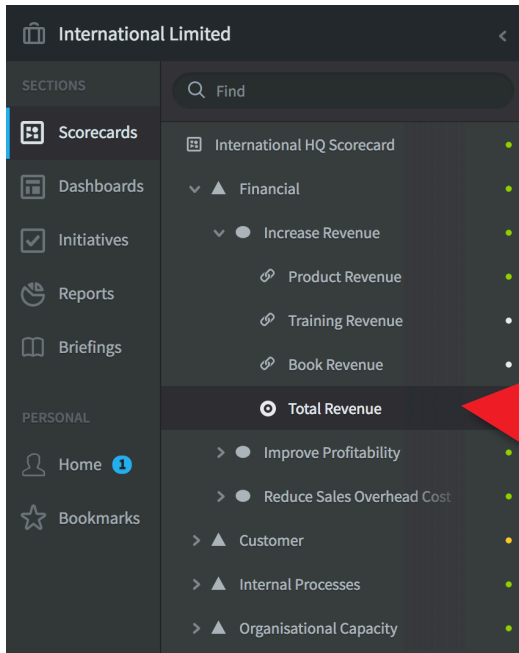




Calculated Measures - 1

The application has a 'calculation' function for any measures you create in your scorecard. Often you may find you need to calculate an actual value and/or the red/amber/green threshold values. A simple example might be summing up the actual values of several revenue streams to provide a total.

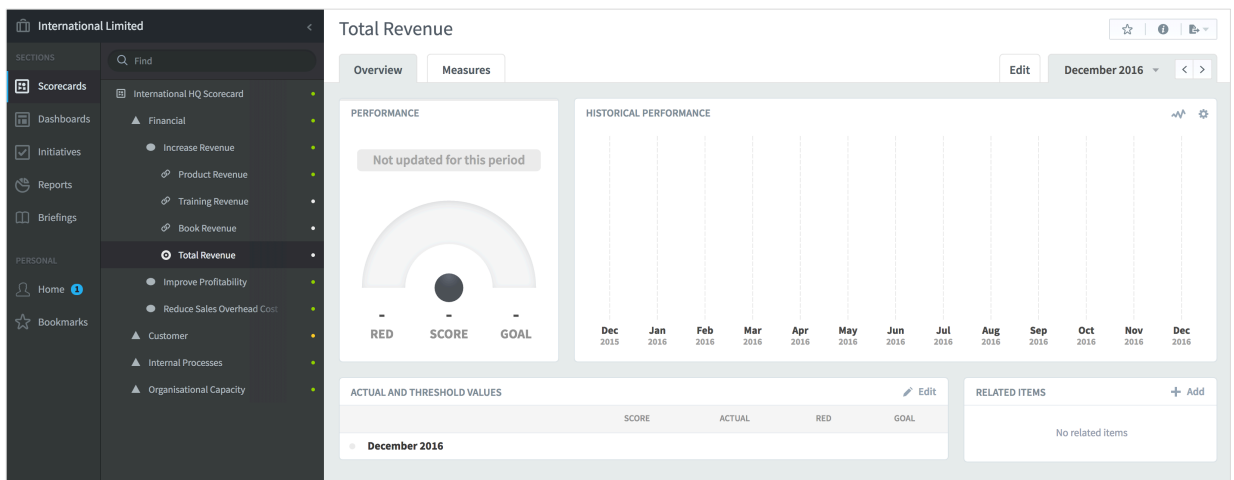


For the purpose of this guide we will sum the Actual Values and Thresholds of three separate revenue measures in a fourth measure called Total Revenue

First you need to create the measure called Total Revenue. Go to the scorecard where you want the measure to appear and create it.

