered as part of the Allocation Line.

Named Measure:
A Named Measure is a named value that can be referenced in an Allocation Line. The Description and Value of the Named measure are copied to the Allocation Line.
The Named Measure avoids “hard coding” the value into the Allocation Line as is done for Constant Measure. Named Measures can be used to easily interface values from another system (using the NMV record type).

A Named Measure can be used in multiple Allocation Base Lines.

Internally Generated Measure:
Rather than an allocation depending on a Constant value or Named Measure in the Allocation Line, it can depend on the results of part of the allocation process. For example, if costs are to be allocated according to the total revenue for each product then Internally Generated Measures can be created for each product which selects Revenue General Ledger Accounts (based on GL Account selection) and Product from the Transactions or from Cost Pool value cubes.

An Internally Generated Measure can be used in multiple Allocation Base Lines.

Internally Generated Measure (IM)
a. can have the same Code/Name as a Named Measure
b. has a type to distinguish between sourcing data from Transactions or Cost Pools
c. can have multiple selections that use hierarchical dimension selections with Includes and Excludes
d. can select the same data into more than one Internally Generated Measure

The following diagram enhances the previous with the inclusion of Measures.

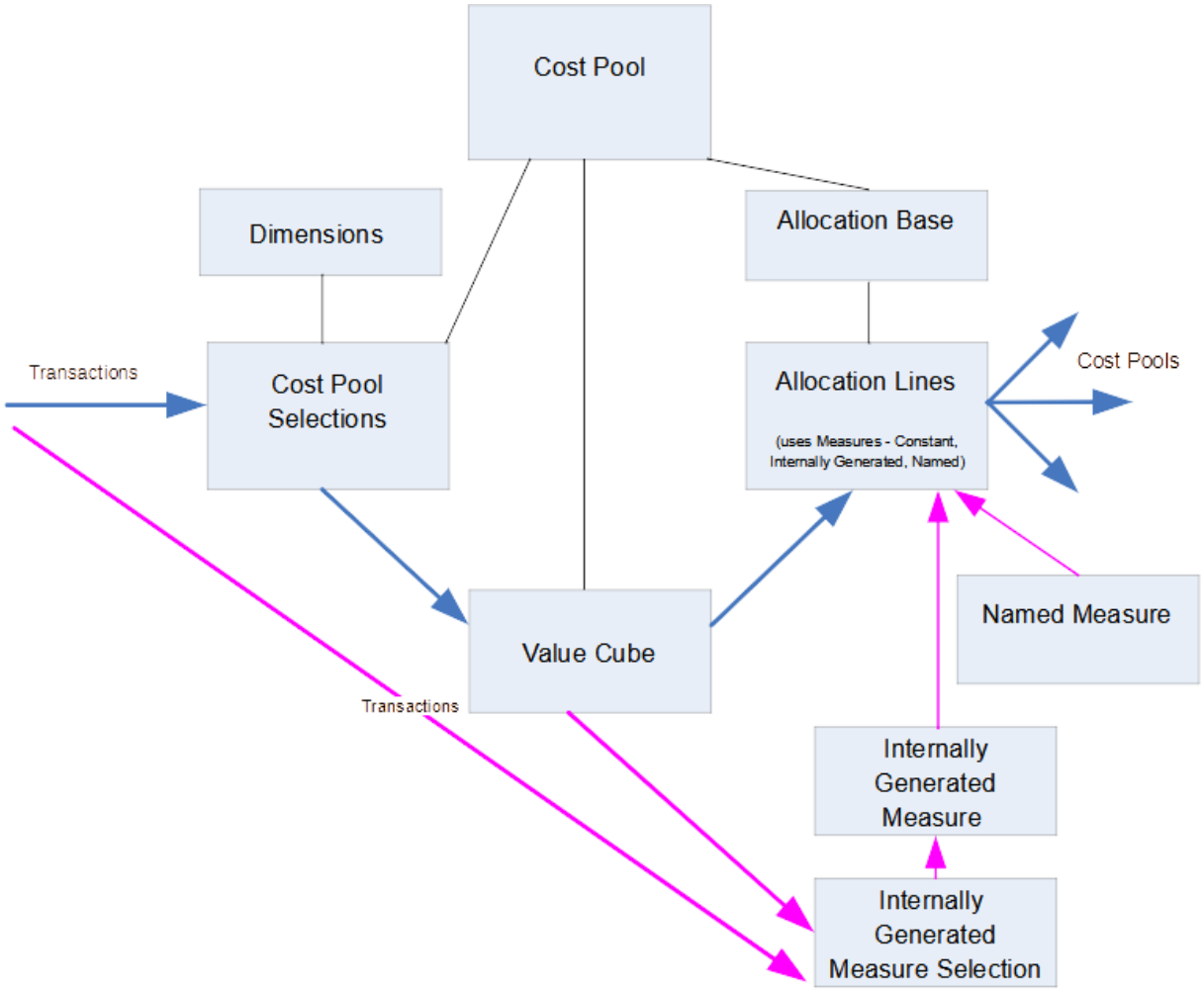


Figure 3 - Extended Flow of Transaction Data

2.5. ALLOCATION DEPENDANCY

In order for an allocation to be processed for a Cost Pool, two conditions must be satisfied;
1. Cost Pool must have received all values allocated to it
2. All the measures in the Allocation Base for the Cost Pool must have been resolved i.e. any Internally Generated Measure (IM)

So if there are one or more Internally Generated Measures these must be finalised. Note that an IM will in turn depend on the Cost Pools it is selecting from, which in turn depend on allocations etc.

It is possible to construct an allocation that will not complete because the dependencies cannot all be resolved.

Any dependency issues are reported in the automatically produced Job reports.

2.6. COST POOL SELECTIONS - HIERARCHICAL

Financial transactions are selected into Input Cost Pools using selections primarily defined by "Cost Pool Selections". Each financial transaction is selected into **only one** Input Cost Pool.

A selection consists of a Cost Pool Code that defines the Cost Pool the selection belongs to with an optional Dimension Code in each dimension (* selects all) e.g. CPS,CP101,,,,CZ200,*,,AB600 where CPS is the record type, CP101 is CP Code, CZ200 is a Dimension code for Dimension 1, * for Dimension 2 etc.

The initial selection of transactions into Input Cost Pools can be difficult to conceive given the potentially large number of Input Cost Pools, multiple cost pool selections per cost pool and also the selections may overlap.

To simplify this, the FCASS selections use a multi-step approach to clearly resolve the Cost Pool Selections (and these are reported in the Cost Pool Resolution Report – Report 13).

1. Selection Dimensions are hierarchical
   – so that children (and grandchildren etc.) of a dimensional value are selected
2. More detailed selections are processed before less detailed selections
   - so that if there are two selections for the same record but one is at a lower (more detailed) dimensional level then this will take precedence.
   It is therefore necessary to define the priority given to particular dimension. For example Cost Centre may have a higher priority (e.g. 1) than General Ledger Account (e.g. 2), so that the comparison of levels will first compare the Cost Centre dimension before comparing the General Ledger Account dimension. This dimensional priority is defined in the Cost Pool Group, so that different Cost Pool Groups can have a different dimensional priority for each of the dimensions.
3. Cost Pool Groups
   - Cost Pool Groups group Cost Pools e.g. Revenue Cost Pool Group or Expense Cost Pool Group and have a priority to determine the order of processing of the **Cost Pool Group** Selections.
   - They also define the Dimensional Priorities for **Cost Pool** Selections, which can therefore be different for each Cost Pool Group. So, for a Revenue Cost Pool Group the priority order may be Product, General Ledger Account, Cost Centre while for an Expenses Cost Pool Group it may be Cost Centre, General Ledger Account.

The definition above, resolves to an ordering of Cost Pool Groups and Cost Pool Selection rules that are to be processed for each Transaction. As each transaction is processed it is compared initially with the Cost Pool Group selection (based on CPG priority) to identify which one it is in, then it is compared in order of the Cost Pool Selections for that Cost Pool Group until it finds one that matches. This identifies the Cost Pool that the transaction is selected into. When it is loaded into the Cost Pool, the dimensions of the transaction are loaded into the value cube and define a point defined by the dimensional values and the value of the transaction. If the point already exists then the new value is added into that point.

To support a simplified Cost Model, there may be multiple selection records for a Cost Pool Group and multiple selection records for a Cost Pool which is useful given the definition of a Cost Pool is a collection of costs that are to be processed in the same manner.

This selection dimension prioritisation approach may initially seem complex, but it results in a more stable and accurate model which has less maintenance because there is no need for exclusion and corresponding inclusion selections that need to be maintained together.

The selection order and totals are reported in the Cost Pool Selection Resolution Report (Report 13).

2.7. STRUCTURING THE MODEL

To assist in structuring an Allocation model there is a fixed hierarchy related to Cost Pools. That is, Model Stages are decomposed into one or more Cost Pool Groups which are in turn decomposed into one or more Cost Pools.

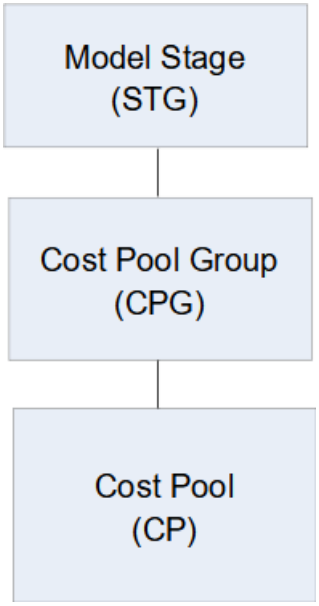


Figure 4 - Model Structure

There may be multiple user defined Model Stages and they represent stages (i.e. phases/levels) of processing through the allocation process. It would be normal to have at least 3 stages; Input, Working and Output. If there were more Stages, then Working would be split into multiple stages and there may be a Report stage.

Often, the model is designed so that a Stage should balance to other Stages. This ensures that an imbalance can be used to detect an error in the model such as unallocated Cost Pools. The Stage Report (Report 12) reports Stages and balances.

The Stage has an attribute of Type (Input, Working, Final and Report) to identify the processing that can take place for the Cost Pools within it.

The Cost Pool Groups have a priority that defines the order of processing of Cost Pool Group Selections. They also define Dimensional priorities that are used to determine the ordering of Cost Pool Selection rules. There are often a minimum of two Input Cost Pool Groups (one for Revenue and one for Expenses) that have different Dimensional prioritization. The Cost Pool Selection Resolution Report (Report 13) reports the ordering of selection rules and values for the Cost Pool Groups and within a Cost Pool Group.

After inclusion of the Stage and Cost Pool Group and some of the associated records the revised diagram is as follows.

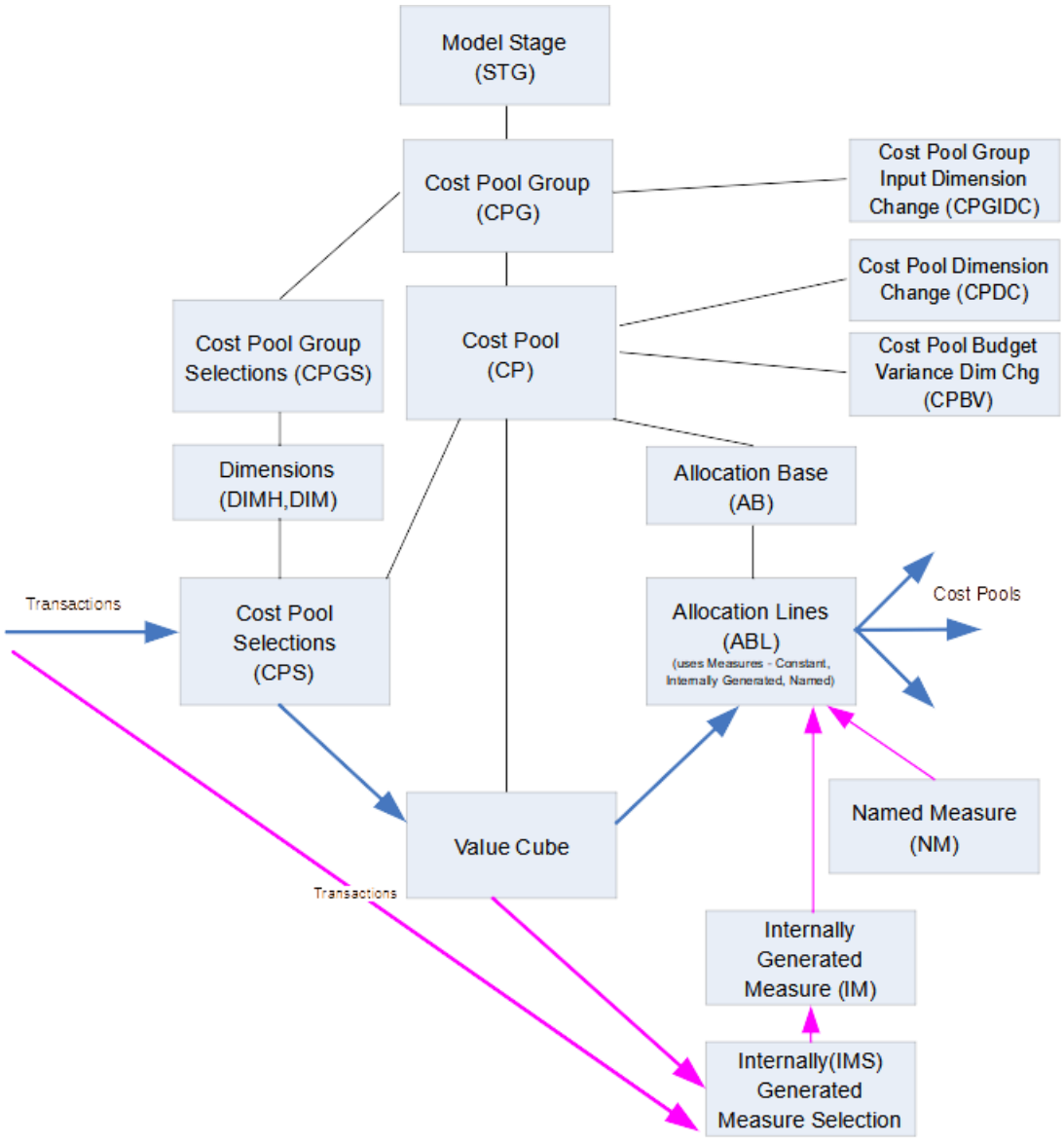


Figure 5 - Revised Model Structure with Record Types

2.7.1. Model Stage Types

Model Stages are user defined and have a Stage Type identifying the usage of the Stage.

Model Stage Types

Type	Description	Cost Pool Has Selections	Cost Pool Has Allocations	Cost Pool Receives Allocations	Cost Pool Receive Costs using CPY
1	Input Stage	Y	Y	N	N
2	Working Stage	N	Y	Y	N
3	Final Stage	N	N	Y	N
4	Reporting Stage	N	N	N	Y

Table 1 - Stage Types

The first 3 Stage Types are used to define Stages used in the Allocation process and the Stage Type identifies the capability of Cost Pools within the Stage. e.g. Cost Pool has Selections.
Reporting Stage Cost Pools are not directly part of the allocation and are used to summarise Value Cubes for reporting using CPY. They would not normally balance with the rest of the model.

2.8. NON SELECTED TRANSACTIONS

The initial processing of the allocation selects transactions into Input Cost Pools based on Cost Pool Group selections and then on Cost Pool selections.

In order to "catch" transactions that are not selected, the solution automatically creates an additional Cost Pool Group (of .NOTSEL) and a Cost Pool (.NOTSEL.NOTSEL) with its selection and also an additional Cost Pool and Selection for each Cost Pool Group (.NOTSELccc – where ccc is the code for the Cost Pool Group). These selections are set to * and so select all transactions not selected by user defined Cost Pool Group and Cost Pool selections.

These additional Groups and Cost Pools show totals for transactions not selected for processing by the Cost Allocation model. Because these dummy Cost Pools have a Value Cube (like all Cost Pools) they can be reported with their dimensions to identify missing selections.

2.9. CREATING A DIMENSIONAL CODE

Through the allocation process a particular dimensional code (or new dimension) may be able to be determined. For an identified Cost Pool the Cost Pool Dimension Change (CPDC) record will change the code in the specified dimension to a new code as transactions or allocations enter a Cost Pool. This can be used for example to set a Product Id or Customer Group.

For all CPDC records there also an option to summarise the dimension to a particular level or using the summary defined in the dimension.
For the input selection there is also a Cost Pool Group Input Dimensional Change.

2.10.DIMENSION TRANSLATE

In some cases a Dimension may have embedded multiple dimensions e.g. General Ledger Account may contain Resource, Product, Technology and Customer Group, and the Dimension code needs to be decomposed to support allocation and reporting. The Dimension Translate is used to define the translation of one dimension with a dimensional code to one or more other dimension codes.
As a Financial Transaction is processed the Dimension code identified for translation is translated into the target dimension codes. Only one DIMT dimension is supported in any run.

2.11.REPORTING

Reports should be produced as part of the allocation process and used to analyse the run, confirming it performed as expected and the model is correct.

In FCASS, all reports produce CSV file output to be read by a spreadsheet program for formatting.

