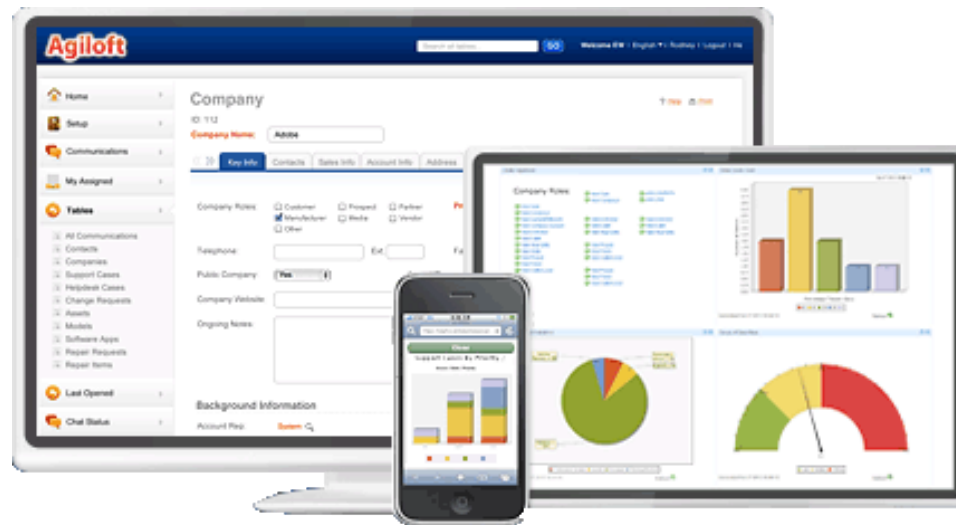# Unit 12: Print Templates

Questions Covered

- Can we print a contract based on the information in a contract record?

- How do we create a document and attach it to a record?

- What file types are available?

- How can we create work orders, invoices, and purchase orders?

Agiloft

Print Templates Unit Overview

- In this unit we will learn how to set up a **print template**.

- We will learn the different ways we can use print templates.

- We will use an *attached file* action to create a document from a print template and attach it to a field in a record.

- ⚠ You will need Word 2007 or later (or other word processing software which can save files in the .docx file type).

What are Print Templates?

- **Print templates** are similar to **email templates**, but instead of converting record information into an email, they convert information into a Word (DOCX), PDF, or HTML document.

- Like email templates, we have the opportunity to use field variables from the record we are printing in order to produce dynamic documents.

- Print templates can be used to create:

  - Physical letters

  - Invoices

  - Contracts

  - Work orders

  - Address labels

  - More…

Agiloft

Uses for Print Templates

- Print templates are used to:

  - Create a single document and attach it to a particular record, automatically or by clicking an action button.

    - Example: Create and attach a legal contract based on fields in a record. The resulting contract can be sent by an email action.

  - Create attached files in multiple records selected from the table view, using an action button added to the action bar.

    - Example: When invoices are ready to generate for several customers, select the customer records and click a "Generate Invoices" button.

  - Run a template from the table view or from an action button on a single record. The resulting file is previewed on screen without automatically saving or attaching it anywhere.

  - Run a template from the table view on selected records, combining the output into a single document that can be viewed or saved (without attaching it anywhere).

    - Example: Print address labels for multiple customers or print multiple letters to be sent to customers at the close of each day.

Agiloft

File Output: Word vs. PDF vs. HTML

- Print templates can be created to output into three different formats: Microsoft Word (DOCX), PDF, and HTML.

- Both MS Word and PDF templates are created by uploading a MS Word template file with the desired format.

- However, the same MS Word template will generally look different when output to Word vs. PDF.

- HTML templates are created in HTML format.

- Each method has its pros and cons, which are discussed over the next few slides.

