ADVANCED REPORTING

workfront

Instructional Guide

rev. December 2020

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CHAPTER 1

REPORTING REVIEW

OBJECTIVES

After completing this chapter, you will be able to:

- Understand Workfront reporting terms and definitions
- Create reports
- Utilize 'OR' statements

Reporting Terms and Definitions

Builder Interface.....The Builder Interface is the series of drop-down fields presented on the View, Filter, and Grouping screens. It provides an intuitive mapping of the element relationships to assist in identifying the columns in a view, the criteria of a filter, and the common attributes of a grouping.

Camel Case.....Camel Case refers to a specific way to write programming elements to string multi-word attributes together. The rules are that the first letter of the first word is lower case, there is no space between the words, and the first letter of any subsequent word is uppercase. For example, Home Group would be rendered homeGroup, Resource Pool would be resourcePool, and Actual Start Date would be actualStartDate.

Fields.....Fields is the Workfront term for a custom data field. Fields are created and then added to a custom data form to supplement the core fields provided in the system.

Field Name.....The Field Name provides a list of available attributes to identify the value that is displayed in a view, used in the condition of a filter, or as the common element of a grouping. The options in the Field Name field are dependent on the Field Source selection. For example, if you create a task view and wish to display the Planned Start Date, you would select the Planned Start Date Field Name – it is an attribute that describes the task.

Field Source.....The Field Source provides a list of available objects that can be referenced on a view, filter, or grouping. The options in the Field Source are dependent on the object type of the UI element being created. The Field Source allows you to reference attributes from objects other than the object type of the UI element. For example, if you create a task view and wish to display the project name in a column, you would select the Project Field Source and the Name Field Name.

Filter.....The Filter determines the results that display in a report.

Form.....Form is the Workfront term for Custom Form. Fields and sections are added to forms, which are then attached to an object to extend the database beyond the core fields provided in the system.

Reporting Terms and Definitions (continued)

Grouping ..... The Grouping identifies how a list of results are organized. The Grouping creates blue horizontal bars throughout the report to group the results by common attributes defined by the Grouping. Groupings are used in Matrix Reports to determine the axes of charts and tables.

Object or Object Type ..... An Object is a Workfront application element (i.e., Project, Task, Group, Company, Filter). The Object Type is used when creating a new Report, View, Filter, or Grouping to identify which Object is the focus of the report.

Qualifier ..... The Qualifier field appears on the Filter screen and the Advanced Settings screen for a view. Its purpose is to determine how the Field Name of the filter or condition compares to another field or value. For example, the qualifier determines if the task's Planned Start Date is equal to, greater than, or less than today's date.

Report ..... A Report is the combination of a view, a filter, and (sometimes) a grouping. The purpose of a report is to display data consistently across users, to distribute information, and to eliminate the need to run the same search or query on a regular basis.

Text Mode Interface ..... Text Mode Interface (referred to as Text Mode in this course) provides the ability to modify/manipulate custom views, filters, and groupings created through the Builder Interface. It is suggested that report elements are initially created through the Builder Interface and then converted into the Text Mode after they have been saved to simplify advanced view, filter, and grouping creation.

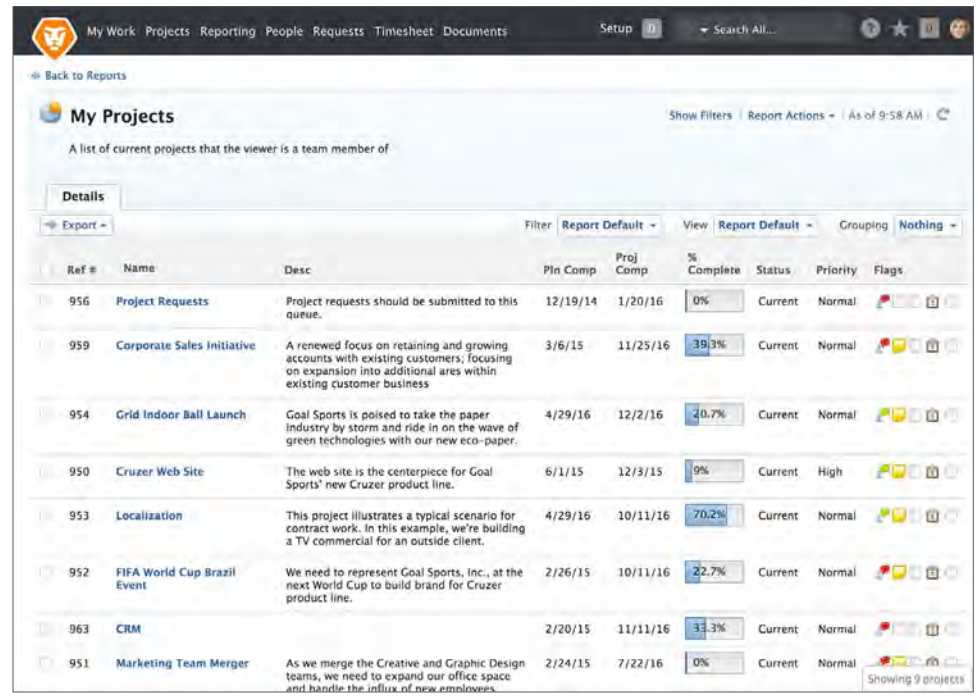
User Interface (UI) ..... The term UI refers to the components or building blocks of a report. Namely, the View, Filter, and Grouping.

View ..... The View identifies the column headers that display across the top of a list report.

Creating Reports

The Workfront Report Creation course teaches that a filter controls the results listed in a report. The view dictates the columns shown across the top of the report. Groupings are used to organize the results based on a common attribute(s). These are the basic elements of a report.