(If you need help creating a Measure go to the Creating Measures guide)

Click on the Overview tab. The result should look something like this:





Calculated Measures - 2

Click on the Edit tab to open the Measure. Configure the details in the top two panels as you normally would when creating a Measure

Total Revenue

Overview Measures Edit December 2016

Name: Total Revenue Type: Measure

Description: This measure sums:
- Product Revenue
- Training Revenue
- Book Revenue Weight: 25%

Advanced Options

MEASURE DETAILS

Scoring Type: Goal/Red Flag Calendar: Monthly Data Type: Currency

Aggregation Type: Sum Decimal Precision: Default Currency: Default

SERIES

Actual Value: Manual Red Flag: Manual Goal: Manual

SERIES

Actual Value

- Manual
- Manual
- Calculated

In the Series Detail panel click on Actual Value and select **Calculated** from the from the down list

Do the same for Red Flag and Goal. The result should look like this:

SERIES

Actual Value: Calculated Red Flag: Calculated Goal: Calculated

Missing values make equation blank Missing values make equation blank Missing values make equation blank

Set Equation Set Equation Set Equation

Click on Set Equation under Actual Value and the equation dialogue will appear



Calculated Measures - 3

Set Equation

Actual Value *allowed input: + - * / ()*

1

2

Type

Measure ▾

3

Measure

Select a Measure

4

Series

Actual Value ▾

5

Period

Current ▾

6

Add

Cancel

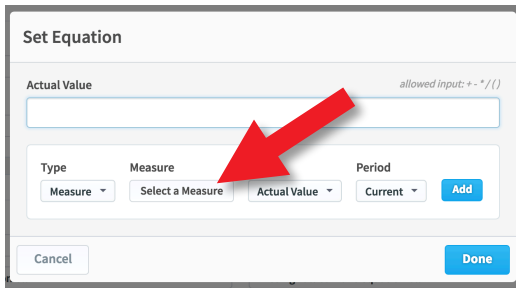
Done

The box and drop down menus have the following functions:

1. **The Equation Box** - marked as Actual in this example. This is where the calculation takes place. Think of this as being like a spreadsheet cell. Many of the operands and functions you can use in a spreadsheet can be used here. A full list of operands and functions is at the end of this document
2. **Type** - You can use; Measures, Scores, Initiatives and To Dates in your calculations. Measures and Scores are fairly obvious, for more information on Initiatives and To Dates go to the end of this document
3. **Measure** - This will change depending on which Type you select
4. **Series** - When you select Measure this will give you the option to select the Actual Value, Goal or Red Flag
5. **Period** - You can select Current or an Earlier or Later period
6. **Add** - You need to click Add to add the measure to the Equation Box

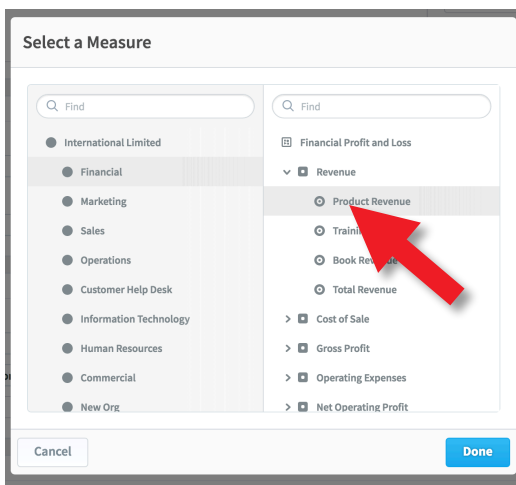


Calculated Measures - 4



The 'Set Equation' dialog box is shown. It has a text input field for 'Actual Value' with a placeholder 'allowed input: +-*/()'. Below this are four dropdown menus: 'Type' (set to 'Measure'), 'Measure' (set to 'Select a Measure'), 'Series' (set to 'Actual Value'), and 'Period' (set to 'Current'). There is an 'Add' button to the right of the 'Period' dropdown. At the bottom are 'Cancel' and 'Done' buttons. A red arrow points to the 'Measure' dropdown.

Step 1. Click on **Select Measure** in the Set Equation dialogue box.