Some reports are:-

a. Job and JobandTrace Report
   During the run these trace the steps performed in the program and reports errors.
   These reports are always run and should be checked to confirm the run worked correctly.

b. Dimension Report
   This report shows the Dimensions in dimension order with number of transactions selected, value selected as well as number of transactions not selected, value not selected (i.e. not selected by Cost Pool Selections but had dimension values). Counts and values are rolled up through the hierarchy.

c. Cost Pool Resolution Report
   This report shows the Cost Pool Selections in the order they are to be processed with the number of transactions and values that they selected.
   Special Cost Pools named ".NOTSEL" with a Cost Pool selection named ".NOTSEL" are automatically created for each Cost Pool Group (plus an additional one for not selected by Cost Pool Group) which collect all non-selected transactions. These have a value cube that can be reported.

d. Stage Report
   This report shows Stage, Cost Pool Group and Cost Pools with balances. This can be used to determine that Stages balance and/or financial data is allocated correctly.

e. Cost Pool Report
   This report shows Cost Pool Basic data, Selections, Allocation, Value Cube. It identifies the basic data for a Cost Pool, the cost pool selections for a Cost Pool with number of transactions and value, the Measure and each value allocated to a destination Cost Pool and the Value Cube.

f. Measure Report
   This report shows all the measures with their values. For Internally Generated Measures it shows the values of each of the selections. It also shows what Allocation Bases use the Measures.

g. Allocation Base Report
   This report shows all of the Allocation Bases and the calculation of the proportions to allocate.

h. Cost Pool Variance Reporting
   This report shows Cost Pools with Value and Unit variances.

i. Cost Pool Contribution Reports
   There is an Input Contribution and a Final Contribution Report.
   The Input shows the Contributions each Input Cost Pool made to Final Cost Pools.
   The Final shows for each Final Cost Pool the Contributions from Input Cost pools.

j. TraceForward and TraceBack Reports
   These reports show the allocation through the model from Input to Final or Final to Input.

k. Rollup Report
   This report shows for a selected Cost Pool a rollup by up to 3 dimensions for a specified number of levels.

l. Selected Report
   This report identifies each transaction with the Cost Pool it was selected into.

2.12.ALLOCATION AND RUN REVISITED

Allocation:
The primary purpose of FCASS is to perform Cost Allocation, although it can also be used to accumulate financial data and report.

The FCASSA program runs in 3 phases - Loading Data, Allocation and Reporting.
By default when you run it, the Allocation phase will run when the first Report is requested.
In addition the behaviour of the program for Cost Allocation is controlled by Option 4 i.e. OO,4 with parameters of 1,2 or 3.

OO,4,1 Run Allocation (default)
OO,4,2 Run Allocation if no errors
OO,4,3 Do not run allocation

Loading Data Phase:
Data is read from input files and loaded into program. Errors are reported in Job Report files.
If a Named Measure is not set by NMV then that is reported.

Allocation Phase:
The Allocation Phase runs in loops.

Each loop :-
a. attempts to resolve all unresolved Internally Generated Measures (IM)
b. attempts to resolve all Allocation Bases (AB)
c. determines if a Cost Pool has received all of its allocations
d. Allocates Cost Pools where their Allocation Bases have been resolved and have received all of their allocations of Costs

The loop continues until nothing further is resolved. The resolution and allocation progress is reported in the .JobandTrace.csv file. Note therefore, that the program can perform “Direct” and “Step Down” allocation but not “Reciprocal” (reference https://maaw.info/Chapter6.htm).

End Allocation Check
At the end of the Allocation, a check is done of all IMs, ABs and CPs to see if they have been resolved and allocated.
The ones that have not been resolved are reported in .JobandTrace.csv.
a. For IMs that depend on Cost Pools (Type C), the Cost Pools that were not resolved are listed
b. For ABs the IMs that are depended on and were not resolved are listed
c. For each CP the AB that is depended on were not resolved is listed
d. For each CP that the value is not finalised the CPs that were not resolved are listed

Reporting Phase:
By default once the Allocation is complete the reports will run and output to chosen files.

2.13.BUDGET ALLOCATION

In businesses many overhead departments (and their cost pools) allocate based on a budget, so that receiving cost pools can have prior knowledge of the costs they are receiving.

So, it is possible to allocate budgets as well as actual costs. This is determined by Option 1 (OO,1). If not set, then actuals are allocated. If set, the action depends on Allocation Method and Unit Source defined in each Cost Pool. The values for Allocation Method and Unit Source are described below.

Allocation Method -

0. Allocate Actual (Variance can still be reported in Variance report)
1. Allocate Budget
2. Allocate Unit Budget Price * Nr of Units
3. Allocate Unit Budget Price * Nr of Units up to Budget (i.e. capped at Budget)

The Unit Budget Price is determined by the Budget / Nr of Units.

Unit Source -

0. None
1. Use Units in Cost Pool
2. Use Unit Actuals from Allocation Line Measures, Use Unit Budget in Cost Pool
3. Use Unit Actuals from Allocation Line Measures, Use Unit Budgets from Allocation Lines

The Allocation will occur using the options above. The variance will be allocated to a Variance Cost Pool identified in the Cost Pool.

Example – Cost Pool - Budget is $100 and Actual is $80, Nr of Budget Units in Cost Pool is 20	
0 – Allocate Actual	$80 is Allocated, there is no variance allocated to variance Cost Pool. But a variance of $20 can be reported against the Cost Pool using Cost Pool Variance Report
1 – Allocate Budget	$100 is Allocated, a variance of -$20 is allocated to variance cost pool
2 – Allocate Nr Units * Budgeted Unit Price	The calculated Budget Unit Price is $5 per unit Assume that the Unit Source was 2 (Unit Budget in Cost Pool, Actual from Allocation Line Measure) Assume that the Total of the Measures in the Allocation Base was 25 So Nr Units (25) * Budget per Unit($5) = $125. $125 is Allocated, a variance of -$45 is allocated to variance cost pool
3 – Allocate Nr Units * Budgeted Unit Price, Up to Budget	As above except the amount of $125 exceeds the budget of $100 $100 is allocated with a variance of -$20 allocated to variance cost pool Note there is a Unit variance of 5 units

The dimensions of the Variance allocation will be based on CPBV (Cost Pool Budget Variance) record which is optional for each Cost Pool. One of the dimensions could be the Cost Pool code. This would ensure that the source of the variance can be identified.

Reporting of Cost Pool Variances can be performed by the Cost Pool Variance Report (Report 25).
The Cost Pool Variance Report shows five different variances.

1	Allocation Variance	equals Allocated Value – Value This is the Variance allocated to the Variance Cost Pool
2	Budget Variance	equals Budget Value – Value
3	Unit Variance	equals Budget Unit – Actual Unit
4	Unit Price Variance	equals Budgeted Unit Price – Unit Price
5	Unit Variance	For each Allocation Base Line

In Summary - To Use Budget Allocation:

1. Determine Cost Pools to use Budget Allocation and set AllocationMethod and UnitSource
2. Capture Value Budgets, Units Budgets as required – these will need to be updated as they change
3. Define Variance Cost Pools (to receive Variance)
4. Update Cost Pools with Variance Cost Pools, Budgets, Unit Actuals and Allocation Base Lines with Unit Budget as required
5. Turn on Budget Allocation - Option 1 on (OO,1) - when Allocation is run it will use Budget Allocation for Cost Pools
6. Ensure Report 25 - Cost Pool Variance Report is entered for a report to run
7. Run Allocation
8. Review results of Allocation in Cost Pool Variance Report (Report 25)
9. Consider use of different Cost Pool Variance dimensions (CPBV)

2.14.LEVEL OF CONFIDENCE

Level of Confidence (LOC) is an optional dimension that can be used to report on the accuracy of financial data. It is automatically calculated.

The allocation is based on allocation measures. There is a level of confidence associated with these; Direct (1), Attributed(2), Unattributed(3).

Direct means that the measures are the value of direct measures such as number units sold of a product.

Attributed means that a study of costs was performed and the relative ratios are defined. For example costs of a machine are allocated based on the usage. The relative usage is not measured each time. But a study was performed and that determined the relative proportions of usage of the machine.

Unattributed means that the costs are spread based on an overhead measure (i.e. an IM) such as percent of revenue for different products

The Level of Confidence is therefore associated with the Allocation Base but it can also be a dimension and defined using Options (OO number 3).

The LOC for the Allocation Bases is automatically calculated as follows;

1 if Measure Type is C or N and only one ABL
2 if Measure Type is C or N and more than one ABL
3 if there is an Internally Generated Measure

Secondly, as costs pass from a Cost Pool the LOC will be allocated equivalent to the **maximum** of the LOC for the data and the one defined for the base. So, if the dimension value of data for LOC is 2 and the Allocation Base LOC is 3 then the LOC dimension for the output will change to 3. However, if the LOC is 2 and the LOC of the AB is 1 then the LOC will stay at 2.

The Dimension number to use for the LOC Dimension is identified in Options (OO,3). Once the dimension is identified the system automatically creates the LOC Dimension Codes.

2.15.MISCELLANEOUS

Positive and Negative Numbers:
Expenses are often represented as positive numbers and Revenue negative.
Care must be taken not to combine these otherwise they will “net out”, therefore revenue should be reported separately to expenses.

Alternatively, for each Input Cost Pool Group there is a parameter that controls reversing the sign of the value of the transaction. This may be useful so that Revenue and Expense transaction selected into these different Cost Pool Groups all have the same sign and therefore not net out if they are combined.

Good Practice in Models:
It is good practice to ensure that all costs that are input are processed in stages through to final cost pools. The Stage Report (Report 12) is used to report Stage totals and this can help with confirmation of correctness of model.

Almost all Data Record Types have a description field. Use them to document the model.

3. RUNNING FCASSE AND FCASSA

3.1. INTRODUCTION

The FCASS solution is comprised of two programs; FCASSE (FCASS Edit program) and FCASSA (FCASS Allocation program).

The following diagram shows the interaction of FCASSE and FCASSA.

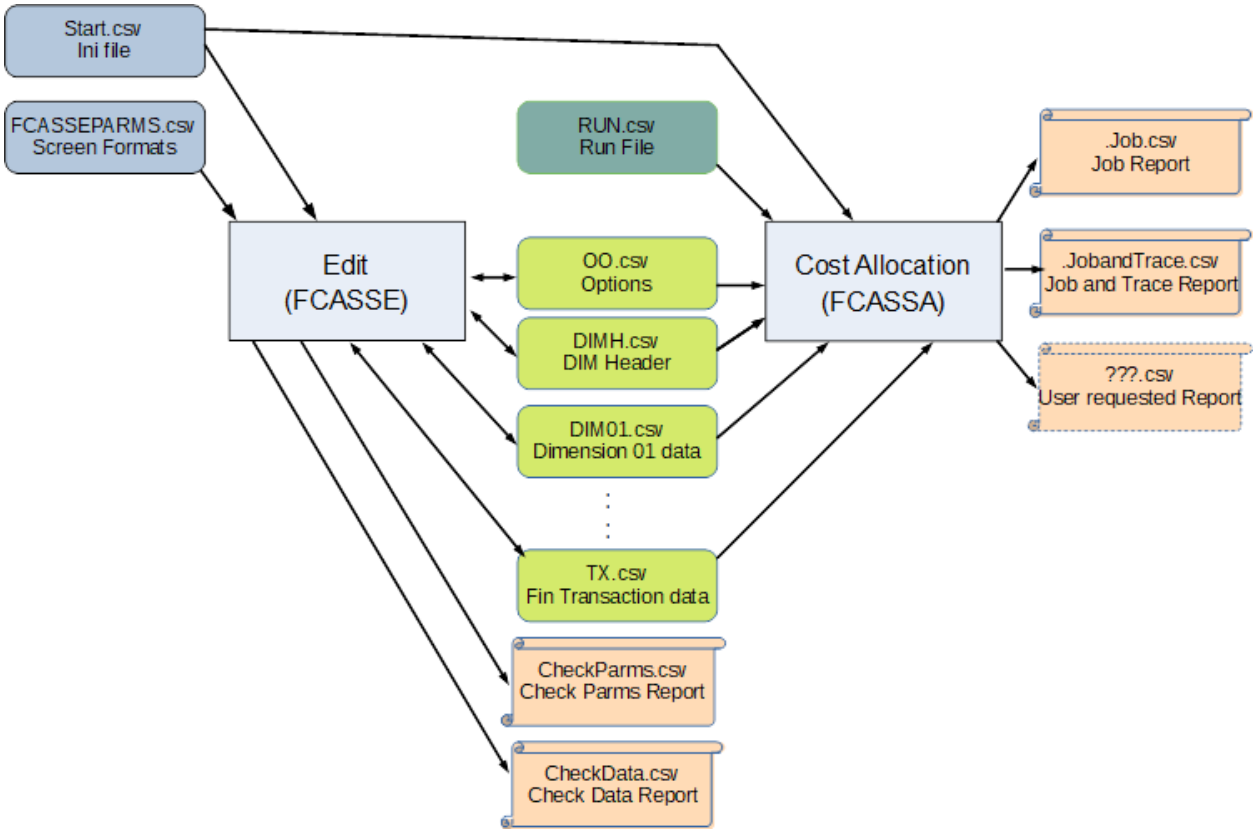


Figure 6 - FCASSE and FCASSE Interaction

Component	Description
FCASSA and FCASSE	FCASS Edit Program, FCASS Allocation Program
Start.csv	Contains name of RUN.csv filename – used by FCASSE and FCASSA Located in Program directory
FCASSEPARMS.csv	Contains list of files to edit, screen definitions and validations Located in Program directory
RUN.csv	Contains Input and Output Directory names and list of Input Data files to Allocation
OO.csv, DIMH.csv etc	Data files Edited by FCASSE and used by Allocation Located in $IDIR directory defined in RUN.csv
CheckParms.csv, CheckData.csv	Reports produced by FCASS Edit Located in same directory as RUN.csv
.Job.csv, .JobandTrace.csv	Job reports for Allocation Located in $ODIR directory defined in RUN.csv
???.csv	User requested report for Allocation Located in $ODIR directory defined in RUN.csv

Table 2 - FCASSE and FCASSE Components

The solution does not use additional components or files, although a Spreadsheet program is useful to view and format csv files for better report presentation.

3.1.1. FCASSE – EDIT PROGRAM

FCASSE is used to edit the data files that contain the model.

It can be run by double clicking its name in a File Explorer or running from the command line.

When FCASSE runs, it reads file Start.csv which identifies the default location of the RUN.csv file (and is used to determine the directory of the Data files). It then reads the Parm file which identifies the Allocation Data files (e.g. OO.csv, CP.csv) that are to be processed and defines the screens and validation. The default location of the Parm file (FCASSEPARMS.csv) is the same directory as the executable.

The data on each Data file can be Searched, Created, Modified and Deleted using functions in the program. Changes to the data files can be saved when running or exiting the program.

FCASSE can also create two reports (from the Tools menu), the Check Parms report and the Check Data report. These produce an output csv file FCASSECheckPARMS.csv or FCASSECheckDATA.csv.

3.1.2. FCASSA – ALLOCATION PROGRAM

FCASSA is used to perform the cost allocation and run reports.

It can be run by double clicking its name in a File Explorer or running from the command line.

When FCASSA runs it reads Start.csv which identifies the default location of the RUN file (RUN.csv). The RUN file identifies the Input and Output directories and the list of DATA files to be processed by the Cost Allocation.

The program reads through the list of DATA files and processes each in turn.

As the program runs it produces the .Job.csv file and .JobandTrace.csv files that trace the progress of the run. These files should be checked to confirm the run worked as expected.

Some of the DATA may contain REP records to request user reports. For each REP record a separate csv output file is produced with the file name the same as that defined in the report request.

3.2. INSTALLATION – USING SAMPLE DATA

A zip file (sample.zip) which includes programs and sample data has been provided to simplify initial runs. First, unzip the sample.zip file to a working directory. (Installation is now complete.)

To run using the sample data; navigate to the Programs sub directory using File Manager then
To run the Edit program - double click on FCASSE.exe.
To run the Cost Allocation - double click on FCASSA.exe .

Some useful instructions are included on file “Read This File.txt” in the zip file.

The zip file contains three directories

a. Programs
   For FCASSE it contains FCASSE.exe, FCASSEParms.csv
   For FCASSA it contains FCASSA.exe
   Both use Start.csv, FCASSA .chm help file, License.txt
b. AllocData5 - contains sample Input data
c. AllocData5Out – contains sample output from Allocation

3.3. RUNNING FCASSE EDIT PROGRAM

FCASSE is designed to provide a simple means of editing the CSV files that are used as input to the Cost Allocation program FCASSA.

An alternative to using FCASSE is to use a spreadsheet program to prepare the data and to open/save the data in CSV format. This approach may be useful for bulk changes.

3.3.1. OVERVIEW SCREEN – LIST OF FILES

When run, the program displays a Tabbed list of files with an additional Tab for Summary. The summary displays a list of files and the number of Data records in each file. The code (e.g. AB for Allocation Base) is the record type.

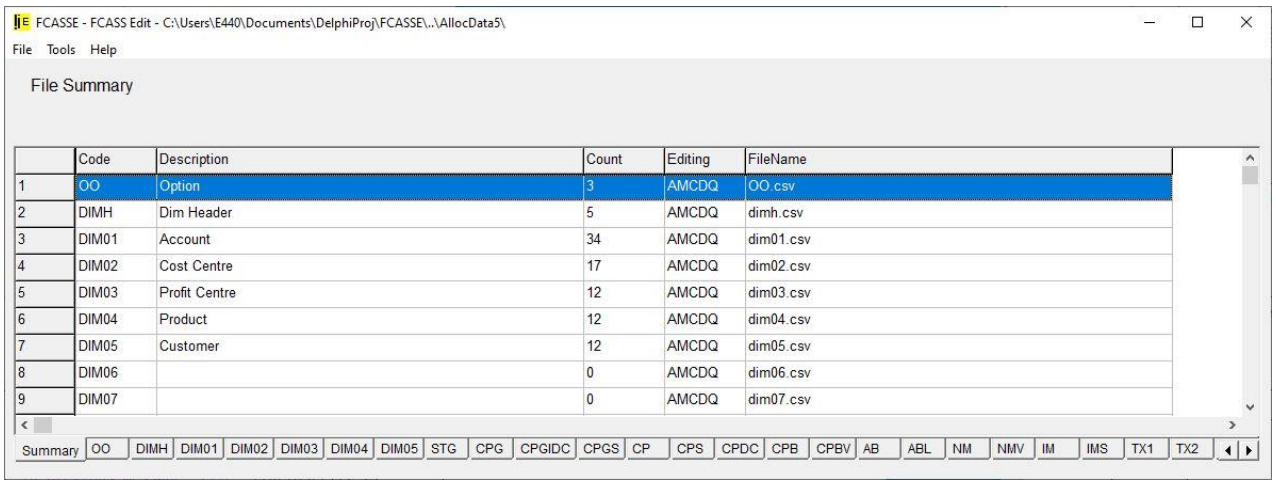


Figure 7 - FCASSE – Summary Tab

A file can be selected by clicking on its Tab and a list of the records will be displayed.