Agiloft

Pros and Cons of MS Word Output

- Pros:
  - Resulting document is fully editable (easier for staff users to revise).
  - Can include images.
  - Can make use of headers and footers.
  - Can include mathematical formulas based on field values from within the record.
- Cons:
  - Resulting document is fully editable (less secure) unless it is created from a locked print template, in which case any changes made to it are automatically redlined.

Agiloft

Pros and Cons of PDF Output

- Pros:
  - Resulting document is non-editable (more secure).
  - Can make use of headers and footers.

- Cons:
  - Resulting document is non-editable (more difficult to revise).
  - Formatting is more difficult, some formatting is impossible.
  - The PDF converter does not recognize tabs as a way to align text; to align text, it must be placed in a MS Word table with "clear" cell bordering.

Agiloft

Pros and Cons of HTML Output

- Pros:
  - High level of control.
  - Can create barcodes.
  - Can insert images.
  - Can include mathematical formulas based on values within the record.
- Cons:
  - Requires knowledge of HTML to set up template in an effective and attractive manner.
  - Not a standard format for contracts and other common documents.
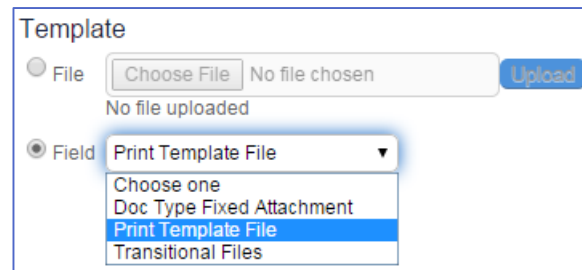
Agiloft

Formatting Embedded Tables

- There are two ways to format embedded tables within a print template.

- The first way is to insert the field variable name for the related table and allow the program to use the default view to define the columns and their formatting.

  - This method works for PDF templates, but if the table is too wide, it may truncate some data.

- The second, more customizable way is to define the table within Word using Word formatting, with one or two rows and your own column headings.

  - This method works well for Word and HTML templates.

  - This method also works for PDF, but special formatting other than border formats will be lost (for instance, alternating row colors).

Agiloft

Automatic Table Formatting

- If we want the program to do the formatting for us, as described in the first method on the preceding slide, we simply insert the field variable name onto its own row in the template:

  - $formula($related1231231231)

- In this case, the program generates the table according to the default view for the embedded table, with automatically calculated cell widths. If the view defines certain fields as being right-aligned, they will be right-aligned in the printed output.

- We will look at custom formatting a little later.

Fixed vs. Variable Templates

- Print templates may be defined to use a hard coded file uploaded from a local source as the template, or they may use a file in an attached file field within a record as the template.

  - If all records will use the same print template, select the File option and upload the template.

  - If different records will use different templates, select the field that will hold the relevant template for this record. Any file field, including linked fields from other tables, may be used.

Variable Templates (continued)

- In many business applications, different document types or contract types require their own print format. For this reason, we commonly use a print template held in an attached file field, rather than a single hard-coded template uploaded in the Print Template wizard.

- In this case, the attached file field (containing the print template) must be part of the table where the print template is run, either as a native field or as part of a linked set from another table.

- For example, in a typical contract management scenario, the Contract Types table has a Print Template File field. This field stores the relevant print template, either as a local field or a link to another table that stores all available print templates.

  - On the Contracts table, selecting the Contract Type also pulls in the Print Template File field as part of that linked set.

- A single print template configuration can then be used for contracts: the linked Print Template File field is identified as the template source. Then for each contract, whatever file is held in that field is used to generate the output file.

Agiloft

Merging Multiple Files and/or Templates

- Print templates can be created from, or augmented by, one or more attachments held within a record.

- Using the $merge($fieldname) command within the print template will merge all attached .docx/.html files from the field $fieldname in the current record into the resulting print template's .docx file.

  - Documents held in a versioned file field will be merged in the order in which they were uploaded or appended to the field.

