

Calculations – Introduction and Basic Examples

Module 15 - Calculations

Version 1.0

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1. Calculations

1.1 What is a Calculation?

Calculations are a tool used when building fields and provide functionality to create variations of data and/or calculate an alternative outcome based on user inputs. Calculations allow you to apply a formula using one or more fields to return new values based on the data entered. This can be used for simple to complex maths, identifying the difference in days or times, calculating dates and creating text responses based on conditions.

For example, calculations can:

- Determine age based on a date of birth
- Add and subtract days from a date, e.g. today + 14 days
- Work out the 10% deposit of the purchase price
- Apply pluralisation, e.g. child is or children are
- Insert legislation references based on state or territory

1.2 When to use Calculations

Use calculations where questions answered in a form can be used to derive other information and save asking the form filler to enter details that can be determined. The time taken to develop a calculation is a one-time investment and will save the filler time on every generation of that form. When building forms, the end goal is the form filler experience and calculations should be used wherever possible to improve the document generation process.

Calculations also add a higher degree of accuracy by removing the possibility of typos and miscalculations. The conditions of the calculation could be based on professional knowledge that assists the form filler with answers they may not be aware of.

1.3 Show or Hide Calculation Fields

Calculation values cannot be adjusted by the form filler so these fields must be set to read only or hidden. For simple calculations like age or today + 14, the filler doesn't need to see the result so a field like this would be set to hidden. The simpler and briefer the questionnaire appears, the better.

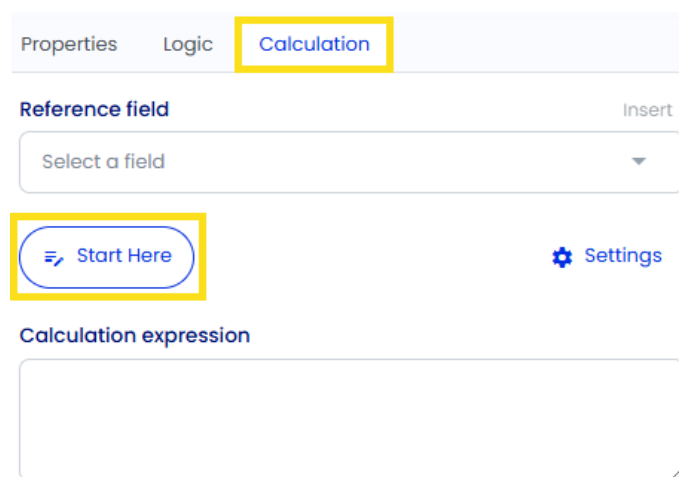
Where a field is performing a complex or important calculation, it might be reassuring for the form filler to see the result and save them searching through the generated document later to check the calculation. A field like this would be set to read only so that the filler sees it during the form filling process.

2. Calculation Builder Tool

Smarter Drafter has a calculation builder tool to assist with creating calculation expressions (syntax).

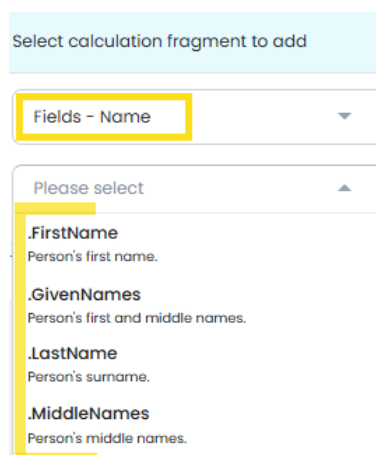
Mathematical calculations are written much the same as an Excel formula and IF THEN ELSE statements are written with basic html. If you're familiar with Excel and/or html, you are able to write the expressions independently if you prefer.

Fields have a **Calculation** tab which is where you can create calculations and access the **calculation builder** tool. To use the tool, click **Start Here**.



The screenshot shows the 'Calculation' tab selected in the top navigation bar. Below the tabs, there is a 'Reference field' section with a dropdown menu labeled 'Select a field' and an 'Insert' button. Below this is a 'Start Here' button with a pencil icon, which is highlighted with a yellow box. To the right of this button is a 'Settings' button with a gear icon. Below these buttons is a 'Calculation expression' section with a large text area for writing the expression.