When the program exits, it will save all of the files, or, they can be manually saved as the program is run. This can be used to save the files, run the Allocation program, look at results, then change data, save data and repeat. In this case there is no need to exit the FCASSE program.

Modification of screens and validations is described in more detail in Appendix 4.

3.3.2. LIST OF RECORDS

A record can then be selected by selecting its row then click on an Action button e.g. Modify to modify the record.
Records can also be searched using the Find First and Find Next buttons by first entering a value in the Find Code or Find Description field. The Find matches when the field contains the search value.

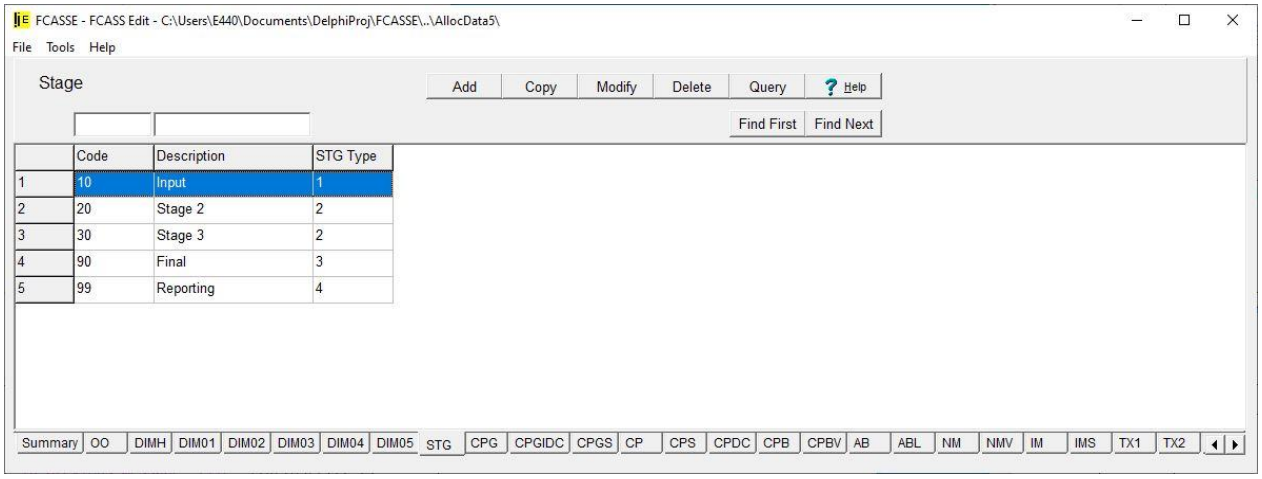


Figure 8 - FCASSE – Sample STG File Tab

3.3.3. EDIT SCREEN

Once a record is selected and the Action button clicked, a new screen will display allowing updating of values. This screen shows a grid of five columns.

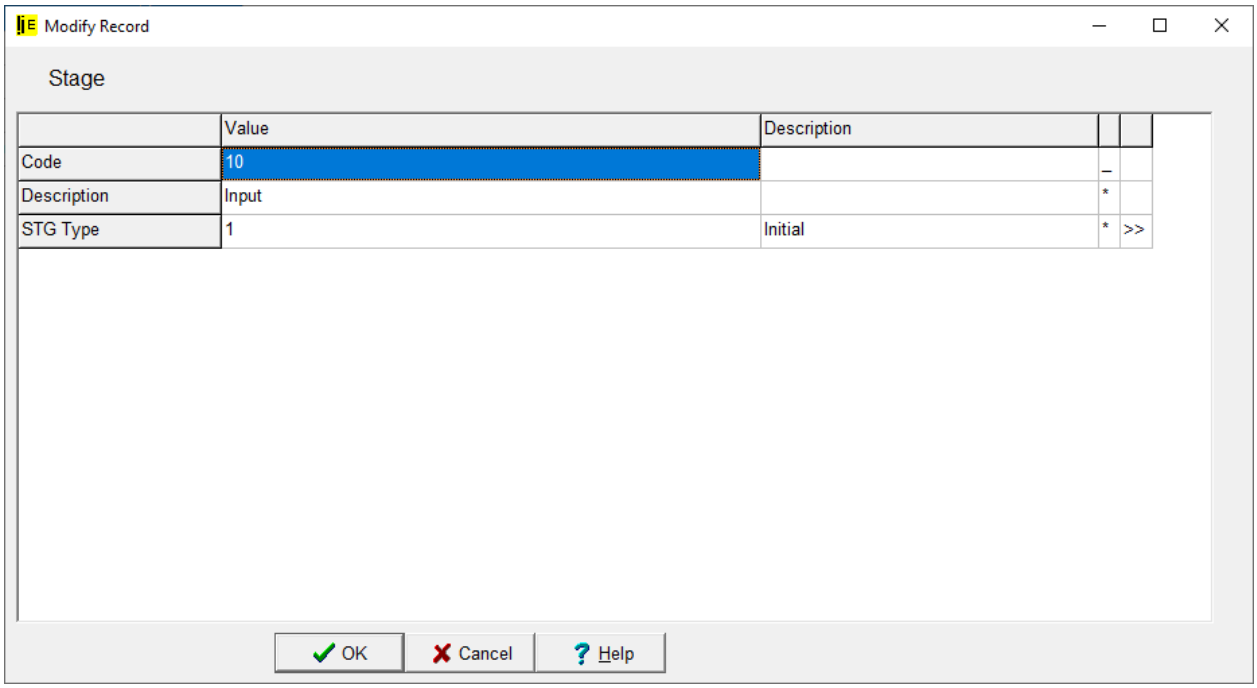


Figure 9 – FCASSE - Edit Screen

A description of the contents of each of the columns is below.

Column	Description	Comment
1	Field Description	
2	Value to be edited	For Cost Pool in the AB Code field can enter >and CP code (e.g. >CPIN67) rather than AB. This avoids having to create an Allocation Base when the costs are just passed through. In the FCASSA Allocation program an AB and ABL is automatically created to perform the allocation.
3	Field translated value	e.g. if Cost Pool Code will show the Cost Pool Description
4	Validation	* mandatory _ protected . not displayed
5	Lookup	If shows >> can click on this to select a value For CP in AB field first enter > in AB field then click on >>.

Figure 10 – FCASSE - Edit Screen Fields

3.3.4. SELECTION SCREEN

If >> is clicked, a list of records for that record type is displayed. One can be selected. When OK is clicked this will exit and update the Edit screen value.

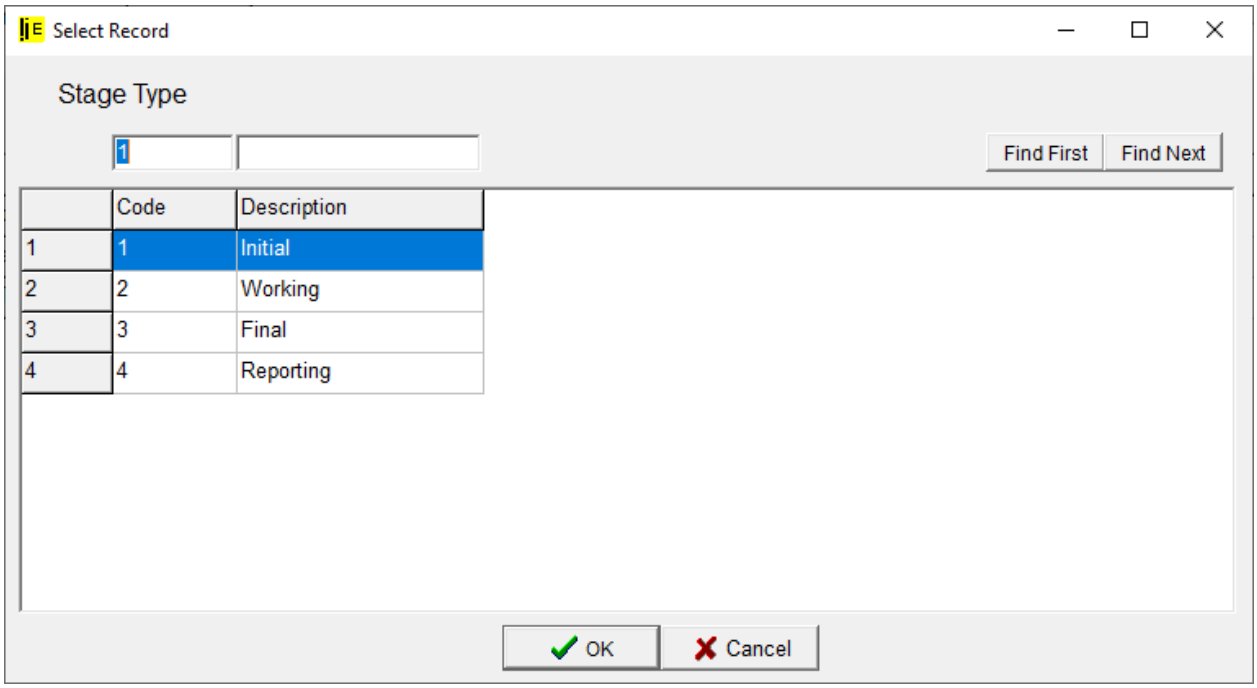


Figure 11 - FCASSE – Selection Screen

3.3.5. TOOLS FUNCTIONS

There are two functions
a. Check Data
b. Check Parameters

3.3.5.1. CHECK Data

This function checks that the loaded data conforms to all of the validation rules.
If there are errors, these are written to file FCASSECheckData.csv (in the same directory as RUN.csv).
This could be useful if data is loaded from an external source and it is to be checked and corrected before running the Allocation.

3.3.5.2. CHECK Parameters

The FCASSE program uses a parameter file (default FCASSEParms.csv) to define the record layouts and validations.
This function checks that the loaded parameter file is consistent.
If there are errors, these are written to file FCASSECheckParms.csv (in the same directory as RUN.csv).
This would be useful to check an alternative Parameter file.

3.4. RUNNING FCASSA ALLOCATION PROGRAM

FCASSA runs the Cost Allocation.

If the program is run from the command line with the RUN file name then it will run and complete.

However, if the program is run without a RUN file specified then it will display the following screen and prompt with the default RUN file name. To continue, select a new RUN file (by clicking on >) or click on the RUN button.

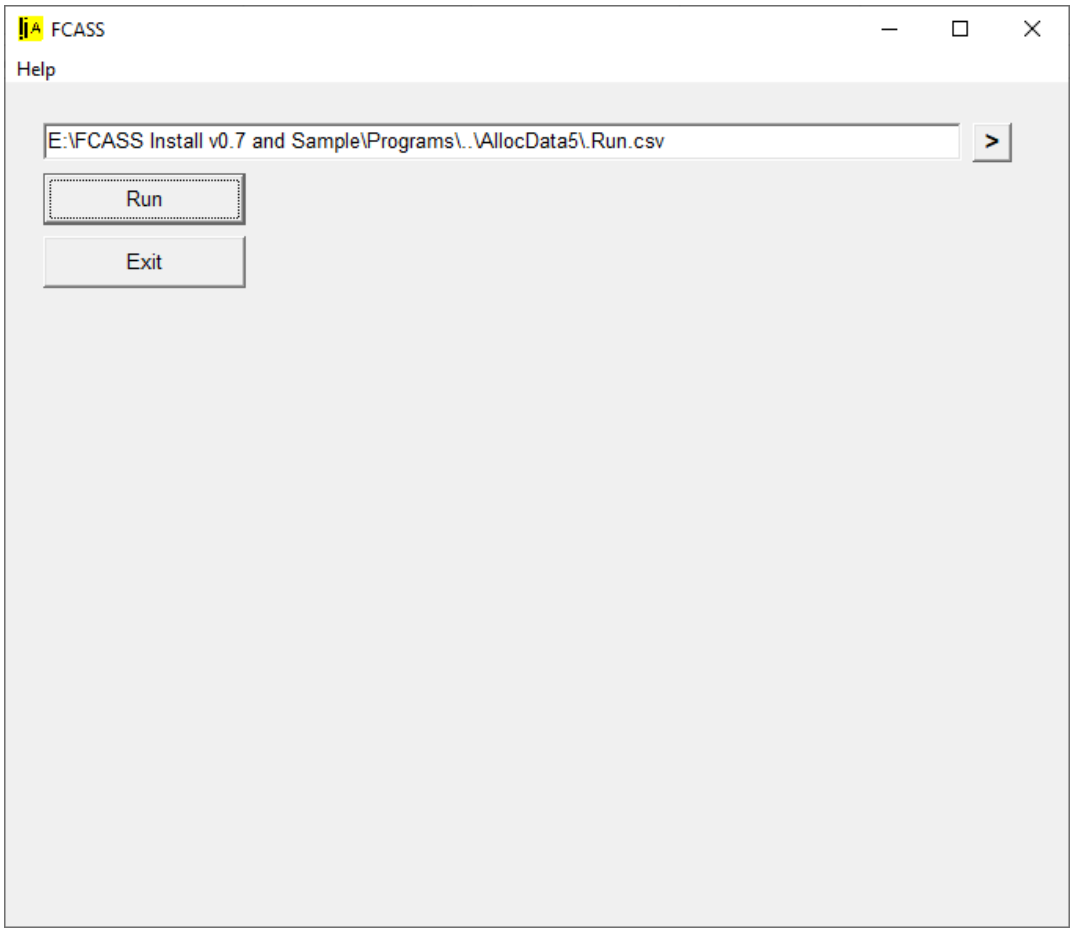


Figure 12 - FCASSA – Initial Screen

Once the program has run, the screen will change and adhoc report requests can be entered by selecting the report name from the drop down list box and the 'Run Report' button.

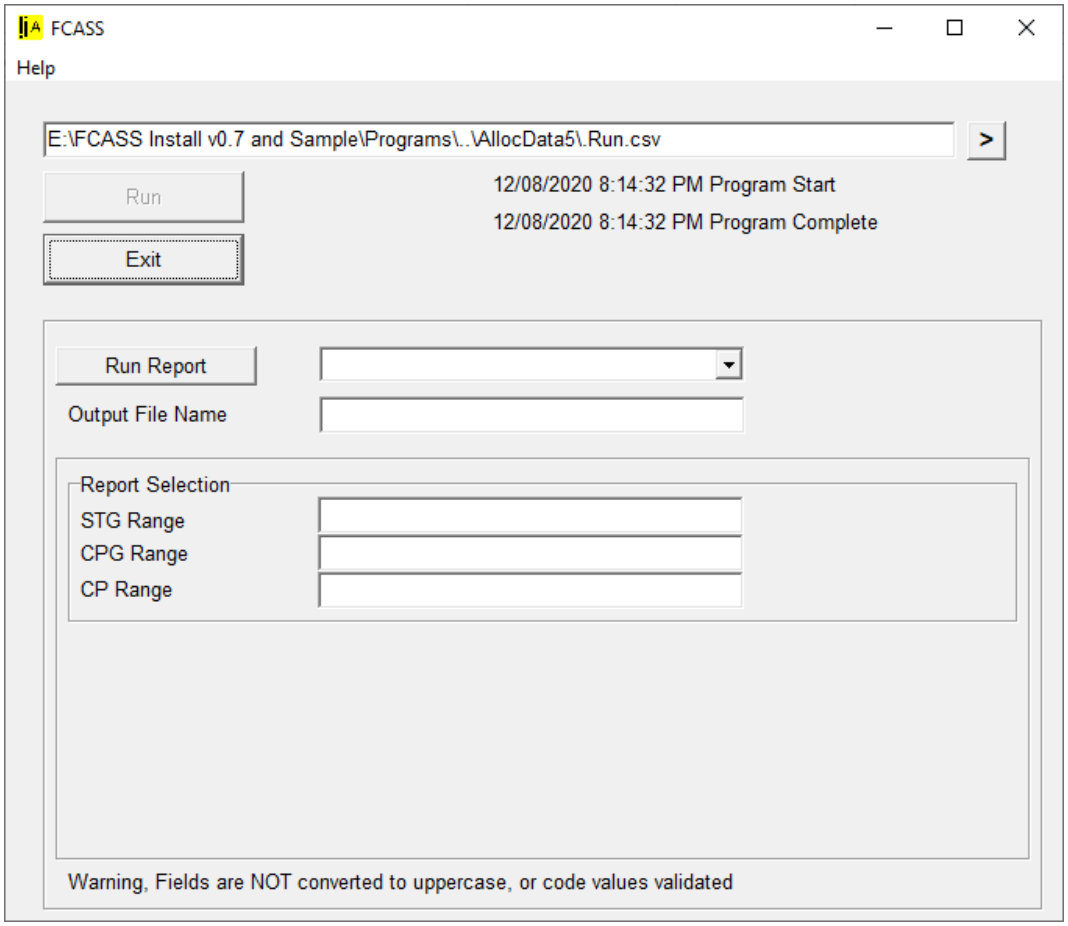


Figure 13 - FCASSA – Screen after run of Allocation

All reports and CPY can be run.

When the program runs, it will read the run file to determine processing to be performed.
It will read input files from the directory identified by $IDIR and write output files to the directory identified by $ODIR.

Once the program has run, check the .Job.csv file and .JobandTrace.csv files.
Basic information about the run and errors are written to the .Job file.
The .JobandTrace file shows everything in the .Job file and also additional trace information on the Allocation and processing.

After looking at the .JobandTrace file it is recommended to look at the Stage Report (Report 12) to perform initial confirmation that the run worked, then Cost Pool Resolution (Report 13) and then perhaps Variance Report (Report 25).
Note that all the number reports are optional and will only run if parameters are entered for them.

4. ALLOCATION PROCESSING

4.1. GENERAL PROCESSING

The FCASSA program performs the Allocation and runs the reports identified by the **RUN file**.
The program reads the RUN file and uses the filenames in it to identify, read and process **Data file**s that contain; Dimension, Model Structure, Allocation Rules and Measures, Transaction and Report requests and processes them. Files are in CSV format. Job and JobandTrace Reports are always produced.