- It is also possible to merge multiple documents held in separate file fields by using the format: $merge($fieldname1) $merge($fieldname2) $merge($fieldname3) … $merge($fieldnameN).

  - This makes it possible to compile a large PDF or Word document from several attachments.

- ⚠ The $merge command must be placed within the body of the print template. This function will not work if the $merge function is placed within a table or within the header/footer of the template.

Agiloft

Managing Print Templates

- Print templates are accessed through a table's action bar.

- Mouse over the printer icon to bring up the print template options.

- From here we can create a New HTML Template or New Word/PDF Template, manage our existing templates, or select an existing template to run.

- Let's create a new print template.

- Before we continue, download the file ProjectReport.docx, made available within this unit.

  - We will be using this document as a starting point in our hands-on exercises.

Agiloft
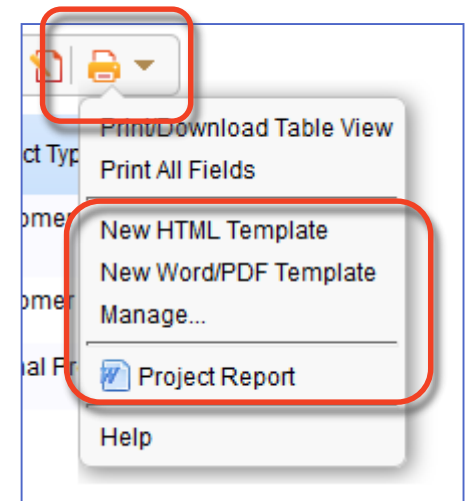
Download the Project Report

- Navigate to the Project Report page in ProProfs.

- Once loaded on your screen, click the small black arrow to download the file to your desktop.
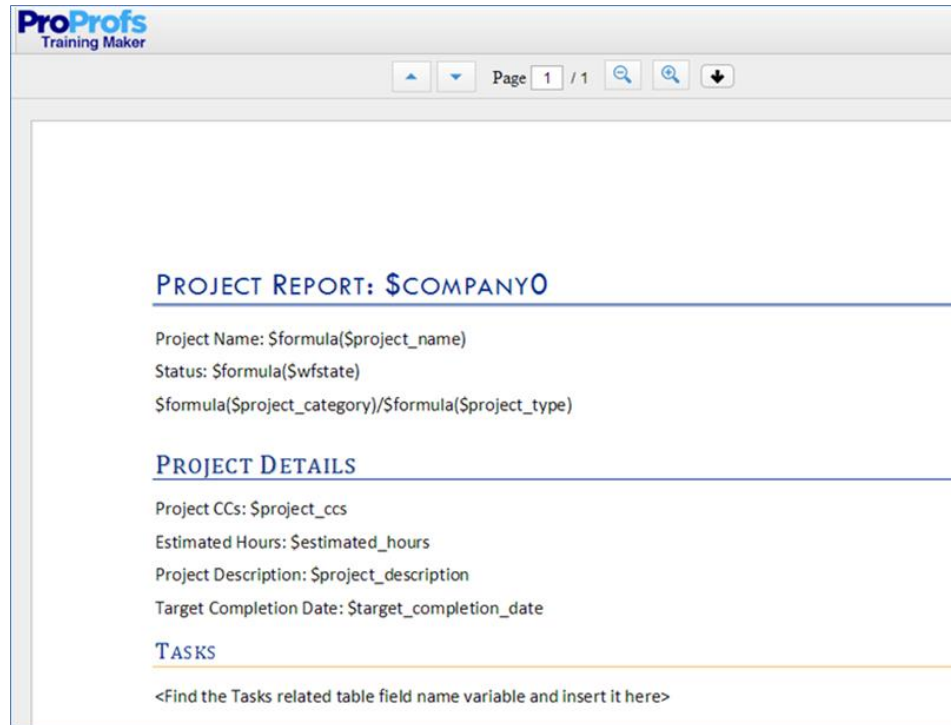
Setting Up a Print Template

- Open the file ProjectReport.docx and take a look at how it is formatted.