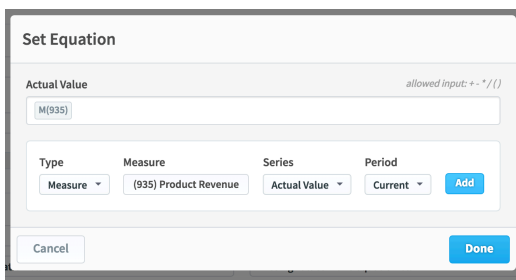


The 'Select a Measure' dialog box is shown. It has two search bars. On the left is a tree view with categories: International Limited, Financial, Marketing, Sales, Operations, Customer Help Desk, Information Technology, Human Resources, Commercial, and New Org. On the right is a list of measures under 'Financial Profit and Loss', including Revenue, Product Revenue, Training, Book Revenue, Total Revenue, Cost of Sale, Gross Profit, Operating Expenses, and Net Operating Profit. 'Product Revenue' is highlighted. There are 'Cancel' and 'Done' buttons at the bottom. A red arrow points to 'Product Revenue'.

Step 2. The Organisation tree will appear. Select the Scorecard and Measure you want to include in the calculation.

In this example we have selected Product Revenue.

Click the blue **Done** button



The 'Set Equation' dialog box is shown. The 'Actual Value' field now contains 'M(935)'. The 'Measure' dropdown is now set to '(935) Product Revenue'. The 'Add' button is highlighted. There are 'Cancel' and 'Done' buttons at the bottom.

Step 3. The measure appears in the Set Equation dialogue.

Click the blue **Add** button to add it to the Equation Box (under Actual Value)

The unique identifier appears in the box



A close-up of the 'Actual Value' input field. It shows 'M(935)' followed by a plus sign and a vertical cursor line.

Step 4. Place the cursor next to the unique identifier in the equation box (it will appear inside the unique identifier)

Hit the + key. The + sign will appear next to the unique identifier.



Calculated Measures - 5

Set Equation

Actual Value allowed input: +/-*/()

M(935)

| Type | Measure | Series | Period |
|---------|-----------------------|--------------|---------|
| Measure | (935) Product Revenue | Actual Value | Current |

Cancel Done

Step 5. Click on the **Measure** drop down box again and the Select a Measure dialogue box will appear again.

(935) Product Revenue

Find

- International Limited
 - Financial
 - Marketing
 - Sales
 - Operations
 - Customer Help Desk
 - Information Technology
 - Human Resources
 - Commercial
 - New Org
- Financial Profit and Loss
 - Revenue
 - Product Revenue
 - Training Revenue
 - Book Revenue
 - Total Revenue
 - Cost of Sale
 - Gross Profit
 - Operating Expenses
 - Net Operating Profit

Cancel Done

Step 6. Select the next measure you need for the equation. In this example we have selected Training Revenue (Note: ignore the title i.e. (935) Product Revenue, it is there because we selected that measure previously.

Click the blue **Done** button

Set Equation

Actual Value allowed input: +/-*/()

M(935) + M(936)

| Type | Measure | Series | Period |
|---------|------------------------|--------------|---------|
| Measure | (936) Training Revenue | Actual Value | Current |

Cancel Done

Step 7. The new measure appears in the Set Equation dialogue under Measure.

Click the blue Add button to add it to the Equation

Repeat Steps 1-7

Repeat Steps 1-7 to complete your calculation

Actual Value

M(935) + M(936) + M(937)

| Type | Measure |
|---------|--------------------|
| Measure | (937) Book Revenue |

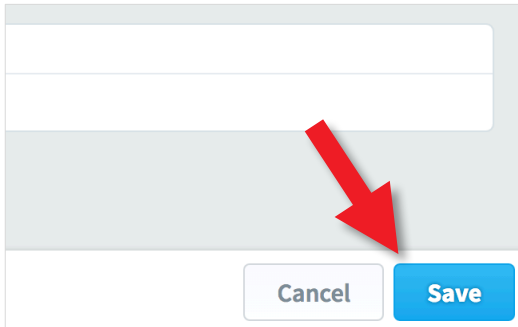
In our example, the final equation looks like this.