This will open the calculator builder tool.



The screenshot shows a dropdown menu titled 'Select calculation fragment to add'. The dropdown is open, showing a list of options: '.FirstName' (Person's first name.), '.GivenNames' (Person's first and middle names.), '.LastName' (Person's surname.), and '.MiddleNames' (Person's middle names.). The '.FirstName' option is highlighted with a yellow box.

This is where you first choose the type of data being used, and then the options for the type of calculation will be adjusted to suit that purpose. There are many options and combinations in the builder, and unlimited calculation expressions that can be written. This guide includes examples that will cover some basic calculations to get you started.

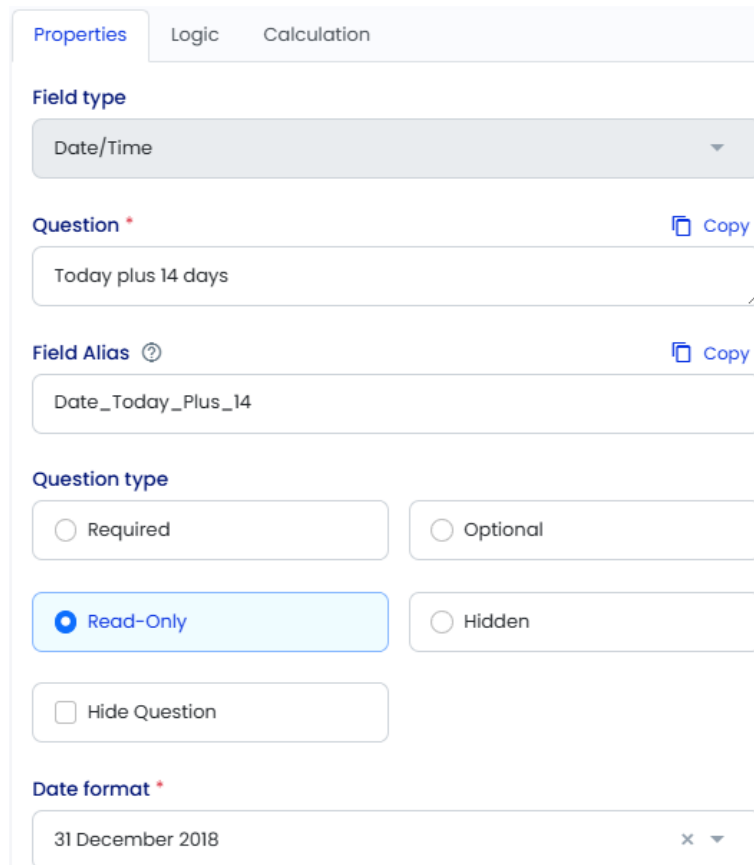
3. Create Calculations

3.1 What Type of Field to Use

When creating a field for a calculation, the field type used should be determined by the way you want to output the data. If the calculation is to return a numeric answer, then use a number field; if it is to return a date, then use a date field, etc.

3.2 Create the Field

1. Create a new field in the form for the calculation.
2. Complete the necessary properties and set the field to either **Hidden** or **Read Only**.



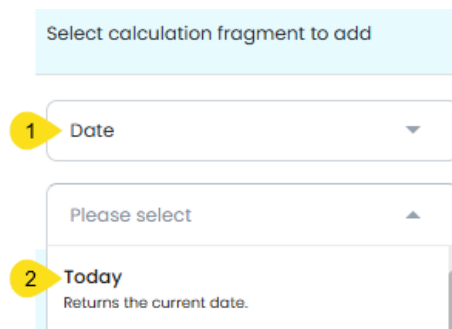
The screenshot shows the 'Properties' tab of a field configuration interface. At the top, there are three tabs: 'Properties' (selected), 'Logic', and 'Calculation'. Below the tabs, the 'Field type' is set to 'Date/Time'. The 'Question' field contains the text 'Today plus 14 days' and has a 'Copy' icon. The 'Field Alias' field contains the text 'Date_Today_Plus_14' and also has a 'Copy' icon. Under 'Question type', there are four radio button options: 'Required', 'Optional', 'Read-Only' (which is selected), and 'Hidden'. There is also a checkbox for 'Hide Question' which is currently unchecked. At the bottom, the 'Date format' is set to '31 December 2018'.