- Note that it is set up similarly to the email templates we created in Unit 7.

- There is one change to make in the sample print template before uploading it to the system.

- Because we added the Tasks related table in a previous unit, the variable field name will be specific to your Training KB.

- ⚠ Before moving forward, identify and update the variable field name for the Tasks related table so that it matches the variable in your KB. It should look something like this:

PROJECT REPORT: $COMPANY0

Project Name: $formula($project_name)

Status: $formula($wfstate)

$formula($project_category)/$formula($project_type)

PROJECT DETAILS

Project CCs: $project_ccs

Estimated Hours: $estimated_hours

Project Description: $project_description

Target Completion Date: $target_completion_date

TASKS

<Find the Tasks related table field name variable and insert it here>

TIME AND BILLING

Hours Spent

Total Hours Spent: $total_hours_spent

$related1201905149296

		Tasks	related1404162716151	related1404162716151	Linked data from another table

Agiloft

Creating a Word Print Template

- There are two separate wizards for creating print templates, one for Word/PDF templates and another for HTML templates.

- The wizards are straightforward, including layout, format, and file information.

- We will not cover the wizards in detail, but rather dive right in.

- Navigate to the Projects table, and mouse over the printer icon.

- When the options appear, select New Word/PDF Template.

- Title the template Project Report.

- Select MS Word 2007+ as the format.

- Select the option to print one page per record.

Agiloft

Creating a Word Print Template (continued)

- Ensure that the option to Include column headings in table is selected.

- Under Template, browse for, select, and upload ProjectReport.docx.

- Select the option to publish the print template.

- Click Finish to save your print template.

- This will bring you to the Print Templates table.

- Close this window to return to the Projects table.

- Mouse over the printer icon and note that your print template is now visible.

Table Column Headings
- ◉ Include column headings in table
- ◯ Include only table data without headings
- ☐ Expand table to fit page width

Template
- ◉ File [Browse...] No file selected. [Upload]
  - 📄 Project Report.docx, 28672 Bytes
- ◯ Field [Choose one ▾]
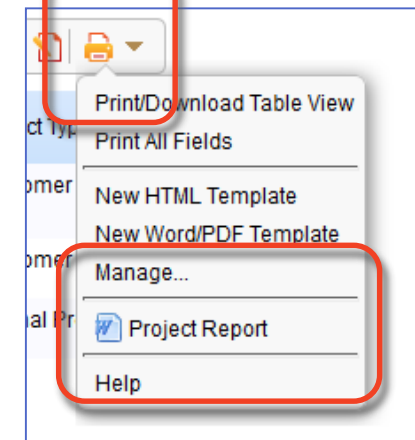
Published
- ◉ Yes
- ◯ No

Agiloft

Review the Print Template

- Now that the print template is available for use, select a few of the project records by marking the checkboxes to the left of the table view.

- Once selected, mouse over the printer icon and click on the print template we just created.

- Depending on your browser, you may see an option to Open or Save the file.

- Select Open with… Microsoft Word (or other word processing software which opens .docx files).

- Open the file.

- Review the document and how the field variable names translate to the values from the corresponding records, paying special attention to the related tables.

- If your related tables are blank, make sure you select projects that have at least one associated task.

- If you selected multiple project records, they were output to a single document using this method.

Agiloft

Creating a PDF Print Template

- Now that we know how to create a print template, let's recreate the same template to output in PDF format.

- Mouse over the printer icon again and select New Word/PDF Template.

- This time, select Create format in: PDF.

- Upload the same file, ProjectReport.docx.

- Once finished, select the same records from the Project table, then print them out using the new PDF template.

- Note the differences in formatting, including fonts, table formatting, etc.

Custom Formatting Defined in Word

- To use custom formatting in a related table, we will insert the related table variable name. Directly below that, insert a Word table and include the field variable names for each of the columns in the source table.