Click the blue **Done** button

VERY IMPORTANT - Click **Save** in the Edit panel to save the calculation

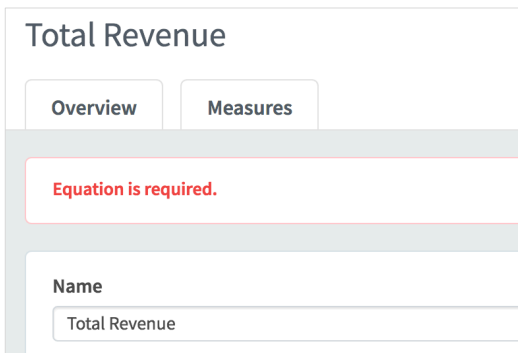


Calculated Measures - 6



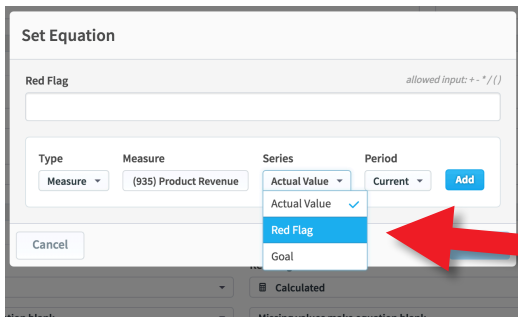
If you did not catch it on the previous page:

VERY IMPORTANT: Click **Save** when you return to the edit screen to save the calculation.



After clicking Save, you will see a red warning appear at the top of the screen saying: Equation is required.

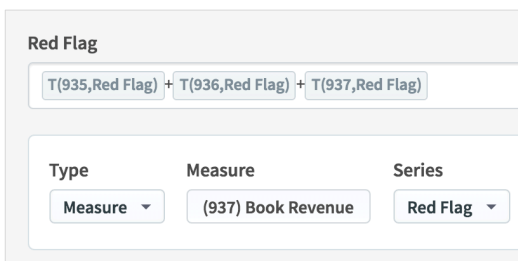
This is because, in this example, you need to add an equation for the Red Flag and the Goal as well



Red Flag and Goal Equations

Repeat Steps 1-7 for the Red Flag and Goal.

During Step 3 select **Red Flag** or **Goal** from the drop down called **Series**



In our example, the Red Flag equation will look like this

VERY IMPORTANT: Click **Save** when you return to the edit screen to save the calculation. Then click Overview



Calculated Measures - 7

Top Tip - To check that your equations are correct you can look at all of them in the same place by clicking on your metric and then clicking the information button at the top right of the screen:



In our example, the result looks like this:

Measure Info

BASIC INFO

Name
Total Revenue

Description
This measure sums:
- Product Revenue
- Training Revenue
- Book Revenue

DETAILS

| Type | Weight | Scoring Type | Calendar | Data Type |
|---------|--------|---------------|----------|-----------|
| Measure | 25% | Goal/Red Flag | Monthly | Currency |

Aggregation Type **Currency**
Sum United Kingdom Pound

SERIES

Actual Value
Update Type: Calculated
Missing values make equation blank
[M\(935\)+M\(936\)+M\(937\)](#)

Red Flag
Update Type: Calculated
Missing values make equation blank
[T\(935,Red Flag\)+T\(936,Red Flag\)+T\(937,Red Flag\)](#)

Goal
Update Type: Calculated
Missing values make equation blank
[T\(935,Goal\) +T\(936,Goal\)+T\(937,Goal\)](#)

Close



Operands

| Operand | Symbol |
|------------------------------|--------|
| Addition, Subtraction | +, - |
| Multiplication | * |
| Division | / |
| Not Equal, Equal | !=, == |
| Assignment | = |
| Power | ^ |
| Boolean Not | ! |
| Unary Plus, Unary Minus | +x, -x |
| Dot Product, Cross Product | ., ^^ |
| Modulus | % |
| Less Than, Greater Than | <, > |
| Less or Equal, More or Equal | <=, >= |
| Boolean & | && |
| Boolean Or | |

IMPORTANT NOTE: When using the operands below, you may need to use a double = (e.g. ==) when checking for an 'equal' value. A distinction has to be made between 'assigning' a value (=) and comparing a value (==).