3. Click the **Calculation** tab.
4. Click **Start Here**.

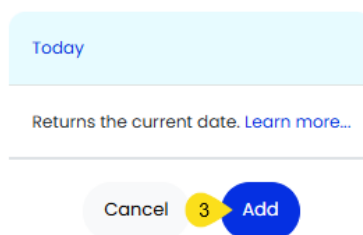
Note: A calculation field must be created in the form below all reference fields that it uses. The calculation can't see fields that haven't yet been answered and therefore can't return a value.

3.3 Example 1: Today's Date

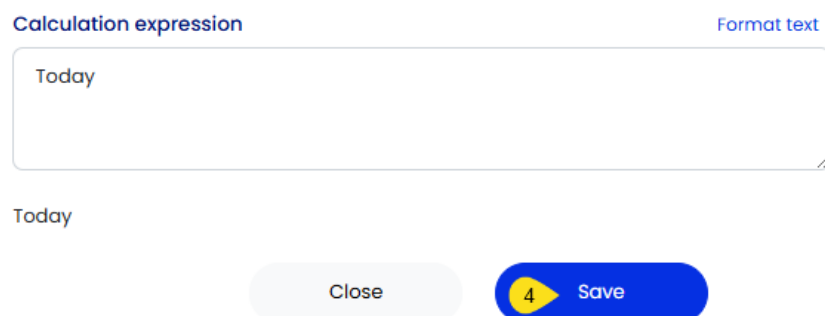
1. Follow the steps in 3.2 above to create a field for the calculation. As the output is a date, use a date field. In the data type, select **Date**.
2. In the calculation type, select **Today**.



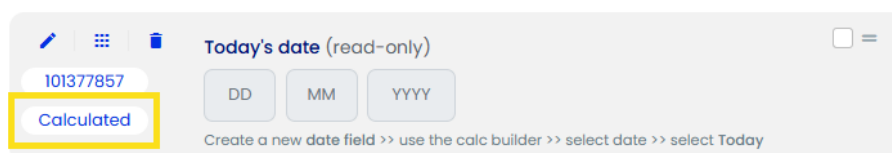
3. Click **Add**.



4. The calculation expression will be inserted. The expression for this field is quite simple and you may be able to write this field independently without using the calculation builder.



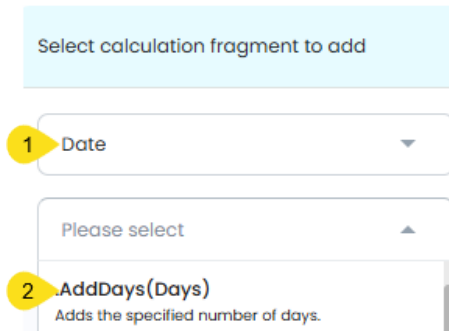
5. Click **Save**.
6. The field will appear in the form with a Calculation pill in the side banner.



7. When this field is used in a template, it will generate the current day's date.

3.4 Example 2: Today Plus 14 Days

1. Follow the steps in 3.2 above to create a field for the calculation. As the output is a date, use a date field. In the data type, select **Date**.
2. In the calculation type, select **AddDays**.



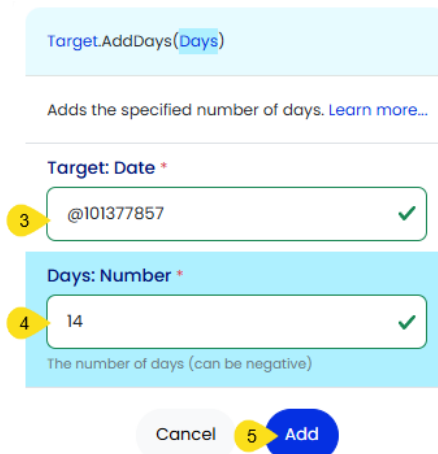
Select calculation fragment to add

1 Date

Please select

2 AddDays(Days)
Adds the specified number of days.

3. Enter the **ID number** of the field for today's date.
4. Enter the number of **days** to add.



Target.AddDays(Days)