General Processing performed by FCASSA is as follows

Nr	Group	Description	Data File Record Types
1	Dimensions	Read Dimensions and build hierarchies Read in Dimension Translate	DIMH, DIM, OO(2), DIMT
2	Model Structure	Read Stage records Read Cost Pool Group and associated records Read Cost Pool and associated records	STG, CPG, CPGS, CPGIDC CP, CPS, CPDC, CPB, CPBV
3	Allocation Rules and Measures	Read Allocation Base and Allocation Base Lines Read Named Measure, Internally Generated Measure (IM)	AB, ABL NM, NMV, IM, IMS
4	Transactions	Read Transactions and select into Input Cost Pools and build IM with source of Transaction	TX
5	Allocate	Perform Allocation and build IM with source of Cost Pool	OO(1)
6	Reporting	Copy Value Cubes and Reporting	CPY, REP

Table 3 - FCASSA General Processing

4.2. RUN FILE FORMAT

The run file contains a list of Data files that contain the data. It is read by the allocation program to determine the directories and filenames to process. It has the following parameters.

Parameter	Description	Notes
;	Comment	e.g. ; Runfile for May 2018
$IDIR	Input Directory Format $IDIR,,directory name File directory where all input will be read from (**relative to RUN file directory**) $USERNAME will be substituted with User login	e.g. $IDIR,.\
$ODIR	Output Directory Format $ODIR,,directory name File directory where all output will be written (**relative to RUN file directory**)	e.g. $ODIR,..\OUT
$FILE	Data File Filename Format $FILE,RecordType,Filename DIM and Transaction files contain a record type, no other files contain a record type. DIM file has 'DIM' plus dimension number Filename can contain directory (relative to IDIR directory)	e.g. For TX file $FILE,TX,tx1.csv For Cost Pools $FILE,,cpin.csv For DIM file Nr1 $FILE,DIM01,ccentre.csv e.g. $FILE,TX,..\EXTRA\tx2.csv

Table 4 - Run File Parameters

The RUN file is manually prepared using as a base an existing RUN.csv file (e.g. from the sample).

4.3. DATA FILES

Data files contain the actual data i.e. Dimensions, Model Structure, Allocation Rules and Transactions. They are identified in the RUN file.

Rules on Data files

1. There may be multiple files
2. Ordering of files – 4 groups
    a. Run Options
    b. Dimension, Model Structure, Allocation Rules and Measures
    c. Transactions
    d. Report (and Copy files)
3. Transaction and Dimension Data files do not contain record types. (Note DIMT does.)
4. All other data files contain record types and these can be in any order or mixed together e.g. can follow a CPG (Cost Pool Group) record by a CP (Cost Pool) then another CPG.

4.3.1. DATA RECORD TYPES

Abbreviations: Desc - Description

Record Type	Description	Fields	Comment
;	Comment		
OO	Option	OptionNumber, value	Defines Options for the run 0 Description of Run 1 Allocate Budgets 2 DIMT Translate Dimension Number 3 Level of Confidence (LOC) dimension 4 Run Allocation 0 – Run(default) 1 – Do not run if errors 2 – Do not run 5 Transaction Extract is required 6 Trace Looplimit 7 Trace Allocation 8 Trace AllocVC, Value is optional – can be CP2 Code 9 Trace TX After, Value is optional but can be CP Code
DIMH	Dim Header	DimNumber,Desc	Defines the name of each dimension 1 record per dimension
DIMnn	Dim	DimCode, Desc, ParentCode, SummaryCode1(Y/N)	Defines the dimension values 1 record per instance in a dimension, no rec type
DIMT	Dim Translate	DimCode,,,, DimCode1 to n	Defines translation of dimensions from the entered dimension to other dimensions Optional – 1 record for each instance where it is required Can only have one DIMT dimension
STG	Model Stage	STGCode, Desc,STGType	Defines Model Stage; used to organise model e.g. 10,20,30,40,50 STGType 1-Input; 2-Working;3-Final;4-Report
CPG	Cost Pool Group	CPGCode, Desc, STGCode,CPGPriority, ReverseSign, DimCodePriority1..6	Defines Cost Pool Groups; used to organise model and group together Input Cost Pools and order selection into a Cost Pool ReverseSign Y – reverses sign of dollars for this CPG
CPGS	Cost Pool Group Selection	CPGCode, Desc,,, DimCode1 to n	Defines the selection criteria for transactions into a Cost Pool Group
CPGIDC	Cost Pool Group Input Dimension Change	CPGCode, Desc,,,Dim/Summary level …	Defines the Dimension Change for Input Transactions. Will be applied for all input Cost Pools that belong to CPG. Format same as CPDC, CPDC can also apply.

CP	Cost Pool	CPCode, Desc, CPGCode, ABCode, Allocation Method, CPVarianceCode, ValueBudget, UnitSource UnitBudgetTotal, UnitActualTotal	Defines Cost Pools;costs to be treated in the same way Cost Pools use Allocation bases to allocate costs to CPs Allocation Method - 0 - Allocate Actual 1 - Allocate Budget 2 - Allocate UnitBudget Price * Nr Units 3 - Allocate UnitBudget Price * Nr Units up to Budget UnitSource - 0 - None 1 - UseUnitsinCP 2 - UseUnitBudgetinCP UnitActualMeasureinABL 3 - UseMeasuresinABL
CPS	Cost Pool Selection	CPCode, Desc,,, DimCode1 to n	Defines the selection criteria for each Input Cost Pool Only applicable for CP in CPG with STGType = 1 (Input)
CPDC	Cost Pool Dimension Change	CPCode, Desc,,,DimCode1 to n	Defines Dimensions that are changed as costs are allocated to a Cost Pool (occurs on input to CP) Optional – 1 record per Cost Pool Input of DIMCode or %Y (summarise defined in DIM), %0 to %9 to summarise to that level
CPB	Cost Pool Budget	CPCode, ValueBudget, UnitBudget, UnitActual	Alternative to entering budgets on CP record
CPBV	Cost Pool Budget Variance Allocate	CPCode, Desc,,,DimCode1 to n	Defines Dimensions that are changed for variance for a particular Cost Pool
AB	Allocation Base	ABCode, Desc	Defines Allocation rules Identified for each Cost Pool with STGType = 1,2
ABL	Allocation Line	ABCode, Desc, MeasureType(C,N,I), CodeOrValue, OutputCPCode,UnitBudget	Defines the individual allocation rule for the Allocation Base
IM	Internally Generated Measure	IMCode, Desc, Type, Divisor	Defines Internally Generated Measures Type is 'T' for Transaction or 'C' for Cost Pool identifies input source for measure. Divisor applied to value (defaults to 1)
IMS	Internally Generated Measure Selection	IMCode, Desc, CPCode, Include/Exclude, DimCode1 to n	Defines the selection rule for Internally Generated Measure. Include is 'I' (include) or 'E' (exclude)
NM	Named Measure	NMCode, Desc, Value, Divisor	Defines Named Measures with initial values
NMV	Named Measure Value	NM Code, Value	Assigns value to Named Measure
TX	Transaction	Dollar, DimCode1 to n	Cost Transactions – no rec type
CPY	Report Copy Value Cube	CPCode1,CPCode2	Copies Value Cube in CPCode1 to CPCode2. Only processed after RUN CPCode2 must be of CPType 'REP'. Normally used in conjunction with CPDC to summarise the data. Can have multiple copies to same CPCode2.
REP	Report	Report parameters	Defines Report parameters For reports that report dims option to not report where dim is summarised

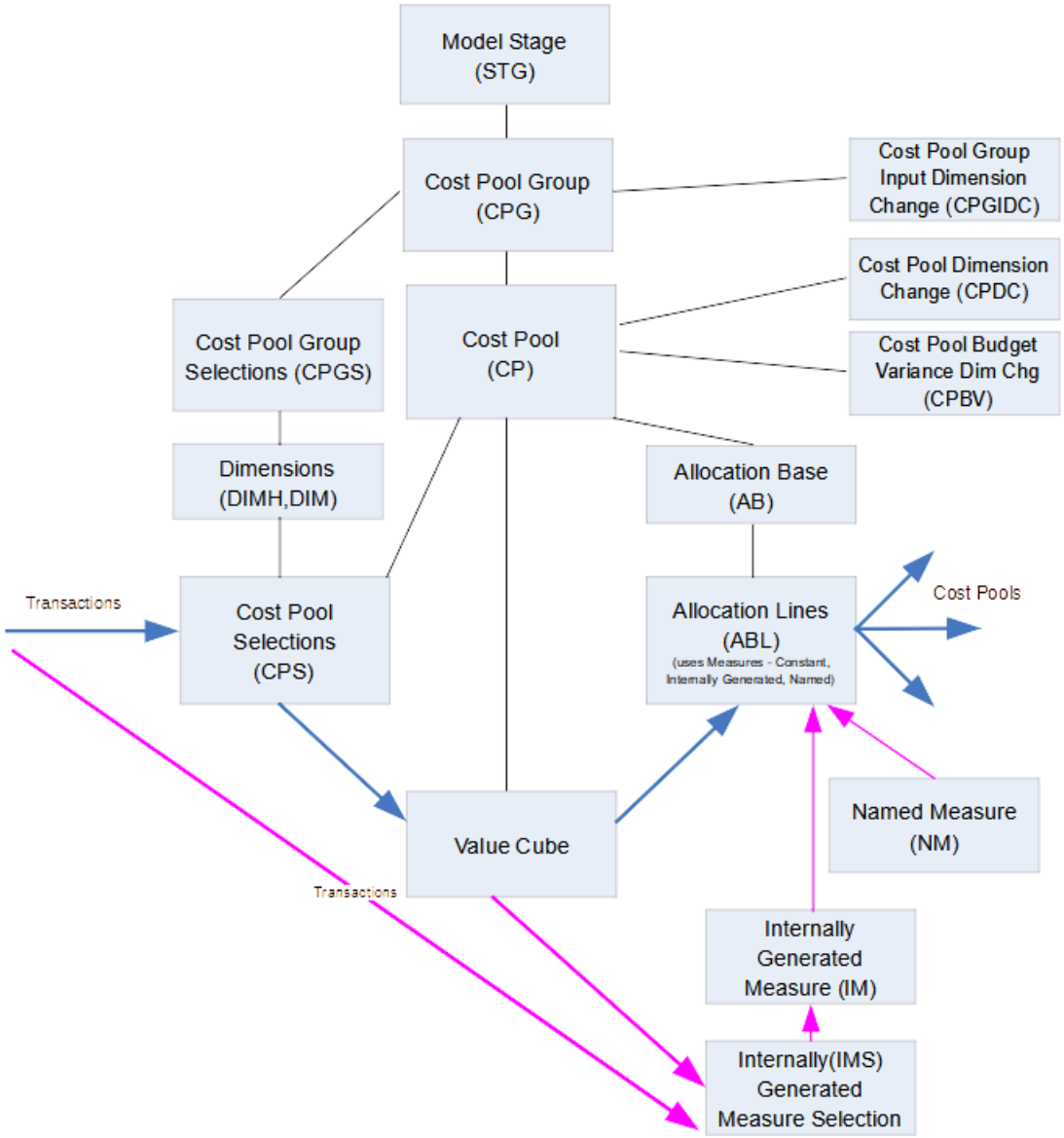
Table 5 - Data Record Types - Summary

Notes

1. All selections by dimensions are hierarchical
2. DIMT, CPGIDC, CPGS, CPS, CPDC, CPBV, IMS have the same format (with a minor variation for IMS)
3. Order of input records is :-
    a. Model Data and Dimensions
    b. Transactions
    c. CPY/REP
4. Run Report and Trace reports are produced as .Job.csv and .JobandTrace.csv where the Job file has list of all errors and the Job and Trace file has the errors and also trace information.
5. Desc is an abbreviation for Description

The following section describes in more detail each of the Data Record Types.

4.3.2. MODEL OF MAJOR RECORDS



5. ALLOCATION DATA RECORDS

This section describes the format of each of the Data Records.

5.1. OPTIONS

Options are entered to control the run. They are optional.

Number	Description	Examples
0	Description of Run	OO,0,Test Run 5053
1	Indicates Allocation using Budget Rules	OO,1
2	DIMT Translate Dimension Number – identifies to which dimension DIMT applies	OO,2,3
3	Level of Confidence Dimension – identifies which is LOC dimension	OO,3,6
4	Run Allocation – 0 always run, 1 run if no errors, 2 – do not run	OO,4,1
5	Transaction Extract is required – additional report produced that reports Transactions and CP Code into file 35.csv	OO,5
6	Trace Loop limit – identifies when to produce "timestamp" during run	OO,6,50000
7	Trace Allocation	OO,7
8	Trace Allocation VC, Value is optional and would be CP Code	OO,8,GH782
9	Trace Transaction after, value is optional and would be CP Code	OO,9,GH782

5.2. DIMENSION DATA RECORDS

5.2.1.1. *DIMH - Dimension Header*

The Dimension Header record defines the names/descriptions of the dimension numbers.

Format	DIMH,Number,Description
Examples	DIMH,1,Account DIMH,2,Cost Centre DIMH,3,Product

5.2.1.2. *DIM – Dimension*

The Dimension record defines the dimension details as parent relationships with up to 15 levels.

Format	Code,Description,Parent Code,Summarisation Y/N
Example	C2N5,Managing Director Cost Centre,C2N

Note DIM records have NO record type identified in the record and the dimension number is identified in the Run file using $FILE,DIMnn,filename where nn is the Dimension number.

5.2.1.3. *DIMT - Dimension Transform*

The Dimension Transform record translates one dimension to other dimensions on input of records. This may be used to disaggregate a dimension.

Format	Input Dim Code,,,Output DIMCode1, Output DIMCode 2 …
Example	GL963,,,,BS34,,,9X5

Note DIMT records do not have a Dimension number identified in the record. It is identified in the Options using Option 2 (OO,2).

The same Format is used for this and other Selection and Dimension Change records (DIMT, CPGS, CPGIDC, CPS, CPDC, CPBV, IMS(with addition of two extra fields))

5.3. MODEL STRUCTURE RECORDS

5.3.1.1. *STG – Stage*

The Stage record is used to structure the model. Typically it represents a phase/level of processing through the model. There is an additional stage for reporting cubes that are used by CPY.

Stages are attributed with a Stage Type that have values of Input, Working, Final, Reporting.

Format	STG,Stage Code,Description,Stage Type
Example	STG,10,Input,1

Model Stage Types

Type	Description	Cost Pool Has Selections	Cost Pool Has Allocations	Cost Pool Receives Allocations	Cost Pool Receive Costs using CPY
1	Input Stage	Y	Y	N	N
2	Working Stage	N	Y	Y	N
3	Final Stage	N	N	Y	N
4	Reporting Stage	N	N	N	Y

5.3.1.2. *CPG – Cost Pool Group*

The Cost Pool Group is used in the structuring of a model. It is subordinate to Stage.

Format	CPG,CPGCode, Description, STGCode, CPGPriority, ReverseSign, DimCodePriority1..6
Example	CPG,EXP,Expenses,1,1,N,1,2,3,4,5

CPG Priority determines the order of comparing **Cost Pool Group** Selections. i.e. CPGPriority of 1 selections will be processed before 2 etc.

Reverse Sign - If set to Y then the sign of all values for the selected financial transactions will be reversed. For example may be used to reverse sign of all Revenue.

DimCodePriority 1 to 6 determines the priority of the dimensions for the **Cost Pool** Selection order. See s2.1.6 for more information on DIMCodePriority.

5.3.1.3. *CPGS – Cost Pool Group Selection*

The Cost Pool Group selection is used to define the selection of transactions into the Cost Pool Group. Then the Cost Pool Selections apply to select into Cost Pools. There may be many input Cost Pool Groups, to start with, one for Revenue GL Accounts and one for Expense GL Accounts.

Format	CPGS,CPGCode, Description,,,DimCode1 to n
Example	CPGS,EXP,,,,,6000

The same Format is used for this and other Selection and Dimension Change records (DIMT, CPGS, CPGIDC, CPS, CPDC, CPBV, IMS(with addition of two extra fields))

5.3.1.4. *CPGIDC – Cost Pool Group Input Dimensional Change*

The Cost Pool Group Input Dimensional Change is used for the Input Cost Pool Groups and changes the input dimensions of all transactions processed entering the identified Cost Pool Group.

As well as defining dimensional values it can also summarise the data e.g. %Y in dimensional position identifies to summarise to summary level defined in Dimension. %n (e.g. %1) will summarise to that level of the hierarchy.

Format	CPGIDC,CPGCode, Description,,,DimCode1 to n
Example	CPGIDC,EXP,TST Summarisation,,,%Y,,%2

The same Format is used for this and other Selection and Dimension Change records (DIMT, CPGS, CPGIDC, CPS, CPDC, CPBV, IMS(with addition of two extra fields))

5.3.1.5. *CP – Cost Pool*

The Cost Pool is used for structuring the model and is one of the key records. Transactions are selected into the Cost Pool and Allocations occur from the Cost Pool to other Cost Pools using the definitions in the associated Allocation Base. It is subordinate to Cost Pool Group.

Much of the Budget information is defined here.

Format	CP,CPCode, Description, CPGCode, ABCode, Allocation Method, CPVarianceCode, ValueBudget, UnitSource UnitBudgetTotal, UnitActualTotal
Examples	CP,CP101,EXP,AB_WORK01,0,,,0 CP,CP108,EXP Product 101,>CP901

Sometimes it may be desired to allocate all costs from one Cost Pool to another. Rather than create an Allocation Base and a single Allocation Base Line, this can be done by entering into the AB Code field > and a new Cost Pool Code. (For the period of the allocation run, a temporary Allocation Base is created of >original cpcode with one Allocation Line to allocate to the output code. e.g. to allocation everything from CP101 to CP201 enter in >CP201 into ABCode field.)

The CPVariance Code is the Cost Pool that the Variance will be allocated to.

Allocation Method -

0. Allocate Actual (Variance can still be reported in Variance report)
1. Allocate Budget
2. Allocate Unit Budget Price * Nr of Units
3. Allocate Unit Budget Price * Nr of Units up to Budget (i.e. capped at Budget)

The Unit Budget Price is determined by the Budget / Nr of Units.