$formula($related1231231231)						
$id	**$item_name**		$unit	$price	$quantity	$total_price
$id	$item_name		$unit	$price	$quantity	$total_price

- There is an option in the Print Template wizard to include or exclude field labels in the column headings.

  - If the template is set to include column headings, the system will use the format in the first row of the table in Word to define the format of the column headings and the second (and third) row to format the alternating data rows.

  - If the template is set to include only table data, excluding column headings, the system will use the first row to format odd rows and the second row to format even rows.

Custom Formatting Defined in Word (continued)

- In the example below, we have a table with forced custom headers, meaning that the system will ignore the format setting to include or exclude column headings. In this case, the second row is used to define the format for odd rows and the third row will control the format for even rows.

$formula($related1231231231)					
ID	CUSTOM LABEL		PRICE	NUMBER	SUM
$id	Custom prefix : $item_name	$unit	$price	$quantity	$total_price
$id	Custom prefix : $item_name	$unit	$price	$quantity	$total_price

- To add summary data at the bottom of the table, we define a table with more than three rows. The first three rows will define the format as indicated above; any additional rows will define the format for summary data, including totals, subtotals, counts, etc.

  - When including summary items in the table, simply include the field variable name for a calculation on multiple linked records which is derived from the embedded table in question.

  - For example, in the example above, we probably have a calculation field that gives the total of the Total Price field. In this case, on the fourth row we would include that field name, $total_items_price, in the Sum column.

Agiloft

Add Custom Formatting to Our Print Template

- Return to ProjectReport.docx.

- We will create custom table formatting with custom column headers for the Tasks related table.

- In the Word document, place your cursor on the line below the Tasks related table field variable name and above the Time and Billing header.

- Navigate to the Insert tab, and insert a table of size 5x4.

Agiloft
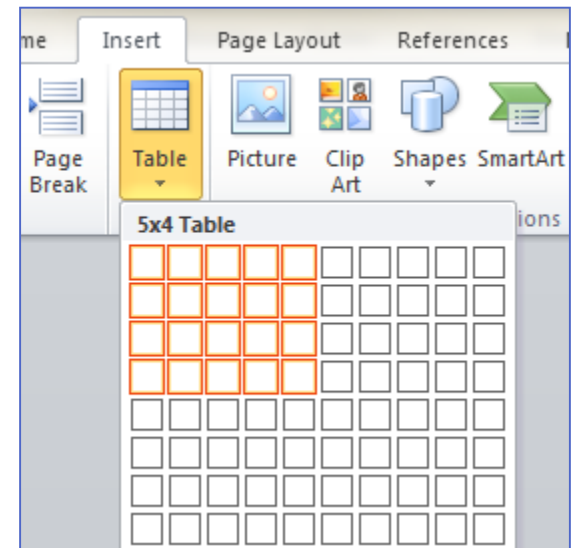
Add Custom Formatting to Our Print Template

- Clicking in the body of the table will bring up a yellow Table Tools tab at the top of window. Selecting that tab, and then the Design tab, will bring up various table styles.
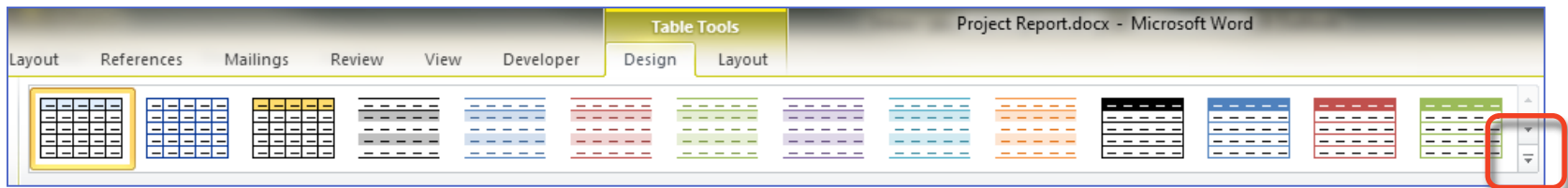
- Select one of the styles from the ribbon. To see more options, select the down-arrow in the bottom-right corner.