Adds the specified number of days. [Learn more...](#)

Target: Date *

3 @I01377857 ✓

Days: Number *

4 14 ✓

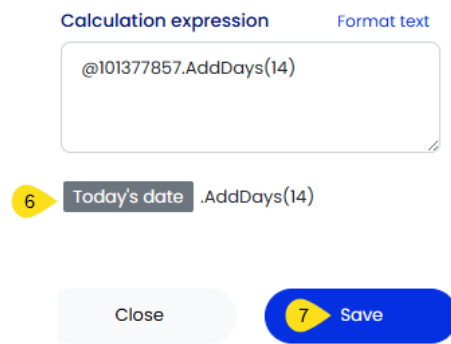
The number of days (can be negative)

Cancel 5 Add

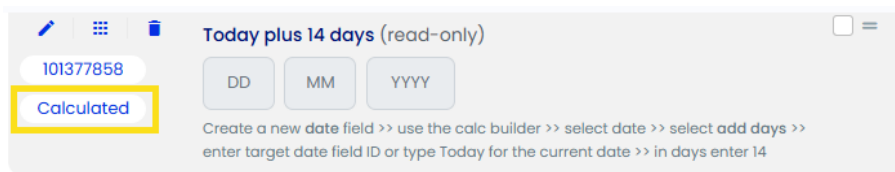
5. Click **Add**.

Note: While you are using the calculation builder, you can navigate the form and click on a field ID to copy it so that you can easily paste the ID into your calculation.

6. The calculation expression will be inserted. You will note that a summary appears below the expression which uses field names rather than ID numbers which makes the expression easier to read and check.



7. Click **Save**.
8. The field will appear in the form with a Calculation pill in the side banner.




9. When this field is used in a template, it will generate the date that is today + 14 days.

Note: If you need to deduct days, use the same steps as above and when you enter in the number of days, include a minus symbol, e.g. -14.

3.5 Example 3: Add Amounts

1. Create the relevant fields in your form. In this example, the form filler is going to enter amounts for a quote of costs and disbursements. A calculation field is then going to be created to add them together.



The screenshot shows a form with three sections. The first section is titled "Quote" and has a unique identifier "101436771". The second section is titled "Costs:" and has a unique identifier "101436772"; it contains a currency symbol "\$" and an empty input field. The third section is titled "Disbursements:" and has a unique identifier "101436773"; it also contains a currency symbol "\$" and an empty input field. Each section has a small icon (pencil, grid, trash) and a toggle switch.

2. Follow the steps in 3.2 above to create a field for the calculation. As the output is an amount, use a number field.
3. Complete the necessary properties and set the field to either **Hidden** or **Read Only**.
4. Click the **Calculation** tab.
5. Click the **Reference field** drop-down and select the first field for the formula (costs).
6. Click **Insert**.



The screenshot shows the "Calculation" tab selected in the form builder. A yellow callout "4" points to the "Calculation" tab. Below the tabs, a "Reference field" dropdown menu is open, showing a list of fields: "Costs:", "Costs:", and "Disbursements:". A yellow callout "5" points to the "Reference field" dropdown. The first "Costs:" option is selected. A yellow callout "6" points to the "Insert" button. Below the dropdown, there is a "Calculation expression" input field.

7. The field ID for costs will be inserted into the expression and summary.

Calculation expression

Format text

@101436772

Costs:

10. Type the + symbol.
11. Click the **Reference field** drop-down and select the next field for the formula (disbursements).
12. Click **Insert**.
13. The formula in the expression is now complete – click **Save**.

Properties

Logic

Calculation

Reference field

Insert

1 Disbursements:

Build Calculation

Settings

Calculation expression

Format text

@101436772 + @101436773

Costs: + Disbursements:

Cancel

Save

14. The new field will appear with a Calculated pill in the side banner. When you click on the pill, the expression will be revealed for quick review of the formula.

Costs: + Disbursements:

Calculated

total costs and disbursements: (read-only)

\$

Note: You can copy and paste the field ID's into the expression OR use the field reference tool.