Unit Source -

0. None
1. Use Units in Cost Pool
2. Use Unit Actuals from Allocation Line Measures, Use Unit Budget in Cost Pool
3. Use Unit Actuals from Allocation Line Measures, Use Unit Budgets from Allocation Lines

If Allocation Method = 2 or 3 ensure that enter a Value Budget else all value is a variance.

Note: Currently, allocations **from** a Variance Cost Pool (Cost Pool where variances are allocated to) will not work properly as a Variance Cost Pool does not have an internal dependency.

5.3.1.6. *CPS – Cost Pool Selection*

The Cost Pool selection is used to define the selection of transactions into the Cost Pool.

The selections are hierarchical selections as described in S2.1.6.

Format	CPS,CPCode, Description,,,DimCode1 to n
Example	CPS,SX015,Service X Costs,,,,6000

The same Format is used for this and other Selection and Dimension Change records

(DIMT, CPGS, CPGIDC, CPS, CPDC, CPBV, IMS(with addition of two extra fields))

5.3.1.7. *CPDC – Cost Pool Dimensional Change*

The Cost Pool Dimensional Change is used for a Cost Pool and changes the input dimensions of all values **entering** the specified Cost Pool.

As well as defining dimensional values it can also summarise the data e.g. %Y in dimensional position identifies to summarise to summary level defined in Dimension. %n (e.g. %1) will summarise to that level of the hierarchy.

Format	CPDC,CPCode, Description,,,DimCode1 to n code
Example	CPDC,Set Product;summarise dim1 to level2,,,%2,,,PR01

The same Format is used for this and other Selection and Dimension Change records

(DIMT, CPGS, CPGIDC, CPS, CPDC, CPBV, IMS(with addition of two extra fields))

5.3.1.8. *CPBV – Cost Pool Budget Variance Dimensions*

The Cost Pool Budget Variance Dimensions is used to change the dimensions of the Variance allocation **from** the selected Cost Pool.

By default the dimensions of the Variance will be the same as the normal allocation to the destination Cost Pools. It may be useful to change the dimension if there are common Variance Cost Pools for a Department to create as a dimension the Cost Pool code and then use CPBV to attribute the Cost Pool dimension.

The same Format is used for this and other Selection and Dimension Change records

(DIMT, CPGS, CPGIDC, CPS, CPDC, CPBV, IMS(with addition of two extra fields))

5.3.1.9. *CPB – Cost Pool Budget*

The Cost Pool Budget is an alternative record to be used to change the Budget information of a Cost Pool without needing to modify the Cost Pool. This could be used to interface budgets from an external system. If used, will override all 3 fields.

Format	CPB,CPCode,ValueBudget, UnitBudget, UnitActual
Example	CPB,15340,250

5.4. ALLOCATION RECORDS

5.4.1.1. *AB – Allocation Base*

The Allocation Base is used to define the rules for allocation.

There will be one for each Cost Pool that allocates its costs.

A Cost Pool identifies (using ABCode field) the Allocation Base to be used for allocating.

Format	AB,ABCode,Description
Example	AB,AB100,Floor space

Level Of Confidence is always calculated and can be used in a dimension defined using OO,3.

5.4.1.2. *ABL – Allocation Base Lines*

Allocation Base Lines (or Allocation Lines) define the individual allocations and unit budgets at an Allocation Line level.

Format	ABL,ABCode, Description, MeasureType(C,N,I),CodeOrValue, OutputCPCode,UnitBudget
Examples	ABL,AB100,Product 1,C,45,CP203 ABL,AB100,Product 2,N,NM23S,CP211 ABL,AB100,Product 3,I,IMER45,CP203

The MeasureType (C,N or I) identifies Constant, Named Measure or Internally Generated Measure.

If the MeasureType is C then the next field will contain a number else it will contain either a Named Measure(NM) Code or an Internally Generated Measure(IM) code.

The OutputCPCode is the Cost Pool Code to allocate to.

5.4.1.3. *IM – Internally Generated Measure*

Internally Generated Measure defines a measure calculated at run time by selecting from Transactions or from other Cost Pools.

For example an allocation could depend on the proportion of revenue that a product has. An IM would be created for each Product that would select revenue for the product. These IMs would then be entered into an AB that would use them as the allocation measure.

Format	IM,IMCode, Description, Type, Divisor
Example	IM,SER01,Service Cost 1,C IM,REV01,Total Revenue,T

The Internally Generated Measures can select from either input Transactions or other Cost Pools.
Type is source; T or C (Transactions or Cost Pools).
Divisor is applied to the calculated Measure to determine number to be put in Allocation Line.
Default is 1.

5.4.1.4. *IMS – Internally Generated Measure Selection*

Internally Generated Measure Selection defines the selection for the Internally Generated Measure. There can be multiple selections for an Internally Generated Measure.
The selections are hierarchical selections.

Format	IMS,IMCode, Description, CPCode,Include/Exclude,Dimension 1 to n
Example	IMS,SER01,CP175,I,4300 IMS,REV01,,I,6000 IMS,REV01,but not this revenue,E,6021

The CPCode is required where the IM identified the source of selection as a Cost Pool(C).
Include/Exclude is I or E (Include or Exclude).
The value of a Transaction or Cost Pool can be selected by multiple selections.

The IMS selections work differently than the Cost Pool Selections. They use Include and Exclude with hierarchical dimension selections and process the dimension in dimension order.

Example of IM of type T(Transaction) with **two** IMS records (two selections), one an Include and one Exclude.

Financial Transaction Nr	Value	IMS1 with Include	IMS2 with Exclude
1	100	Not within selection dimensions	Not within selection dimensions
2	200	Within selection dimensions; increment IMS count, add 200 to IMS Total	Not within selection dimensions
3	40	Within selection dimensions; increment IMS count, add 400 to IMS total	Within selection dimensions; increment IMS count, add 400 to IMS total

So, the result of this is that IMS1 has count of 2 and total of 600 and IMS2 has count of 1 and total 400.
The value of the Internally Generated Measure (IM) is 600 - 400 = 200 because 600 is Included and 400 is excluded.

The results of each selection can be reported in the Measures Report (Report 14).
For IM of Type T(Transaction) the count will be the number of transactions selected, for Type C(Cost Pool) the count is zero.

5.4.1.5. *NM – Named Measure*

Named Measure defines a measure that can be entered without modifying Allocation Base Lines to enter a Constant value. This would be used in defining the model. The value would often be interfaced using NMV.

Format	NM,NMCode, Description, Value, Divisor
Example	NM,NM23S,Volume of 23S Calls,3250

Divisor is applied to Measure to determine number to be put in Allocation Line. Default is 1.
When the allocation is run it reports in the .JobandTrace file if a NM is not set by NMV in this run.

5.4.1.6. *NMV – Named Measure Value*

Named Measure Value assigns a value to a named value. This would be used to set a Named Measure, probably through interfacing from an external system.

Format	NMV,NMCode, Value
Example	NMV,NM23S,4500

5.5. TRANSACTION RECORDS

Transaction is a financial transaction.

Format	Value,Dimension 1 code,Dimension Code 2, ...
Example	4523,GL23,,,PROD34

Note that there is NO record type. The record type is defined in the run file as the field after $FILE. e.g. $FILE,**TX**,txfilename.csv

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6. ALLOCATION REPORTS

6.1. INTRODUCTION

Reporting of the Allocation run is performed to ensure that the run functioned correctly, run initial reports and to run extracts for use in a Final Reporting solution. It is expected that there will be a Final reporting solution or formatting that will produce presentation quality reports although this is optional.

Reports can be used to support answers to questions such as :-

1. Has all of the input financial data been selected in the allocation as expected? (Job Reports, Stage Report, Cost Pool Selection Report)
2. What was the order of the cost pool selections, what value was selected by each? (Cost Pool Selection Report)
3. For each Stage do the values reconcile? (Stage Report)
4. What are the variances for Cost Pools that did not allocate Actuals? (Variance Report)
5. What was selected into each Input Cost Pool? (Cost Pool Report)
6. What was allocated by each Cost Pool and to which Cost Pools? (Cost Pool Report)
7. What was selected by each dimension value? (Dimension Report)
8. What was the value of the internally generated measures (and named measures)? (Cost Measures Report)
9. For a given Final Cost Pool, what was the source of data? (Trace Back Report)
10. For a given Input Cost Pool, what Cost Pools was it allocated to? (Trace Forward Report)
11. What are the final value cube values by dimension? (e.g. for product, customer reporting) (Cost Pool Report, Rollup Report, Extract Value Cubes)
12. What Final Cost Pools did an Input Cost Pool allocate? (Cost Pool Input Contribution Report)
13. From what Input Cost Pool did a Final Cost Pool receive its allocations? (Cost Pool Final Contribution Report)
14. What Allocation Base(s) use a particular Internally Generated Measure? (Cost Measures Report)
15. What transactions were selected into a particular Cost Pool? (Extract Transactions)

The list of reports to run is contained in a file defined in the Run file or if running the program online, adhoc reports can be run by entering report records and clicking on the Run Report button.

All the reports are produced as CSV files. It is recommended that a **spreadsheet program be used** to load the reports for formatting. (In this section the report examples have been formatted with a spreadsheet.)

FCASSA can also produce summaries of data using the CPY record. This will copy the values for a Cost Pool to another Cost Pool. If a CPDC (Cost Pool Dimension Change) using summarisation (e.g. %1) is used then the data will be summarised during the copy.

The directory that is used to write the reports is identified in the RUN file with $ODIR. The filename to be used is identified in each report parameter.

6.2. LIST OF REPORTS AND EXTRACTS

Report Number	Name	Description
Job	Job, JobandTrace Reports	shows Allocation Run progress and errors – always produced
11	Dimension Report	shows all of the records in a selected dimension with the value of the financial transactions that were selected by that dimension
12	Stage Report	shows selected Stages in a Model with their associated Cost Pool Groups and Cost Pools
13	Cost Pool Resolution Report	shows selected Input Cost Pool Groups with their associated Cost Pools and the order that selection of a financial transactions would occur. It includes the number of financial transactions selected and the value
14	Cost Measures Report	shows selected Measures (Named Measures and Internally Generated Measures). For Internally Generated Measures it shows the value of each selection
15	Cost Pool Report	shows selected Cost Pools. Can also select reporting of the Value Cube associated with each Cost Pool, Allocation Base used and where the Cost Pool has been used
16	Allocation Base Report	shows selected Allocation Bases
21	Cost Pool Input Contribution Report	shows selected Input Cost Pools and what value they distributed to each Final Cost Pool
22	Cost Pool Final Contribution Report	shows selected Final Cost Pools and value they received from each Input Cost Pool
23	Trace Forward Report	shows the allocation traced forward from selected Cost Pools through Allocation Bases and Cost Pools to Final Cost Pools
24	Trace Back Report	shows the allocation traced backward from selected Cost Pools through Allocation Bases and Cost Pools to Input Cost Pools
25	Cost Pool Variance Report	shows selected Cost Pools with their variances
26	Rollup Report	shows a rollup by up to 3 dimensions of selected Value Cubes for a selected number of levels in each selected dimension
31	Cost Pool Value Cube Analysis	shows a list of Cost Pools and information on the size of their Value Cubes
32	Extract Selected Transactions	shows the output from Extract Transactions (report requested by OO 5) filtered by a specific Cost Pool code
33	Extract Value Cubes	shows an extract of the Value Cube for selected Cost Pools. Note this will be very big.
34	Extract Dimensions	shows an extract of Dimensions. Can be useful to gain hierarchy.
OO,5	Extract Transactions	will produce an extract of transactions with the CP code they have been selected into.

Table 6 - List of Reports

Column →	1	2	3	4	5	6	7	8	9	10	11	12
Report Name		RepCode	Filename	SelectRange1	SelectRange2	SelectRange3	ShowSel	ShowCP	ShowAB	ShowVC	WhereUsedCP	WhereusedAB
Dimension Details	REP	11	rep11.csv	DIM								
Stage	REP	12	rep12.csv	STG			ShowCPG	ShowCP				
Cost Pool Selection Resolution	REP	13	rep13.csv	STG	CPG							
Cost Measures	REP	14	rep14.csv	Measure			ShowSel				WhereUsedCP	WhereusedAB
Cost Pool	REP	15	rep15.csv	STG	CPG	CP	ShowSel		ShowAB	ShowVC	WhereUsedCP	
Allocation Base	REP	16	rep16.csv	AB							WhereUsedCP	
Cost Pool Input Contribution	REP	21	rep21.csv	STG	CPG	CP						
Cost Pool Final Contribution	REP	22	rep22.csv	STG	CPG	CP						
Trace Forward	REP	23	rep23.csv	STG	CPG	CP						
Trace Back	REP	24	rep24.csv	STG	CPG	CP						
Cost Pool Variance	REP	25	rep25.csv	STG	CPG	CP						
Rollup Report	REP	26	rep26.csv	STG	CPG	CP	DIMNr1	Level1	DIMNr2	Level2	DimNr3	Level3
Cost Pool Value Cube Analysis	REP	31	rep31.csv	STG	CPG	CP						
Extract Selected Transactions	REP	32	rep32.csv	STG	CPG	CP						
Extract Value Cubes	REP	33	rep33.csv	STG	CPG	CP				yes		
Extract Dimensions	REP	34	rep34.csv	DIM								
Extract Transactions	OO	5	rep35.csv									
				default all	default all	default all	default all	default all	default all	default none	default all	default all

Table 7 - List of Reports and Selection Records

Filename in above table is a sample name. Ranges have two values (low and high) separated by a slash e.g. 2/4. If there is no slash then the single value will be selected e.g. 2.

6.3. JOB REPORT

There are two default reports (Job and JobandTrace) produced by the FCASSA program.

All other reports are requested using REPort parameters.

In addition, if the program is run online, then after the allocation is run, reports can be manually requested by entering in their parameters into the FCASSA program.

6.3.1. Job Report and JobandTrace Report

These reports (.Job.csv and .JobandTrace.csv) are always produced and show the processing in the run. The JobandTrace report shows all that is in the .Job report plus additional trace information.

These reports should always be checked as they show errors and inconsistencies in the data and running of the program such as Allocation not completed because of dependency issues.

For more information refer Appendix 1.

6.4. INPUT DATA REPORTS

6.4.1. Report 11 - Dimension Report

This report shows all of the records in a selected dimension including the level and hierarchy with the value of the financial transactions that were selected by that dimension.

Format	REP,11,filename,DIM Range
Examples	REP,11,rep11.csv REP,11,rep11-2.csv,2/4 (Dimension 2 to 4)

Sample Report in Spreadsheet

Dimension Details Report; rep11.csv; 24/09/2019 1:46:37 PM																			
Type	Code	Description	ParentCode	Level	Summarise	TxCount	TxValue		L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12
DIMH	1	Account																		
1	10	All Accounts		1		36	996419.32		10											
1	1000	Assets	10	2		36	735399.57		10	1000										
1	1010	Cash Operating Account	1000	3		41	913235.61		10	1000	1010									
1	1020	Cash Debtors	1000	3		30	844806.04		10	1000	1020									
1	1030	Petty Cash	1000	3		32	926878.01		10	1000	1030									
1	1200	Receivables	10	2		37	850764.43		10	1200										
1	1210	A/R Trade	1200	3		24	639703		10	1200	1210									
1	1220	A/R Trade Notes Receivable	1200	3		35	829689.94		10	1200	1220									
1	1230	Instalment Receivables	1200	3		23	642804.53		10	1200	1230									

Report Order : Dimension Number, Dimension Code

Fields:

Field	Name	Description	Input/ Calculated
1	Type	Dimension Number	Input
2	Code	The key to the record	Input
3	ParentCode	Code of parent to define hierarchy	Input
4	Level	Level within the hierarchy	Calc
5	Summary	Y or blank – Indicator that this code is to be used to summarise to	Input
6	TxCount	Transaction Count – number of transactions input using this Dimension Code	Calc
7	TxValue	Transaction Value – sum of transactions input using this Dimension Code	Calc
8-21	L1 – L15	Structure / Hierarchy level of Dimension Code	Calc

6.4.2. Report 12 - Stage Report

This report shows selected Stages in a Model with their associated Cost Pool Groups and Cost Pools.

Format	REP,12,filename,STG Range,,,Show CPG,Show CP
Examples	REP,12,rep12.csv

If ShowCPG is '-' then CPG's are not shown
If ShowCP is '-' then CP's are not shown

Sample Report in Spreadsheet

Stage Report; rep12.csv; 24/09/2019 1:46:37 PM

RecType	Code	Description	CP Count	STG Value	CPG Value	CP Actual	Unalloc	Alloc	Alloc Vari	UnAlloc Variance
STG	10	Input	10	25390766						
CPG	.NOTSEL	Not Selected			10639053					
CP	.NOTSEL..NOTSEL	Not Selected				10639053	10639053			
CPG	CPG11	CPG11 Desc			3780199					
CP	.NOTSEL.CPG11	Not Selected				0	0			
CP	CP100	CP with zero actual but budget and allocate budget				0		5555	-5555	
CP	CP101	CP101 Desc				3780199		3790199	-10000	
CPG	CPG12	CPG12 Desc			3868762					
CP	.NOTSEL.CPG12	Not Selected				0	0			
CP	CP102	CP102 Desc				3868762		1875000	1993762	
CPG	CPG13	CPG13 Desc			3682432					
CP	.NOTSEL.CPG13	Not Selected				0	0			
CP	CP103	CP103 Desc				3682432		3682432		
CPG	CPGASS	Assets			3420319					
CP	.NOTSEL.CPGASS	Not Selected				2507084	2507084			
CP	CPASS1	Assets1				913235.6		913235.6		
	Total					25390766	13146137	10266422	1978207	0
	Next			12244629	<<<					
STG	20	Stage 2	4	12244629						
CPG	CPG20	CPG20 Desc			12244629					
CP	CP201	CP201 Desc				4687436		4687436		
CP	CP202	CP202 Desc				1883040		1883040		
CP	CP203	CP203 Desc				3695946		3695946		
CP	CP2V	CP 2 Variance				1978207	1978207			
	Total					12244629	1978207	10266422	0	0
	Next			10266422	<<<					

Report Order : Stage Code(STG), Cost Pool Group Code (CPG), Cost Pool Code (CP)

Fields:

Field	Name	Description
1	RecType	Record Type – STG(Stage), CPG(Cost Pool Group), CP(Cost Pool)
2	Code	The key to the record
3	Description	Description
4	CP Count	Number of Cost Pools in Stage
5	STG Value	Sum of Value of Stage
6	CPG Value	Sum of Value of Cost Pool Group The number identified by <<<<< is the expected value of the next Stage.
7	CP Actual	Actual Value of Cost Pool
8	Unalloc	Value not allocated i.e. there is no Allocation Base to allocate the Costs or the Allocation Base could not be resolved to allocate
9	Alloc	Value Allocated using Allocation Base
10	Alloc Variance	Variance from Budget that is allocated
11	UnAlloc Variance	Variance from Budget that is not allocated

6.4.3. Report 13 - Cost Pool Selection Resolution Report

This report shows selected Input Cost Pool Groups with their associated Cost Pools and the order that selection of a financial transactions occurs.