Most Common Formulas

| Most Common Formulas | Format |
|----------------------|---------------------------------|
| Sum | sum(x,y,...) |
| Average | avg(x1,x2,x3,...) |
| If | if(cond, truevalue, falsevalue) |
| Round | round(x), round(x, p) |

| Year to Date | Format |
|---|--|
| Year to Date (YTD) | TD(calendar name, metric-id, score type, aggregation type) |
| <p>Where:</p> <ul style="list-style-type: none">• calendar name - is the name of any annual calendar• metric-id - is the unique identifier for the Measure• scoring type - is the type of gauge used e.g Goal Red Flag• aggregation type - is either Average or Sum | |
| <p>Conditions of use:</p> <ul style="list-style-type: none">• It only works on Number or Currency data types (not percentage)• It only works with Aggregation Type = Sum• It is usually used with an Unscored scoring type metric• If you use a scored type e.g. RAG, then you will need to calculate the thresholds as well• It is based on a calendar type, if you need a custom calendar, you will have to define this in Administration | |

IMPORTANT NOTE: In Version 3 of the application the Year to Date calculation can be constructed using a point-and-click drop down set of menu items. The resulting format is the same, but there is no need to construct it by hand.



Initiative Functions

IMPORTANT NOTE: In Version 3 of the application the Initiative Values calculation can be constructed using a point-and-click drop down set of menu items. The resulting format is the same, but there is no need to construct it by hand.

| Initiative Values | Format |
|--|----------------|
| Referencing an Initiative value | I(acronym,nnn) |
| Where: | |
| <ul style="list-style-type: none">• 'acronym' is one of the acronyms in the list below• nnn is the unique identifier for the Initiative | |
| Acronyms: | |
| <ul style="list-style-type: none">• BSTD – Budget Spent to Date• BR – Budget Remaining• TB – Total Budget• PTB – Projected Total Budget• PBV – Projected Budget Variance• PBVP – Projected Budget Variance Percentage• PC – Percent Complete• PTE – % Time Elapsed• PSV – Projected Schedule Variance | |

A real example would look like this:

- I(TB,1001)

where “TB” is the acronym for Total Budget and 1001 is the Initiative ID value



Functions

| Other Common Functions | Format |
|----------------------------------|------------------|
| Str - convert number to a string | str(x) |
| Absolute Value / Magnitude | abs(x) |
| Random Number (between 0 and 1) | rand() |
| Modulus | mod(x,y) = x % y |
| Square Root | sqrt(x) |
| Binomial coefficients | binom(n, i) |
| Signum | signum(x) |

| Rounding Functions | Format |
|--------------------|-----------------------|
| Round | round(x), round(x, p) |
| Floor | floor(x) |
| Ceiling | ceil(x) |

| Statistical Functions | Format |
|-----------------------|-------------------|
| Average | avg(x1,x2,x3,...) |
| Minimum | min(x1,x2,x3,...) |
| Maximum | max(x1,x2,x3,...) |



Functions

| Trigonometric Functions | Format |
|----------------------------|-------------------|
| Sine | $\sin(x)$ |
| Cosine | $\cos(x)$ |
| Tangent | $\tan(x)$ |
| Arc Sine | $\text{asin}(x)$ |
| Arc Cosine | $\text{acos}(x)$ |
| Arc Tangent | $\text{atan}(x)$ |
| Secant | $\text{sec}(x)$ |
| Cosecant | $\text{cosec}(x)$ |
| Co-tangent | $\text{cot}(x)$ |
| Hyperbolic Sine | $\sinh(x)$ |
| Hyperbolic Cosine | $\cosh(x)$ |
| Hyperbolic Tangent | $\tanh(x)$ |
| Inverse Hyperbolic Sine | $\text{asinh}(x)$ |
| Inverse Hyperbolic Cosine | $\text{acosh}(x)$ |
| Inverse Hyperbolic Tangent | $\text{atanh}(x)$ |



Functions

| Log and Exponential | Format |
|----------------------------|-----------------|
| Natural Logarithm | $\ln(x)$ |
| Logarithm base 10 | $\log(x)$ |
| Logarithm base 2 | $\lg(x)$ |
| Exponential (e^x) | $\exp(x)$ |
| Power | $\text{pow}(x)$ |