There are endless mathematical calculations that can be built. Using the above example, you may now need to calculate the GST on the total costs and disbursements. This expression would be:

Calculation expression Format text

$@101436774 * 0.1$

Total costs and disbursements: * 0.1

Now add the total costs and disbursements to the GST for a grand total:

Calculation expression Format text

$@101436774 + @101436775$

Total costs and disbursements: + **GST on costs and disbursements:**

Alternatively, a formula could be written to do all of this in one calculation:

Calculation expression Format text

$((@101436772 + @101436773) * 0.1) + (@101436772 + @101436773)$

((Costs: + Disbursements:) * 0.1) + (Costs: + Disbursements:)

By entering the costs and disbursements amounts, all of the other math can be calculated automatically.

Quote

Costs:

\$5,000

Disbursements:

\$1,500

Total costs and disbursements: (calculated)

\$6,500

GST on costs and disbursements: (calculated)

\$650

Total costs and disbursements with GST: (calculated)

\$7,150

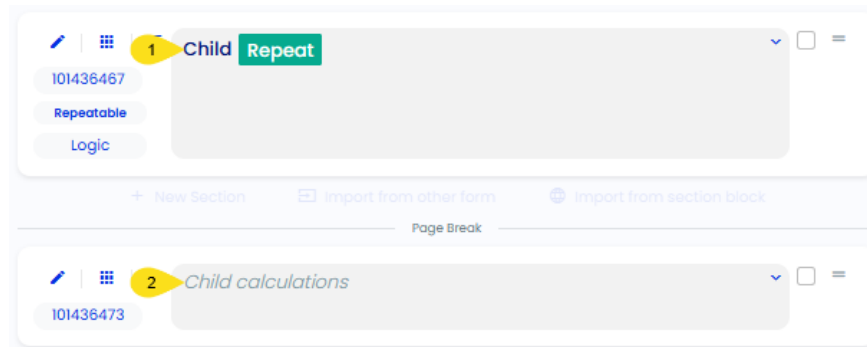
Alternative total C&D + GST: (calculated)

\$7,150

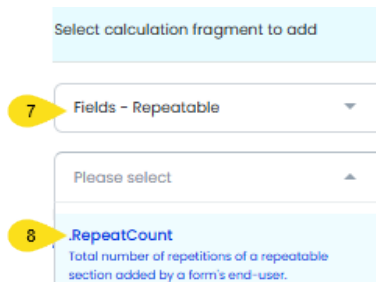
3.6 Example 4: Count Repeats

This calculation will count how many children the filler has entered into the repeating section of the form.

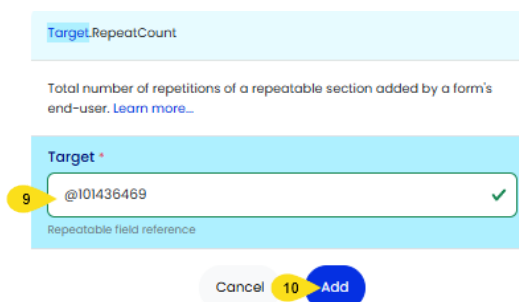
1. Create a repeating **child** section in your form.
2. Beneath that, create a **child calculations** section.



3. Follow the steps in 3.2 above to create a field for the calculation. As the output is a number, use a number field.
4. Complete the necessary properties and set the field to either **Hidden** or **Read Only**.
5. Click the **Calculation** tab.
6. Click **Start Here**.
7. In the data type, select **Fields - Repeatable**.
8. In the calculation type, select **RepeatCount**.



9. Enter the target **field ID** to use for a reliable count of the repeats. For children, the name field is mandatory and will be a reliable field to base this calculation.
10. Click **Add**.



11. The expression is now complete – click **Save**.

Calculation expression Format text

@101436469.RepeatCount

Name: .RepeatCount

Close **11 Save**

12. The new field will appear with a Calculated pill in the side banner. When you click on the pill, the expression will be revealed for quick review of the formula.