It includes the number of financial transactions selected and the value.

Format	REP,13,filename,STG Range,CPG Range
Examples	REP,13,rep13.csv,Measure Range,,,Show Selection

Sample Report in Spreadsheet

Cost Pool Selection Resolution Report; rep13.csv; 24/09/2019 1:46:37 PM										
Type	Code	Description	Count	Value	Prty	Account	Cost Centre	Profit Centre	Product	Customer
Cost Pool Groups										
CPG	CPG13	CPG13 Desc	146	3682432	1	0				
CPGS	CPG13		146	3682432		6000	*	*	*	*
CPG	CPG12	CPG12 Desc	159	3868762	2	0				
CPGS	CPG12		159	3868762		5000	*	*	*	*
CPG	CPG11	CPG11 Desc	147	3780199	3	0				
CPGS	CPG11		147	3780199		4000	*	*	*	*
CPG	CPGASS	Assets	139	3420319	5	0				
CPGS	CPGASS	Assets	139	3420319		1000	*	*	*	*
CPG	.NOTSEL	Not Selected	409	10639053	99	0				
CPGS	.NOTSEL	Not Selected	409	10639053		*	*	*	*	*
Cost Pools										
CPG	CPG13	CPG13 Desc	146	3682432	1					
CPS	CP103		146	3682432		6000	*	*	*	*
CPS	.NOTSEL.CPG13	Not Selected	0	0		*	*	*	*	*
CPG	CPG12	CPG12 Desc	159	3868762	2					
CPS	CP102		159	3868762		5000	*	*	*	*
CPS	.NOTSEL.CPG12	Not Selected	0	0		*	*	*	*	*
CPG	CPG11	CPG11 Desc	147	3780199	3					
CPS	CP101		147	3780199		4000	*	*	*	*
CPS	.NOTSEL.CPG11	Not Selected	0	0		*	*	*	*	*
CPG	CPGASS	Assets	139	3420319	5					
CPS	CPASS1		41	913235.6		1010	*	*	*	*
CPS	.NOTSEL.CPGASS	Not Selected	98	2507084		*	*	*	*	*
CPG	.NOTSEL	Not Selected	409	10639053	99					
CPS	.NOTSEL..NOTSEL	Not Selected	409	10639053		*	*	*	*	*

Report is broken into two parts; Cost Pool Group Selection (shows selection into CPGs) and Cost Pool Selection (shows selection into CPs)

Report Order :

1. Cost Pool Group Code Priority (CPG)
2. Cost Pool Group Code Priority (CPG), Cost Pool Selection Resolution Order

Fields:

Field	Name	Description
1	Type	Type – CPG (Cost Pool Group), CPGS(Cost Pool Group Selection) CPS (Cost Pool Selection) (there can be multiple for a Cost Pool and they will be in the order that they will be processed)
2	Code	The key to the record
3	Description	Description
4	Count	Number of transactions selected
5	Value	Sum of Value selected
6	Prty	Cost Pool Group Priority
7	CP Actual	Actual Value of Cost Pool
8 on	Dimension Codes	Dimension Codes for selections in Dimension Order

6.4.4. Report 14 - Cost Measures Report

This report shows selected Measures (Named Measures and Internally Generated Measures).

For Internally Generated Measures it shows the value of each selection and if type T(Transaction) the count of the number of transactions selected.

Format	REP,14,filename,STG Range,CPG Range
Examples	REP,14,rep14.csv

Sample Report in Spreadsheet

Cost Measures Report; rep14.csv; 24/09/2019 1:46:37 PM													
Measure T	Code	Description	CPCode/T	Include	Count	Value	RawV	Divisor	Account	Cost Centre	Profit Centre	Product	Customer
NM	NM1	NM1 Desc				60	60	1					
NM	TEST	Test for zero warning				0	0	1					
NM	TEST2	Test for NMD				22.4	56	2.5					
IM	IM1	IM1 Desc	T			13215090	29073198	2.2					
IMS	IM1			I	146		3682432		6000	*	*	*	*
IMS	IM1			I	1000		25390766		*	*	*	*	*

The Columns after 'Divisor' are the sample Dimensions.

Report is broken into two parts, Named Measures and Internally Generated Measures

Report Order :

1. Named Measure Code
2. Internally Generated Measure Code

Fields:

Field	Name	Description
1	Measure Type	Measure Type – NM (Named Measure), IM(Internally Generated Measure), IMS (Internally Generated Measure Selection)
2	Code	The key to the record
3	Description	Description
4	CPCode/T	For IM if the source of the selection is T(Transactions) then this is T For IM if the source of the selection is C(Value Cube) then the CPCode will be displayed e.g. ABC/C
5	Include	Include/Exclude – I or E
6	Count	Number of transactions selected
7	Value	Value selected (calculated) – equal to RawV divided by Divisor
8	RawV	Raw Value of Named Measure or selected Transactions/Cube
9	Divisor	Divisor applied to Raw Value (input)
10 on	Dimension Codes	Dimension Codes for selections in Dimension Order

6.4.5. Report 15 - Cost Pool Report

This report shows selected Cost Pools and their associated information

Can also select reporting of the Value Cube associated with each Cost Pool, Allocation Base used and where the Cost Pool has been used.

Format	REP,15,filename,STG Range,CPG Range,CP Range
Examples	REP,15,rep15.csv

Sample Report in Spreadsheet

Cost Pool Report; rep15.csv; 24/09/2019 1:46:37 PM												
	Code	Description	Count				Value	Account	Cost Centi	Profit Centre	Product	Customer
CP	CP101	CP101 Desc					3780199					
CPS	CP101		147				3780199	4000	*	*	*	*
AB	AB101	AB101 Desc	Measure	Propn	Code	Desc	Value					
ABL	C	C Desc	80	0.8	CP201	CP201 Desc	3032159					
ABL	C		20	0.2	CP202	CP202 Desc	758039.8					
variance					CP2V	CP 2 Variance	-10000					
CP	CP102	CP102 Desc					3868762					
CPS	CP102		159				3868762	5000	*	*	*	*
AB	AB102	AB102 DESC	Measure	Propn	Code	Desc	Value					
ABL	C		60	0.6	CP202	CP202 Desc	1125000					
ABL	C		40	0.4	CP203	CP203 Desc	750000					
variance					CP2V	CP 2 Variance	1993762					
CP	CP103	CP103 Desc					3682432					
CPS	CP103		146				3682432	6000	*	*	*	*
AB	AB103	AB103DESC	Measure	Propn	Code	Desc	Value					
ABL	C		20	0.2	CP201	CP201 Desc	736486.5					
ABL	C		80	0.8	CP203	CP203 Desc	2945946					
CP	CP201	CP201 Desc					4687436					
AB	AB201	AB201 DESC	Measure	Propn	Code	Desc	Value					
ABL	C		40	0.4	CP301	CP301 Desc	1874975					
ABL	C		60	0.6	CP302	CP302 Desc	2812462					
Used by	CPASS1	Assets1										
Used by	CP100	CP with zero actual but budget and allocate budget										
Used by	CP101	CP101 Desc										
Used by	CP103	CP103 Desc										

Used by; identifies which Cost Pools allocated costs to this cost pool

Report Order : Cost Pool Code

6.4.6. Report 16 - Allocation Base Report

This report shows Allocation Bases (which are the rules for Allocation used by a Cost Pool).

Format	REP,16,filename,AB Range
Examples	REP,16,rep16.csv

Sample Report in Spreadsheet

Allocation Base Report; rep16.csv; 5/08/2020 3:54:59 PM								
	Code	Description	LOC	Measure Value	Propn	Code	Description	Unit Budget
AB	>CP201	>direct	1	1				
ABL	C	CP201 Desc		1	1	CP201	CP201 Desc	0
Used by CP	CP100	CP with zero actual but budget and allocate budget						
AB	AB101	AB101 Desc	2	100				
ABL	C	CP201 Desc		80	0.8	CP201	CP201 Desc	0
ABL	C	CP202 Desc		20	0.2	CP202	CP202 Desc	0
Used by CP	CP101	CP101 Desc						
AB	AB102	AB102 DESC	2	100				
ABL	C	CP202 Desc		60	0.6	CP202	CP202 Desc	120
ABL	C	CP203 Desc		40	0.4	CP203	CP203 Desc	40
Used by CP	CP102	CP102 Desc						
AB	AB103	AB103DESC	2	100				
ABL	C	CP201 Desc		20	0.2	CP201	CP201 Desc	0
ABL	C	CP203 Desc		80	0.8	CP203	CP203 Desc	0
Used by CP	CP103	CP103 Desc						
AB	AB1ASS	ab1ass	3	100				

6.5. ALLOCATION REPORTS

6.5.1. Report 21 - Cost Pool Input Contribution Report

This report shows selected Input Cost Pools and what value they distributed to each Final Cost Pool. So, it shows from the Input Cost Pools the values each contributed to each Final Cost Pool.

Format	REP,21,filename,STG Range,CPG Range,CP Range
Examples	REP,21,rep21.csv

Sample Report in Spreadsheet

Cost Pool Input Contribution Report; rep21.csv; 24/09/2019 1:46:37 PM							
	Code	Description	Value		Propn of Initial	Destn Value	Propn of Final
CP	CP100	CP with zero actual but budget and allocate budget	5555				
	CP301	CP301 Desc		2222	0.4	1874974.5	0
	CP302	CP302 Desc		3333	0.6	3189069.71	0
CP	CP101	CP101 Desc	3790199				
	CP301	CP301 Desc		1212864	0.32	1874974.5	0.65
	CP302	CP302 Desc		1970903	0.52	3189069.71	0.62
	CP303	CP303 Desc		227411.9	0.06	2043290.29	0.11
	CP304	CP304 Desc		379019.9	0.1	2789492.84	0.14
CP	CP102	CP102 Desc	1875000				
	CP302	CP302 Desc		225000	0.12	3189069.71	0.07
	CP303	CP303 Desc		637500	0.34	2043290.29	0.31
	CP304	CP304 Desc		937500	0.5	2789492.84	0.34
	CP305	CP305 Desc		75000	0.04	369594.59	0.2
CP	CP103	CP103 Desc	3682432				
	CP301	CP301 Desc		294594.6	0.08	1874974.5	0.16
	CP302	CP302 Desc		441891.9	0.12	3189069.71	0.14
	CP303	CP303 Desc		1178378	0.32	2043290.29	0.58
	CP304	CP304 Desc		1472973	0.4	2789492.84	0.53
	CP305	CP305 Desc		294594.6	0.08	369594.59	0.8
CP	CPASS1	Assets1	913235.6				
	CP301	CP301 Desc		365294.2	0.4	1874974.5	0.19
	CP302	CP302 Desc		547941.4	0.6	3189069.71	0.17

6.5.2. Report 22 - Cost Pool Final Contribution Report

This report shows selected Final Cost Pools and value they received from each Input Cost Pool.

Format	REP,22,filename,STG Range, CPG Range, CP Range
Examples	REP,22,rep22.csv

Sample Report in Spreadsheet

Cost Pool Final Contribution Report; rep22.csv; 24/09/2019 1:46:37 PM							
	Code	Description	Value		Propn of Final	Value Initial	Propn of Initial
CP	CP301	CP301 Desc	1874975				
	CP100	CP with zero actual but budget and allocate budget		2222	0	5555	0.4
	CP101	CP101 Desc		1212864	0.65	3790198.96	0.32
	CP103	CP103 Desc		294594.6	0.16	3682432.35	0.08
	CPASS1	Assets1		365294.2	0.19	913235.61	0.4
CP	CP302	CP302 Desc	3189070				
	CP100	CP with zero actual but budget and allocate budget		3333	0	5555	0.6
	CP101	CP101 Desc		1970903	0.62	3790198.96	0.52
	CP102	CP102 Desc		225000	0.07	1875000	0.12
	CP103	CP103 Desc		441891.9	0.14	3682432.35	0.12
	CPASS1	Assets1		547941.4	0.17	913235.61	0.6
CP	CP303	CP303 Desc	2043290				
	CP101	CP101 Desc		227411.9	0.11	3790198.96	0.06
	CP102	CP102 Desc		637500	0.31	1875000	0.34
	CP103	CP103 Desc		1178378	0.58	3682432.35	0.32
CP	CP304	CP304 Desc	2789493				
	CP101	CP101 Desc		379019.9	0.14	3790198.96	0.1
	CP102	CP102 Desc		937500	0.34	1875000	0.5
	CP103	CP103 Desc		1472973	0.53	3682432.35	0.4
CP	CP305	CP305 Desc	369594.6				
	CP102	CP102 Desc		75000	0.2	1875000	0.04
	CP103	CP103 Desc		294594.6	0.8	3682432.35	0.08

6.5.3. Report 23 - Trace Forward Report

This report shows the allocation traced forward from selected Cost Pools through Allocation Bases and Cost Pools to Final Cost Pools.

Format	REP,23,filename,STG Range,CPG Range,CP Range
Examples	REP,23,rep23.csv

Sample Report in Spreadsheet

Trace Forward Report; rep23.csv; 24/09/2019 1:46:37 PM							
Level	CP Code	Value	AB Code	Type/MR Code	Value	Output Code	Desc
1	CP100	5555					
			>CP201	C	5555	CP201	CP201 Desc
2	CP201	5555					
			AB201	C	2222	CP301	CP301 Desc
			AB201	C	3333	CP302	CP302 Desc
3	CP301	2222					
3	CP302	3333					
1	CP101	3790199					
			AB101	C	3032159	CP201	CP201 Desc
			AB101	C	758039.8	CP202	CP202 Desc
2	CP201	3032159					
			AB201	C	1212864	CP301	CP301 Desc
			AB201	C	1819296	CP302	CP302 Desc
3	CP301	1212864					
3	CP302	1819296					
2	CP202	758039.8					
			AB202	C	227411.9	CP303	CP303 Desc
			AB202	C	379019.9	CP304	CP304 Desc
			AB202	C	151608	CP302	CP302 Desc
3	CP303	227411.9					
3	CP304	379019.9					
3	CP302	151608					

The size of the Trace report can be very large. It traces every allocation line by line from the start Cost Pools to the end. It will necessary to only use it where required and to select particular Cost Pools to report.

For example if the Cost Pool allocates using an Allocation Base with 50 ABL and the next level is also 50 ABL in the AB and the next 10 and the next 40 then that is 50*50*10*40 = 1 million report lines for only one Cost Pool.

The 'Level' identifies the depth within the allocation, so that Level 1 will be Input Cost Pools, 2 are Cost Pools allocated to etc.

6.5.4. Report 24 - Trace Back Report

This report shows the allocation traced backward from selected Cost Pools through Allocation Bases and Cost Pools to Input Cost Pools.

Format	REP,24,filename,STG Range, CPG Range, CP Range
Examples	REP,24,rep24.csv

Sample Report in Spreadsheet

Level	CP Code	Value	From CP C	AB Code	Type/IM Code	Value
1	CP301	1874975				
			CP201	AB201	C	1874975
2	CP201	1874975				
			CP100	>CP201	C	2222
			CP101	AB101	C	1212864
			CP103	AB103	C	294594.6
			CPASS1	AB1ASS	C	365294.2
1	CP302	3189070				
			CP201	AB201	C	2812462
			CP202	AB202	C	376608
2	CP201	2812462				
			CP100	>CP201	C	3333
			CP101	AB101	C	1819296
			CP103	AB103	C	441891.9
			CPASS1	AB1ASS	C	547941.4
2	CP202	376608				
			CP101	AB101	C	151608
			CP102	AB102	C	225000
			CPASS1	AB1ASS	I/IM2C	0
1	CP303	2043290				
			CP202	AB202	C	564911.9
			CP203	AB203	C	1478378
2	CP202	564911.9				
			CP101	AB101	C	227411.9
			CP102	AB102	C	337500
			CPASS1	AB1ASS	I/IM2C	0
2	CP203	1478378				
			CP102	AB102	C	300000
			CP103	AB103	C	1178378

The size of the Trace report can be very large. It traces every allocation line by line from the start Cost Pools to the end. It will necessary to only use it where required and to select particular Cost Pools to report.

For example if the Cost Pool allocates using an Allocation Base with 50 ABL and the next level is also 50 ABL in the AB and the next 10 and the next 40 then that is 50*50*10*40 = 1 million report lines for only one Cost Pool.

The 'Level' identifies the depth within the allocation, so that Level 1 will be Final Cost Pools, 2 are Cost Pools allocated from etc.

6.5.5. Report 25 - Cost Pool Variance Report

This report shows selected Cost Pools with their variances.