- Once you have selected a format that appeals to you, place your cursor in the top-left cell of the table, and add the field variable names as below (use the actual field names from your KB if they are different than those below).

- Pay special attention to the cell widths. Don't worry if the variables wrap.

Task Type	Task Title	Assigned Person	Date Created	Date Due
$task_type	$task_summary	$assigned_person	$date_created	$date_due
$task_type	$task_summary	$assigned_person	$date_created	$date_due
TOTAL				$number_of_tasks Tasks

Agiloft

Test the New Templates

- After saving the Word document, return to the Projects table. Create two new print templates from the revised file, one in Word format and the other in PDF.

- Name your templates "Project Report – Custom Format."

- Select the same records from the Project table, and print them with both of the new print templates.

- Note the differences in formatting between them, paying special attention to the drawbacks of using this method for PDF templates.

Agiloft

Make a Word Document Non-Editable

- We discussed earlier some of the pros and cons of Word vs PDF.

  - Word documents are generally editable, while PDFs are not.

  - There is a higher degree of control when formatting Word documents compared to PDFs.

- There are cases where users may want a document to be editable until it has gained final approval, and then non-editable once it has reached its final state.

  - For example: Contracts, FAQs, Internal Memos, etc. may go through an approval process where it will be edited until final approval is given. From that point forward, the document that is distributed or published is non-editable.

- Unfortunately, it usually doesn't work to use the same template to produce both Word and PDF documents – they will come out different. Creating two separate templates for each document is cumbersome.

- How can we enjoy the best of both worlds?

Agiloft

Protecting Word Documents

- To make a Word document non-editable, use the Restrict Editing function on the Review tab of Microsoft Word.

- Once the Restrict Editing function has been selected, we are presented with a number of options:

  - Limit formatting to a selection of styles.

  - Allow only certain types of editing:

    - Tracked changes.

    - Comments.

    - Filling in forms.

    - No changes (Read only).

- Editing restrictions can be turned off with the use of a password.

- By using a template Word document that allows only tracked changes editing, you can ensure that all changes are noticed. Once ready to be finalized, a clean document can be created by a person with access to the password, who accepts all changes.

Agiloft

Attached File Action

- As we discussed in Unit 10, *attached file* actions are used to automatically create and attach a Word or PDF document to a record.

- When the action is run, a print template is called upon and populated with fields from the record, a file is created, and the file is attached to a field defined in the action.

- The Attached File Action wizard has only a single tab with the following options:

  - Action Name

  - Description

  - Format: Select which print template to use for the action.

  - Field: Define the target field (where the new file is attached), and whether to overwrite existing files or append only.

  - Define the default file name: This is where we name our file. We can use a static title, or use a formula to name the file based on values from the record.

Agiloft

Create an Attached File Action

- Before we can create our Attached File Action, we need to create a *File with Versioning* field to attach our project report once created.

- Navigate to the Projects table, and create the following fields:

Field Label	Data Type	Comments
Project Report(s)	File with Versioning	Allow multiple files
Add Project Report	Action Button	Create and Attach using the Project Report - Custom Format (word doc) Print Template. Title: xxxxx. Save first, Save and open for edit after.

- When you arrive at the **Actions Library** for the Add Project Report field, select Create Print Action.

- Name the action "Add Project Report."

- Give your action a description.

- Under Format, select the print template [WORD] Project Report – Custom Format.

- Under Store printed document in the File Field, select Project Report(s) and select the option append the file to this field.

- Under Define the default file name, click Formula Help and select the variables and functions to create a file name which looks like this:

- Project ID $id : $project_name $date_updated

Agiloft

Create an Attached File Action (continued)

- Click Finish to save the action.