Child Repeat 101436467 Repeatable Logic

Child calculations 101436473

Child count (hidden) 101436475 Calculated

Child or Children (hidden) 101436476 Calculated

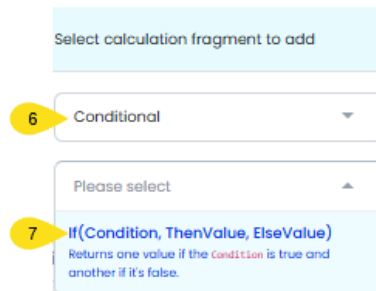
|| (Child count = 1, 'Child', 'Children')

13. When this field is used in a template, it will generate the number of children by counting the number of repeats the form filler entered.

3.7 Example 5: Text Pluralisation

This example will determine how many children there are and return the word **Child** if one or **Children** if more.

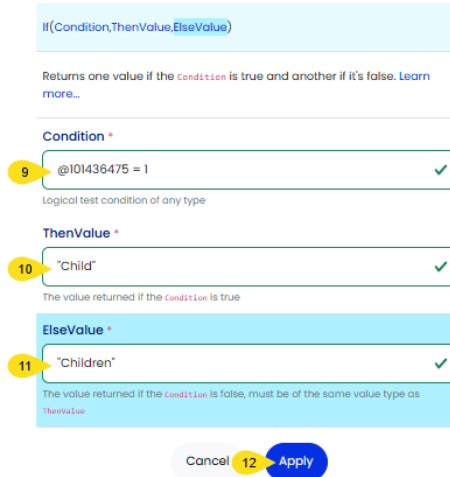
1. Follow the steps in 3.6 above to create the repeating child section, child calculations section and child count field.
2. In the child calculations section, create a new field for the new plural calculation. As the output is a word, use a text field.
3. Complete the necessary properties and set the field to either **Hidden** or **Read Only**.
4. Click the **Calculation** tab.
5. Click **Start Here**.
6. In the data type, select **Conditional**.
7. In the calculation type, select **If**.



This calculation needs to check how many children there are by looking at the count field that was created. If it sees that the count = 1, then we want it to return the word Child. If the count does not equal 1, then we want it to return the word Children.

Note: We do not need to cater for NIL children as this section uses logic to check whether there are any children and won't trigger if the answer is no. Therefore if the children section is in play, that means the answer was yes so there is at least one child.

8. This expression is going to use the IF THEN ELSE expression to determine:
 IF there is one repeat **THEN** return the word Child **ELSE** return the word Children
9. Enter the **IF** condition to be met by inserting the relevant field ID and required response, e.g. this example uses the field ID of the repeat count and the condition = 1.
10. Enter the **THEN** value for when this condition is met using quotes, e.g. "Child".
11. Enter the **ELSE** value for when this condition is not met using quotes, e.g. "Children".



If(Condition,ThenValue,ElseValue)

Returns one value if the **Condition** is true and another if it's false. [Learn more...](#)

Condition *

9 @101436475 = 1 ✓
Logical test condition of any type

ThenValue *

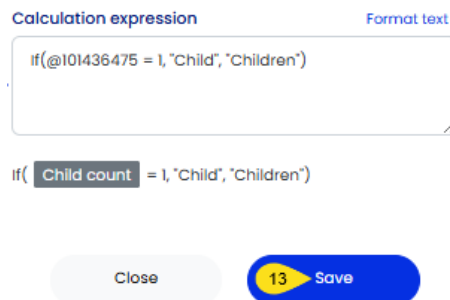
10 "Child" ✓
The value returned if the **Condition** is true

ElseValue *

11 "Children" ✓
The value returned if the **Condition** is false, must be of the same value type as **ThenValue**

Cancel 12 Apply

12. Click **Apply**.
13. The expression is now complete – click **Save**.



Calculation expression [Format text](#)

If(@101436475 = 1, "Child", "Children")

If(Child count = 1, "Child", "Children")

Close 13 Save

Note: Expressions are case sensitive and must be written perfectly. If you are writing expressions independently, be careful with the case, placement of brackets, commas and quotation marks.

14. When this field is used in a template, it will generate the word Child or Children depending on the child count field which will determine the number of repeats the form filler entered.

Note: See the Calculations - Advanced Examples guide for more calculation examples.