Format	REP,25,filename,STG Range, CPG Range, CP Range
Examples	REP,25,rep25.csv

Sample Report in Spreadsheet

Cost Pool Variance Report; rep25.csv; Run Option - Allocation of Budget; 24/09/2019 1:46:37 PM

	Code	Description	CPG	Value	Alloc Method	Alloc Value	ValueBudg	V	Alloc Vari	V	Budget Vari	UnitSourc	Units	Unit Budg	V	Unit Vari	Unit Price	Budget Unit	V	Unit Price Vari
CP	.NOTSEL..	Not Selected	.NOTSEL	10639053	0	0	0		0	-	10639053.4	0	0	0		0	0	0		0
CP	.NOTSEL.C	Not Selected	CPG11	0	0	0	0		0		0	0	0	0		0	0	0		0
CP	.NOTSEL.C	Not Selected	CPG12	0	0	0	0		0		0	0	0	0		0	0	0		0
CP	.NOTSEL.C	Not Selected	CPG13	0	0	0	0		0		0	0	0	0		0	0	0		0
CP	.NOTSEL.C	Not Selected	CPGASS	2507084	0	0	0		0	-	2507083.62	0	0	0		0	0	0		0
CP	CP100	CP with zero actual but budget and allocate budg	CPG11	0	1	5555	5555	+	-5555	+	-5555	0	0	0		0	0	0		0
CP	CP101	CP101 Desc	CPG11	3780199	1	3790199	3790199	+	-10000	+	-10000	0	0	0		0	0	0		0
CP	CP102	CP102 Desc	CPG12	3868762	2	1875000	3000000	-	1993762	-	868762.01	3	100	160	-	-60	38687.62	18750	-	19937.62
ABL						1125000							60	120	-	60	CP202			
ABL						750000							40	40		0	CP203			
CP	CP103	CP103 Desc	CPG13	3682432	0	3682432.4	0		0	-	3682432.35	0	0	0		0	0	0		0
CP	CP201	CP201 Desc	CPG20	4687436	0	4687436.3	0		0	-	4687436.25	0	0	0		0	0	0		0
CP	CP202	CP202 Desc	CPG20	1883040	0	1883039.8	0		0	-	1883039.79	0	0	0		0	0	0		0
CP	CP203	CP203 Desc	CPG20	3695946	0	3695945.9	0		0	-	3695945.88	0	0	0		0	0	0		0
CP	CP2V	CP 2 Variance	CPG20	1978207	0	0	0		0	-	1978207.01	0	0	0		0	0	0		0
CP	CP301	CP301 Desc	CPG30	1874975	1	0	0		0	-	1874974.5	0	0	0		0	0	0		0
CP	CP302	CP302 Desc	CPG30	3189070	0	0	0		0	-	3189069.71	0	0	0		0	0	0		0
CP	CP303	CP303 Desc	CPG30	2043290	0	0	0		0	-	2043290.29	0	0	0		0	0	0		0
CP	CP304	CP304 Desc	CPG30	2789493	0	0	0		0	-	2789492.84	0	0	0		0	0	0		0
CP	CP305	CP305 Desc	CPG30	369594.6	0	0	0		0	-	369594.59	0	0	0		0	0	0		0
CP	CP990	CP990 Desc	CPG99	2789493	0	0	0		0	-	2789492.84	0	0	0		0	0	0		0
CP	CP991	CP991 Desc	CPG99	2789493	0	0	0		0	-	2789492.84	0	0	0		0	0	0		0
CP	CPASS1	Assets1	CPGASS	913235.6	0	913235.61	0		0	-	913235.61	0	0	0		0	0	0		0

Fields:

Field	Name	Description
1	Code Type	CP – Cost Pool, ABL Allocation Base Line
2	Code	The key to the record
3	Description	Description
4	CPG	Cost Pool Group Code
5	Value	Cost Pool Value
6	Alloc Method	0. Allocate Actual (Variance can still be reported in Variance report) 1. Allocate Budget 2. Allocate Unit Budget Price * Nr of Units 3. Allocate Unit Budget Price * Nr Units up to Budget (i.e. capped at Budget)
7	Alloc Value	Allocated Value; based on field 'Alloc Method'
8	Value Budget	Defined in Cost Pool record or by CPV record.
9	V - Var Indicator	+ - overbudget, - underbudget
10	Alloc Variance	Allocated Variance; equals Value – Alloc Value
11	V – Var Indicator	+ - overbudget, - underbudget
12	Budget Variance	Equals Value – ValueBudget
13	Unit Source	0. None 1. Use Units in Cost Pool 2. Use Unit Actuals from Allocation Line Measures, Use Unit Budget in Cost Pool 3. Use Unit Actuals for Allocation Line Measures, Use Unit Budgets from Allocation Lines
14	Units	based on field 'Unit Source'
15	Unit Budget	based on field 'Unit Source'
16	V – Var Indicator	+ - overbudget, - underbudget
17	Unit Variance	Equals Units – Unit Budget
18	Unit Price	Equals Unit/ Value
19	Budget Unit Price	Equals Budget Unit / Budget Value
20	V – Var Indicator	+ - overbudget, - underbudget
21	Unit Price Variance	Equals Unit Price – Budget Unit Price

Where the Unit Source is 2 or 3 then the Allocation Base Lines will be reported as they show the source of the Units and Budget.

6.5.6. Report 26 - Rollup Report

The Rollup Report rolls up (summarises) the contents of a value cube through the defined dimensions for a single Cost Pool.

Up to 3 dimensions can be selected (by their dimension number) and 3 levels (one for each dimension.

Format	REP,26,filename,STG Range, CPG Range, CP Range, DIMNr1, Level1, DIMNr2, Level2, DIMNr3, Level3
Examples	REP,26,rep26CP304.csv,,,CP304,1,3,2,1 REP,26,rep26.csv,,,1,2,2,3

To produce a report for a combined number of cost pools use the CPY parameter to copy the Cost Pools to a reporting cost pool.

Sample Report in Spreadsheet

Cost Pool Rollup Report; rep26.csv; 24/09/2019 1:46:37 PM								
CP	CP304	CP304 Desc						2789492.84
	Code	Description	Code	Description	Code	Description	Entered Value	Rolled Up Value
			M3	IT Group 1			19049.02	19049.02
			N3	IT Group 2			16049.14	16049.14
			D2	IT			36485.69	71583.85
			E2	Mdirector Office			29493.04	29493.04
			O3	HR Group 1			32905.93	32905.93
			F2	HR			18753.29	51659.21
			A1	Head Office			8408.14	161144.24
			G2	Sales Prod Group1			29438.26	29438.26
			H2	Sales Prod Group2			21724.23	21724.23
			I2	Sales Prod Group3			24105.95	24105.95
			B1	Sales			35132.92	110401.36
			J2	Warehouse			25650.57	25650.57
			K2	Service			21261.22	21261.22
			L2	Construction			38577.74	38577.74
			C1	Operations			10123.28	95612.81
			All	All Cost Centres			11861.49	379019.9

6.6. EXTRACT REPORTS

6.6.1. Report 31 - Cost Pool Value Cube Analysis

This report shows a list of Cost Pools and information on the size of their Value Cubes.

Format	REP,31,filename,STG Range CPG Range,CP Range
Examples	REP,31,rep31.csv

This is a technical report used to assess the sizes of the Value Cubes used by each Cost Pool. Note that the Value Cubes are stored as hashed table.

Sample Report in Spreadsheet

Cost Pool Value Cube Analysis Report; rep31.csv; 24/09/2019 1:46:37 PM

	Code	Description	CPG	VC Count	Used KB			
CP	.NOTSEL..NOTSEL	Not Selected	.NOTSEL	409	12.78			
CP	.NOTSEL.CPGASS	Not Selected	CPGASS	96	3			
CP	CP101	CP101 Desc	CPG11	147	4.59			
CP	CP102	CP102 Desc	CPG12	158	4.94			
CP	CP103	CP103 Desc	CPG13	146	4.56			
CP	CP201	CP201 Desc	CPG20	335	10.47			
CP	CP202	CP202 Desc	CPG20	305	9.53			
CP	CP203	CP203 Desc	CPG20	304	9.5			
CP	CP2V	CP 2 Variance	CPG20	306	9.56			
CP	CP301	CP301 Desc	CPG30	335	10.47			
CP	CP302	CP302 Desc	CPG30	493	15.41			
CP	CP303	CP303 Desc	CPG30	451	14.09			
CP	CP304	CP304 Desc	CPG30	451	14.09			
CP	CP305	CP305 Desc	CPG30	304	9.5			
CP	CP990	CP990 Desc	CPG99	451	14.09			
CP	CP991	CP991 Desc	CPG99	427	13.34			
CP	CPASS1	Assets1	CPGASS	41	1.28			
				5159	161.22			
				Dupe Key	6			
				Alloc - Hash Seg	1	Data Seg		1

Fields:

Field	Name	Description
1	Record Type	CP – Cost Pool
2	Code	Cost Pool Code
3	Description	Cost Pool Description
4	CPG	Cost Pool Group Code
5	VC Count	Value Cube Count – number of unique points(nodes) in the Value Cube for the Cost Pool
6	Used KB	Space used in kilobytes
	Dup Key	Value Cube key is generated and the Dup represents the number of duplicates generated
	Alloc – Hash Seg	Number of Hash Segments used and number of Data Segments used

6.6.2. Report 32 - Extract Selected Transactions

This report/extract shows a list of Transactions for selected Cost Pools.

Format	REP,32,filename,STG Range,CPG Range,CP Range
Examples	REP,32,rep32.csv,,REV

This is a technical report. In order for this to report the Extract Transactions must have been set on (Option OO,5) as this report reads that file and extracts selected records from it.

Fields:

Field	Name	Description
1	Cost Pool Code	Cost Pool Code that transaction is selected into
2	Value	Value e.g. 100.23
3	Dimension Code 1	Code of Dimension 1
N	Dimension Code …	Code of Dimension

The fields are the same as the input Transaction with an additional field at the beginning of Cost Pool Code.
Format is same as Report 33 and Extract Transactions.

6.6.3. Report 33 - Extract Value Cubes

This report/extract shows an extract of the Value Cube for selected Cost Pools.

Note this will produce one record for each point in a Value Cube.

Format	REP,33,filename,STG Range, CPG Range, CP Range
Examples	REP,33,rep31.csv

It may be used to extract value cubes for analysis by further solutions such as a spreadsheet. There are no headings.

CP304	4778.57	4040	E2	P0	P2b	C5023
CP304	4383.52	4020	D2	P2b	P2a	C5000
CP304	2559.39	4030	L2	P2a	P3f	C1050
CP304	772.97	4030	M3	P1a	P0	C1c
CP304	479.53	4010	L2	P1a	P2	C1000
CP304	2694.4	4020	D2	P1a	P1c	C1b
CP304	403.49	4030	A1	P2a	P2a	C1c

Fields:

Field	Name	Description
1	Cost Pool Code	
2	Value	Value e.g. 100.23
3	Dimension Code 1	Code of Dimension 1
N	Dimension Code	

6.6.4. Report 34 - Extract Dimensions

This report/extract shows a list of Dimensions.

It can be useful to obtain the generated hierarchy.

Format	REP,34,filename,DIM Range
Examples	REP,34,rep34-1.csv,1

This is a technical report used to extract the dimension information.

The fields output are the same as report11 without the first line of that report.

6.6.5. Report OO,5 - Extract Transactions

This report/extract shows an extract of transactions with the Cost Pool Code each transaction has been selected into.

This report/extract must be run if Report 32 is to be used.

Format	OO,5 (in Options)

Fields:

Field	Name	Description
1	Cost Pool Code	Cost Pool Code that transaction is selected into
2	Value	Value e.g. 100.23
3	Dimension Code 1	Code of Dimension 1
N	Dimension Code …	Code of Dimension

The fields are the same as the input Transaction with an additional field at the beginning of Cost Pool Code.
Format is same as Report 32 and 33.

6.7. CPY – COPY CUBE

Copy Cube is used to support reporting by copying the values of a cube to a reporting cube.

Parameters – Cost Pool Code From, Cost Pool Code To

One or more additional Cost Pools are defined in a Cost Pool Group that with a Stage Type of Report (i.e. not directly part of allocation).

CPY will copy the value cube information from a source Cost pool (any cube) to the destination Cost Pool value cube (belonging to a new reporting cost pool cube). There may be multiple copies with the same destination to accumulate cubes.

The CPDC (Cost Pool Dimensional Change) record can be defined for the destination Cost Pool so that data is summarised as it is copied.

CPY can be used to combine the value cubes from multiple Cost Pools into a single reportable Cost Pool Value Cube. This is done by using multiple CPY with the same Cost Pool Code To. The destination Cost Pool Code of a CPY should be in a 'Reporting' Stage to ensure balancing of processing Stages.

7. INSTALLATION AND RUN OPTIONS

7.1. INSTALL IN PROGRAM DIRECTORIES

Instead of running using the sample setup, FCASS could be installed to Windows program directories. To do this first decide on where the data files are to go e.g. C:\Users\$USERNAME\Documents\FCASS where $USERNAME is the username.

To install in program directories first change the Start.csv file. This contains the default RUN.CSV directory and filename. In the example given change the record to C:\Users\$USERNAME\Documents\FCASS\IDATA\RUN.csv.

Username will be substituted for $USERNAME at run time.

The Program files are ready to be packaged. The sample data should be installed in C:\Users\$USERNAME\Documents\FCASS where $USERNAME is the username.

7.2. RUN IN DIFFERENT DIRECTORIES

The programs can use relative addressing for the directory names

RUN File Name

Start.csv contains the RUN file name. This can be defined in relation to the Program directory e.g. ..\AllocData5\.RUN.csv (up one directory and then to AllocData5) and also use $USERNAME in a substitution.

$IDIR and $ODIR

In the RUN file

a. $IDIR (Input Data Directory) can also use be defined in relation to the RUN file e.g. .\ (same directory as Run file) and can use $USERNAME in a substitution.

b. $ODIR can also use be defined in relation to the RUN file e.g. .\ (same directory as Run file) and can use $USERNAME in a substitution.

c. **Data** Filenames in RUN file can be defined in relation to $IDIR e.g. OO.csv

Over-riding Default Parms and Run File Name

For FCASSE the default location of the Data files and Parm file can be overridden by running FCASSE from the command line and appending the Data directory and Parm file name. If a filename includes $USERNAME then the user name will be substituted. * can be used as a place holder if the Data directory does not need to be overridden.

For FCASSA the default location of the RUN file can be overridden by running FCASSA from the command line and appending the RUN file name.

Naming RUN File

In the sample, the Run filename is preceded by a "." as this makes it easy to find in a Data directory.

7.3. FCASS – RUNNING TOGETHER

If the intention is to explore the capabilities of FCASS the recommendation is :-

1. Run FCASSE and Select the Input directory
2. Run FCASSA and Select the Run.csv filename
3. Using FCASSE ,edit the Allocation data, Save the data (using File > Save)
4. Using FCASSA, Click on Run button and when finished investigate Output results in Output directory
5. Run Adhoc reports
6. Close FCASSA and Go to step 2

7.4. FCASS – RUNNING FROM COMMAND LINE

Both programs can be run from the command line.

FCASSE has two optional parameters; alternate run file and alternate parm file.
(If the first parameter is unchanged i.e. using value in Start.csv then * can be entered.)

Example:
c:\Program Files (X86)\FCASS\FCASSE.exe * c:\users\$USERNAME\documents\FCASS\Parmfile2.csv

FCASSA has one optional parameter; alternate run file

All the parameters can use relative addressing to the program executable directory and the $USERNAME substitution.

Example:
c:\Program Files (X86)\FCASS\FCASSA.exe c:\users\$USERNAME\documents\AllocData1\.RUN.csv

8. MISCELLANEOUS

8.1. WHAT IS MISSING

8.1.1. FCASSE – EDIT PROGRAM

The capabilities of the Edit program FCASSE are very simple and support FCASS for exploring Cost Allocation.

A person or organisation may require a more sophisticated Editing and Management solution.
Extra functionality may be :-

1. Multiuser support – support simultaneous multiple maintainers of data
2. Security Control to control access to particular data parameters and support decentralisation of maintenance, and control who can perform functions such as initiate run
3. In built support for multiple periods
   If the allocations are run monthly then the data that changes periodically would have means of managing. So the editing solution may be set up with monthly figures and the particular month selected. Could then report month to month changes.
   For example Measures would be monthly, and would have a means of spreading the yearly measure over periods and also apply this for budgets.
   Currently month support is provided by copying the model from month to month maintaining separate sets of data.
4. Audit trail of changes – record of who changed what data and when
5. Approval process for finalisation of model data before processing allocation

8.1.2. FCASSA – ALLOCATION PROGRAM

1. This version of the Allocation program is limited to 8 dimensions and up to 2GB of value cubes (about 55 million different data combinations).
2. A 64 bit version that supports 15 dimensions and up to 10 times the data could be provided. This would require a computer with amount of RAM to match plus about 2GB.
3. Allocations from a Variance Cost Pool do not work correctly in terms of dependencies.

8.1.3. MULTIPLATFORM AND 64BIT

Work is underway to prepare the current software codebase to run on other than Windows, as well as a 64 bit version for Windows to support larger models.

8.2. NOTES ON COMMERCIAL COST ALLOCATION SOFTWARE

Demonstrations of commercial cost allocation software can look simple but these are often performed on very small models.
The problem for large enterprises is that models are often large - thousands of cost pools, with tens of thousands of General Ledger Accounts etc., and often this does not translate into a real life simple allocation model and solution. A Drag and drop method of linking Cost Pools and General Ledger may not work well when the number of cost pools or general ledger accounts is in the thousands.

Often, interfaces to provide data will not exist or not be automated. Significant manual effort may be required to maintain the Cost Allocation Solution data.

The means of defining selections of transactions into cost pools is often maintenance intensive as it needs to cope with dimensional data changes (such as organisational structure). As an alternate approach, FCASS selects transactions into Cost Pools using hierarchical dimensional selections as well as a priority scheme that eliminates excludes, and these combine to substantially reduce effort to create and perform ongoing maintenance of selections.

It is tempting when using Cost Allocation to use complex rules for the allocation. It is important that cost allocation models are understandable and justifiable. The model will be subject to analysis by impacted managers.

APPENDIX 1 – JOB REPORTS

The following is a Job report formatted from a spreadsheet of .Job.csv. The .JobandTrace report has additional information particularly for the Allocation.