- When returned to the **action library**, check that our new action is selected. Click Finish again to return to the Action Button wizard.

- Complete the action button as we learned in Unit 8.

- When finished, add the Project Report(s) and Add Project Report fields onto the layout.

- Once the fields are on the layout, return to the Projects table and edit one of the project records you printed earlier.

- Test your new action button to generate a report from the print template. Once the Project Report(s) field has been populated with a Word document, open the file to see how it looks.

- This concludes our print template practice exercises.

Agiloft

Using Field Variables from Linked Records

- In addition to fields in the table where the print template is run, fields from any linked record may also be inserted into the print template.

- A chain of linked record relationships can be used to reach fields from a table separated from the source table by several degrees. For example, suppose the following structure:

  - A support case record has a submitter, linked to the people (contact) record.

    - The submitter's user record is linked to their company record.

      - The company record is linked to a single support contract in the Contract table. The Type of Contract field is pulled into the Companies table as part of a linked set.

- You want to print out the support case and show the Type of Contract for the submitter's company. Suppose the only linked field in the Support Case table is the Submitter ID.

- By using a chain of linked fields, you can pull in any information linked to that submitter, including information from the parent company's record, the company's linked support contract, and so on.

Agiloft

Building Field Variable Chains through Linked Records

- $submitter_id is the field variable on the Support Case table.

- Use the syntax $submitter_id.<fieldname> to pull in any field from the submitter's user record (i.e., the specific person record linked to the support case by the submitter's ID).

  - $submitter_id.phone_number will pull in the submitter's phone number from their Person record.

  - $submitter_id.company_name will pull in the company name, assuming these field names are correct.

- On the People table, the Company ID field links to the Companies table. Now we can build a chain that begins $submitter_id.company_id. to pull in any field from the company record into a print template running on the Support Case table.

  - $submitter_id.company_id.support_contract_type will insert the support contract type for the support contract linked to the company linked to the submitter.

Agiloft

Building Field Variable Chains (continued)

- Each link in the chain must identify a unique record. For simplicity we recommend using an ID field for each intermediate step.

- The last field in the chain is not restricted, however. The final field in the destination table can be a related table, choice field, or other data type.

- ⚠ The **variable chain** feature for print templates is available in Release 7.0 (2014_02).

Displaying Dollar Amounts in Print Templates

- The dollar sign symbol ($) indicates a variable or formula to the template engine. This creates a formatting problem when writing non-variable dollar amounts in the body of a template.

- For example, imagine you wish to write an amount, say one hundred dollars, in the body of the print template.

  - If we write $100, the system looks for the variable $100. If not found, the entire string '$100' is removed from the template's output.

  - If the amount listed is $1,250, the system will remove everything up to the comma, leaving ',250' in the output.

- To override this feature, use $$ (two dollar signs) to escape the variable in front of dollar amounts. For example:

  - The unit cost is $$100, payable at the time of delivery.

- The print template output will display:

  - The unit cost is $100, payable at the time of delivery.

Agiloft

In-Line Calculations

- If desired, you can perform in-line calculations in a print template using standard operators and syntax (* for multiplication, / for division and so on).

- For example, in a KB with appropriately defined fields, the following formula can be used to calculate a sub-total for discounted units.

  - $formula($unit_price*$number_of_units*$discount_percentage)

- Since this calculates a price, we want to also display a dollar sign in front of the calculated amount.

- We learned that '$$' displays a single dollar sign, so we will add that in front of the formula expression:

  - $$$formula($unit_price*$number_of_units*$discount_percentage)

  - The output of the formula will be $XXX, where XXX is the calculated total.

Agiloft

Print Templates Unit Summary

- In this unit we learned how to use and set up **print templates**.

- We practiced creating **print templates** with different formatting options.

- We observed the differences in formatting between Word and PDF templates.

- We created an action button using the *attached file* action.

Agiloft