Image of Report	Comments
1 9:23:01 PM Program Start FCASSA 27/09/2019 9:23:01 PM 2 Program C:\Users\temp\Documents\Delphiproj\FCASSA\FCASSA.exe 3 Runfile C:\Users\temp\Documents\DelphiProj\AllocData5\run.csv 4 9:23:01 PM Start Read Pass 1 - Memory 13725696 Chg 13725696 5 $ODIR c:\users\temp\Documents\Delphiproj\AllocData5Out 6 $IDIR c:\users\temp\Documents\Delphiproj\AllocData5 7 $FILE DIMH.CSV 8 records 5 9 $FILE DIM01 DIM01.CSV 10 records 34 11 $FILE DIM02 DIM02.CSV 12 records 17 13 $FILE DIM03 DIM03.CSV 14 records 12 15 $FILE DIM04 DIM04.CSV 16 records 12 17 $FILE DIM05 DIM05.CSV 18 records 12 19 $FILE OO.CSV 20 1 Allocate Budget OO 1 21 6 Trace Loop Limit OO 6 100000 22 7 Trace Allocation OO 7 23 records 3 24 $FILE STG.csv 25 records 5 26 $FILE CPG.CSV 27 records 6 28 $FILE CPGS.CSV 29 records 3 30 $FILE CP.csv 31 records 15 32 $FILE CPS.CSV 33 records 3 34 $FILE CPDC.csv 35 records 1 36 $FILE AB.csv 37 records 6 38 $FILE ABL.CSV 39 records 14 40 $FILE NM.CSV 41 >>>> nnn Unknown File Record Type=NMD recnr(0) NMD TEST2 56 42 records 4 43 $FILE IM.CSV 44 records 1 45 $FILE IMS.CSV 46 records 2 47 $FILE TX TX1.csv 48 $FILE Reports.csv 49 records 1 50 Nr of Data File Records 156 51 Nr of Run File Records 22 52 NrDIM[1]=34 53 NrDIM[2]=17 54 NrDIM[3]=12 55 NrDIM[4]=12 56 NrDIM[5]=12 57 NrSEL 17 58 NrDIMT 0 59 NrSTG 6 60 NrCPG 7 NrCPGS 4 NrCPGIDC 0 61 NrCP 22 NrCPS 10 NrCPDC 1 NrCPB 0 NrCPBV 0 62 NrAB 7 NrABL 15 63 NrNM 3 Nr NMV 0 NrIM 1 NrIMS 2 64 9:23:01 PM End of Pass1; Start Pass 2 - Memory 13832192 Chg 106496	Each line of DATA file is output i.e. $ODIR, $IDIR, $FILE Data processed in 2 passes Number of records in each file is output Options are output Errors shown with >>>> Totals for Data file and Run file are output (excluding TX files) Record counts for each record type including generated records (e.g. .NOTSEL for CPG) End Pass1 Start Pass 2

65	$ODIR		c:\users\temp\Documents\Delphiproj\AllocData5Out			
66	$IDIR		c:\users\temp\Documents\Delphiproj\AllocData5			
67	$FILE		DIMH.CSV			
68	$FILE	DIM01	DIM01.CSV			
69	$FILE	DIM02	DIM02.CSV			
70	$FILE	DIM03	DIM03.CSV			
71	$FILE	DIM04	DIM04.CSV			
72	$FILE	DIM05	DIM05.CSV			
73	$FILE		OO.CSV			
74	$FILE		STG.csv			
75	$FILE		CPG.CSV			
76	$FILE		CPGS.CSV			
77	$FILE		CP.csv			
78	$FILE		CPS.CSV			
79	$FILE		CPDC.csv			
80	$FILE		AB.csv			
81	$FILE		ABL.CSV			
82	$FILE		NM.CSV			
83	$FILE		IM.CSV			
84	$FILE		IMS.CSV			
85	$FILE	TX	TX1.csv			
86	End of Dimension; Account; Nr Recs 34					
87	End of Dimension; Cost Centre; Nr Recs 17					
88	End of Dimension; Profit Centre; Nr Recs 12					
89	End of Dimension; Product; Nr Recs 12					
90	End of Dimension; Customer; Nr Recs 12					
91	Max Size of Cube 998784					
92	9:23:01 PM Finished Reading Model; Start of Read Transactions - Memory 46657536 Chg 32825344					
93	9:23:01 PM End of Transaction File; Nr TX 1000					
94	$FILE		Reports.csv			
95	9:23:01 PM End of Transactions; Start Allocate - Memory 46661632 Chg 4096					
96	Number of Values in Value Cube 997					
97	nnn Named Measure has a zero value; NM=TEST					
98	nnn Named Measure has a zero value; NM=TEST2					
99	9:23:01 PM Alloc Loop 1 - Memory 46665728 Chg 4096					
100	9:23:01 PM Alloc Loop 2 - Memory 46669824 Chg 4096					
101	9:23:01 PM Alloc Loop 3 - Memory 46669824 Chg 0					
102	9:23:01 PM Alloc Loop 4 - Memory 46669824 Chg 0					
103	Number of Values in Value Cube 4158					
104	9:23:01 PM End of Allocate; Start of Reports - Memory 46669824 Chg 0					
105	REP	CP304	CP990			
106	CPY; CP CP304 to CP CP990					
107	REP	CP990	CP991			
108	CPY; CP CP990 to CP CP991					
109	REP	CP304	CP101			
110	CPY; CP CP304 to CP CP101					
111	>>>>		nnn CPY; CPCode To; is part of model; copy skipp	REP	CP304	CP101
112	REP	CP304	CP305			
113	CPY; CP CP304 to CP CP305					
114	>>>>		nnn CPY; CPCode To; is part of model; copy skipp	REP	CP304	CP305
115	REP	11	rep11.csv			
116	REP	12	rep12.csv			
123	REP	23	rep23.csv			
124	REP	24	rep24.csv			
125	REP	25	rep25.csv			
126	REP	31	rep31.csv			
127	REP	26	rep26.csv			CP304
128	REP	33	rep33.csv			
129	REP	33	rep33a.csv			CP304
130	9:23:01 PM End of Run - Memory 46739456 Chg 69632					
131	Nr of Errors 3					
132	Nr of Warnings 2					
133	9:23:01 PM Program End 27/09/2019 9:23:01 PM					

End of Pass 2, now read Tx, build Input Cost Pool Value Cubes and report Nr of TX

Allocation loops

End of Allocation

Now run reports

Number of Errors and Warnings

APPENDIX 2 – ERROR MESSAGES FROM ALLOCATION

The following lists error (and some information) messages from the FCASSA program.

The numbers are in groups; 000 Run file, 100 Non-financial transaction input, 200 Financial transactions, 300 Allocation 400 Report.

The record types are abbreviated e.g.CP (Cost Pool), NM (Named Measure)
The literals &1, &2 etc represent replacements for codes.

	Message	**Comments**
	001 RunF; File does not exist on Run File; File=&1	Run file error
	002 RunF; DIM File Number not valid on Run file of =&1	Run File error
	101 &1; Duplicate Code; &1=&2	&1 is record type
	102 &1; Code2 and Include must be empty; Code=&2	e.g. 102 CPGS
	103 IMS; Include must be I or E; IM=&1 Value=&2	
	104 SEL; DIM Value not valid SEL=&1 Value=&2	
	105 OO,4; Run Allocate parameter not valid; valid values are 0 1 2	
	106 DIMH; Dimension Code not valid; DIMH=&1	
	107 SEL; CPG Code not found; CPG=&1	For CPGS or CPGIDC
	108 SEL; CP Code not found; CP=&1	For CPS, CPDC, CPBV
	109 IMS; IM Code not found; IM=&1	
	110 IMS; CPCode2 not found; IM=&1 CP2=&2	
	111 DIMT; DIM Code not found; DIM=&1	
	112 ABL; Input Measure Type not Valid; AB=&1 Type=&2	
	113 ABL; Value not Valid; AB=&1 Value=&2	
	114 CP; CPG is required; CP=&1	
	115 CP; Cost Pool set for Budgeting but no Cost Pool to allocate variance to; CP=&1	
	116 CP; Cost Pool to use Units in Budgeting; but UnitSource is 0; Set to 1; CP=&1	Info – not error
	117 CPG; DIM Order not valid < 1 or > Max; CPG=&1 Priority=&2	
	118 STG; STGType Not Valid; STG=&1 Type=&2	
	119 IM; IMType not Valid; IM=&1 Type=&2	
	120 IM; Divisor not Valid; IM=&1 Value=&2	
	121 NM; Value not valid; NM=&1 Value=&2	
	122 NMV; Value not valid; NMV=&1 Value=&2	
	123 NMV; NMV value already set previously	
	124 OO.3; LOC Dimension already in use; select another DIM Number	
	126 Unknown File Record Type=&1	
	127 CPY; CPCode From not found; CP=&1	

	128 CPY; CPCode To not found; CP=&1	
	129 CPY; CPCode To; is part of model; copy skipped CP=&1	
	130 DIM; Parent Code not found; DIMH=&1 &2 DIM=&3 parent=&4	
	131 CPG; STG Code not found; CPG=&1 STG=&2	
	132 CP; CPG Code not found; CP=&1 CPG=&2	
	133 CP; AB Code not found; CP=&1 AB=&2	
	134 CP; CP has Allocations but STG Type is Final(3) or REP(4); CP=&1 STGType=&2	
	135 CP; CPV Code not found; CP=&1 CPV=&2	
	136 ABL; AB Code not found; AB=&1	
	137 ABL; CP Output Code not found; AB=&1 CP=&2	
	138 ABL; NM Code not found; AB=&1 NM=&2	
	139 ABL; IM Code not found; AB=&1 IM=&2	
	140 AB; LOC entered but value not known; AB=&1	
	141 CPB; CP Code not found; CPB=&1	
	142 NMV; NM Code not found; NMV=&1	
	143 DIMT; DIMT Nr in OO not valid, reset to 0	
	181 NM; Named Measure not set using NMV - initial value used; NM=&1 Value=&2	
	182 CP; Variance Cost Pool cannot have Allocation Base; CP=&1	
	201 TX Format not valid; Format=&1	
	202 TX; Value not numeric; Value=&1	
	203 TX; DIMT Code not known; Dim=&1 Code=&2	
	204 TX; DIM Code not known; Dim=&1 Code=&2	
	301 Alloc; Allocating Variance that has already been allocated; from CP=&1 to CP=&2	
	302 Alloc; Variance for CP but no Variance CP to allocate it to CP=&1	
	303 Alloc; IM could not be used for allocn; IM not resolved; IM=&1	
	304 Alloc; AB could not be used for allocn; not all Measures resolved; AB=&1	
	305 Alloc; CP could not be allocated; CP value not finalised; CP=&1	
	306 Alloc; CP Value not allocated; CP=&1 (&value2) AB=&3	
	307 Alloc; Internal Error; CP Total and VC Total do not match; CP=&1 (%value2) VC (&value3) Diff (&value4)	
	401 REP; Transaction Trace Report selected but no Tx input file exists; create one using OO.12	
	402 REP; Transaction Trace Report; NrTXselected=&1	Info – not error

Table 8 - FCASS Allocation Error Messages

APPENDIX 3 – TECHNICAL CONSIDERATIONS

Technical Considerations

The FCASS programs are written using Delphi 32 bit on Windows 10, and are limited to 2GB of RAM of running size. This may become an issue with models with large number of dimensions or with editing large numbers of transactions. The programs should work from Microsoft Windows XP and up.

The program processes all of the data in memory so if the value cubes are large in size it could run out of memory. It would be possible to recompile it using a 64 bit Delphi compiler or Lazarus 64 bit.
If memory becomes an issue, use could be made of the CPGIDC record to summarise dimensions not required. In this case it may be useful to put in a dummy Cost Pool Group and Cost Pools and define CPDC records that highly summarise this data.

Sizes – FCASSE (Editing) – In one test, 9 million financial transaction records were loaded. These were transactions with 5 dimensions with values evenly spread from 1 cent to $50,000 and the program used 1.6GB of RAM (from input files of 260MB). These loaded in about 13 seconds on a 7 year old laptop with SSD and 10GB of RAM. A check of this data took about 45 seconds.

Sizes – FCASSA (Allocation) – simple model. The same 9 million records in FCASSA were processed in 23 seconds. It would be expected that quite large models would be processed in minutes. Memory used was about 130MB as the allocation program stores data in a different format than the Editing program. Multiple transaction files could be processed.

Speed and Memory

Program is single threaded so will be limited by the speed of a single processor on a computer.

The speed of processing may be able to be improved.
When the allocation runs it stores the data in Value Cubes.
Each Cost Pool has a value cube that contains the data for the Cost Pool in a sparse matrix.
The size of the value cube is determined by the number of unique dimensional values times by the size of the value cube point.
For the 32 bit Allocation program the amount of data space is limited to 2GB and this can contain about 55 million value cube points.

Key Takeaway
Building the value cubes is processor intensive and the 2GB limit may impose restrictions on the cube sizes.
Decreasing the size of cubes will increase the speed of processing and allow a more complex model to be run.

To see the sizes of the Value Cubes used run report 31 - Cost Pool Value Cube Analysis.

How to Reduce Cubes Sizes
Cube sizes can be decreased by using summarisation. This is done by changing the dimensionality of the data using CPGIDC, CPDC and CPBV parameters.
These parameters can set any dimension to a particular value or to summarise the dimension.
To summarise use %Y to summarise to the level defined within the Dimension (Summarisation Level field).

Or use %0, %1 etc to summarise the data to that level. e.g. %1 summarises to level 1

1. CPGIDC - Cost Pool Group Initial Dimension Change - is defined against a Cost Pool Group and, run against transactions when being selected into Initial Cost Pools
2. CPDC - is defined against a Cost Pool and, run against all data as it enters a Cost Pool
3. CPBV - is defined against a Cost Pool and, run against the variance that is allocated

Steps To Take

1. Decrease size of NOTSEL cubes

To 'catch' financial transactions that do not have a selection a dummy Cost Pool Group is created and also for each Cost Pool Group a dummy Cost Pool and selection to catch transactions.
The transactions will be captured with full dimensionality. To avoid this, create additional CPG and CPs and use CPGIDC and/or CPDC to capture but with reduced dimensionality.
The most important is likely to be for the .NOTSEL CPG as it will catch non costing transactions.
It may be necessary to not use %1 in the General Ledger Account dimension to avoid adding together plus and minus financial data and losing totals as there is likely to be some analysis on this data.

2. Decrease size of Variance Cubes

The preferred approach may be to create a new dimension of Cost Pool Code, to use CPBV parameter and set the Cost Pool dimension to the CP that incurred the variance, and all other dimensions to %0.
It may be necessary to set General Ledger Account dimension to %1 to avoid adding together plus and minus financial data.

3. Decrease size of Other Cubes

Use CPDC on other cubes to reduce in size. Note though that CPDC will remove information.

Speed of Reports

The reports run quite quickly. However, the Trace forward and Trace Back reports can run for quite a while and become very large.

Example for The Trace Forward Report

If the Cost Pool allocates using an Allocation Base with 50 ABL and the next level is also 50 ABL in the AB and the next 10 and the next 40 then that is 50*50*10*40 = 1 million report lines for only one Cost Pool.

APPENDIX 4 – PARM FILE FORMAT

When FCASSE (FCASS Edit) runs, it reads the PARM File. This CSV file defines the Files to be maintained, and fields and validations that are performed.

The parameter file contains two types of records; **File** and **Data**.
File records are identified by a file number less than 1000. These define format of files. The number of the file determines the order in which they display in the FCASSE first screen (the File List) when FCASSE runs.

Data records are identified by a file number 1000 more than the file number to which they correspond. They are used as validation tables. Data records for a file number should only be in the FCASSEParms file or a named file, not in both (otherwise there will be a replication of data).

Format of File record

Field Number	Field	Comment
1	File Number	File - File number < 1000; Data - File number > 1000 Number determines order within Tab list. File Number 1 is Summary.
2	Code	Code to appear on Tab e.g. STG. If empty then will not appear on Tab list
3	Description	Description of File e.g. Stage
4	Editing	AMCDQ – impacts active buttons. (Add, Delete, Modify, Copy, Query)
5	Filename	Filename data is read from and written to. If empty data assumed to be on FCASSEParms.csv file. Following the filename are two additional subfields of processing and filetype separated by . eg. stg.csv/I/STG or tx1.csv/ F/TX I in position 1 indicates write filetype as First field on each output record, F in position 2 indicates write filetype in the Run file name if using Generate function.
6	Help Number	Help Number to be accessed in Help File
7	DependsOn	Can control whether File appears on Tab. (If none will display.) Enter 3 digit file number then / then Code to lookup. If found then will display in Tab e.g. 2/1
8	Key	Blank,S or K nr/ nr – Blank; unsorted, S;Sorted or K;Key with field nr e.g K/1 – up to two fields in key - record must be unique based on key, not all files have a key
9 to 38	Fields	Made of 4 subfields separated by / Example1 /Stage Code/SMU Example2 /Stage Type/SM/50 1. Name – not used 2. Description – if @ substitutes with Code from file indirectly pointed to 3. Transformation and validation a – Size of field – N;none, T;tiny, S;small, C, M;medium, W;wide b - Mandatory – M(mandatory), O(ptional), P(protected), N(one) – cannot be entered and not displayed, later G generated nr. In Edit M displays as *, P displays as _, N displays as . c – Case/Type – U(pper), space;no type, 9;integer, F;Float, N;Number(2 dec places) d – Special – w,W(ABL validation), > - AB Code substitution in CP, @ - File Nr substitution, i,I IMS validation, s,S for DIMT Nr, % allow % as first char and 2nd char of 0 to 9 or Y, do not lookup s,V – Variance CP mandatory when ProcessBudget 1,2,3, r(run Alloc validation), The special rules are probably only useful for FCASS Allocation. 4. File Lookup - 5,6,7 - File Number to lookup for validation

Limits - up to 999 files. Maximum number of fields in a file is 30, Max field size 50 characters
Example 6,STG,Model Stage,STG.csv/I,0,,K/1,/Stage Code/SMU,/Stage Description/MM,/Stage Type/SM/40

Format of Data record

1	File Number	Data – file number > 1000 ; 1000 more than File they belong to
2	Code	Key value
3	Description	Description of record

Space has been left in the numbering within the Files to add more DIM files e.g. DIM07 etc. This could be achieved by editing the Parm file, copying the DIM06 line and adding one to the file numbers.

Because the screen formats are determined by the contents of the Parm file it is possible to use FCASSE for a different purpose to maintain a completely different set of data.

If the FCASSE (Edit) program is run from a Windows Shortcut a different Parameter file can be specified by entering a file name after the exe name.