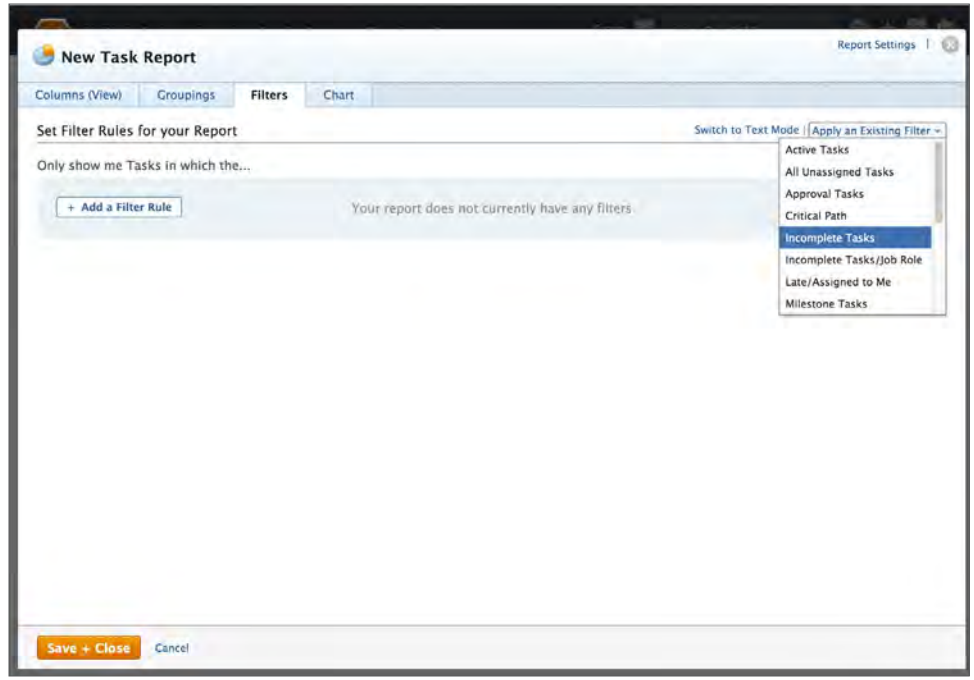
The first step to creating a report is to identify the reporting elements needed, especially any custom view, filter, and/or grouping.



Create a Report

SCENARIO — Create a report that looks at incomplete tasks. Group the tasks by priority and use the view called Status.

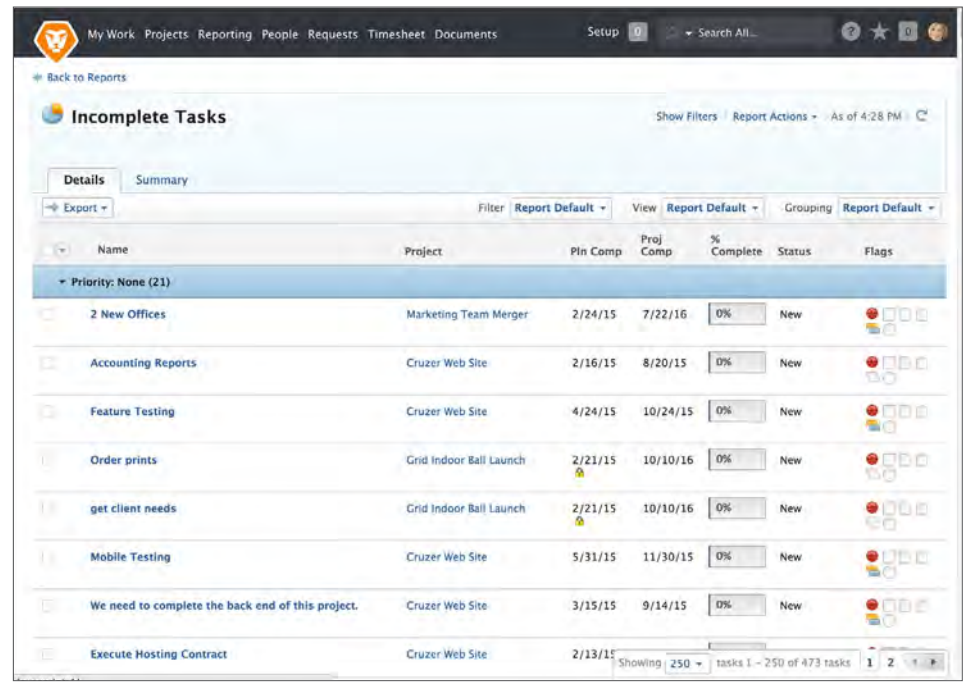
1. Navigate to Reporting in the Global Navigation bar. Select the Reports tab.
2. Using the New Report button, select the type of report to create. For this example, choose task.
3. A light box appears and begins with the column builder.
4. Create a new view or apply an existing view. For this example, apply the existing view called Status.
5. Select the Groupings tab, click Apply an Existing Grouping, and choose Priority.
6. Select the Filters tab, click Apply an Existing Filter, and choose Incomplete Tasks.
7. Navigate to Report Settings in the top right corner to define the report's name and description. Name the report 'Incomplete Tasks'.
8. Select Save & Close.



Create a Report (continued)

The report produces two tabs:

- **Details —** Produces the primary findings of the report. You can see a list of the report findings.
- **Summary —** Produced when using a grouping element. It summarizes information based on the grouping selected during report creation and gives a quick overview of the report.



OR Qualifier

Each line in a filter is treated as an AND condition. However, it is possible to include ‘or’ clauses to make your reports return results that meet one of several conditions.

The OR option is used to minimize the number of reports that have to be distributed to other users.

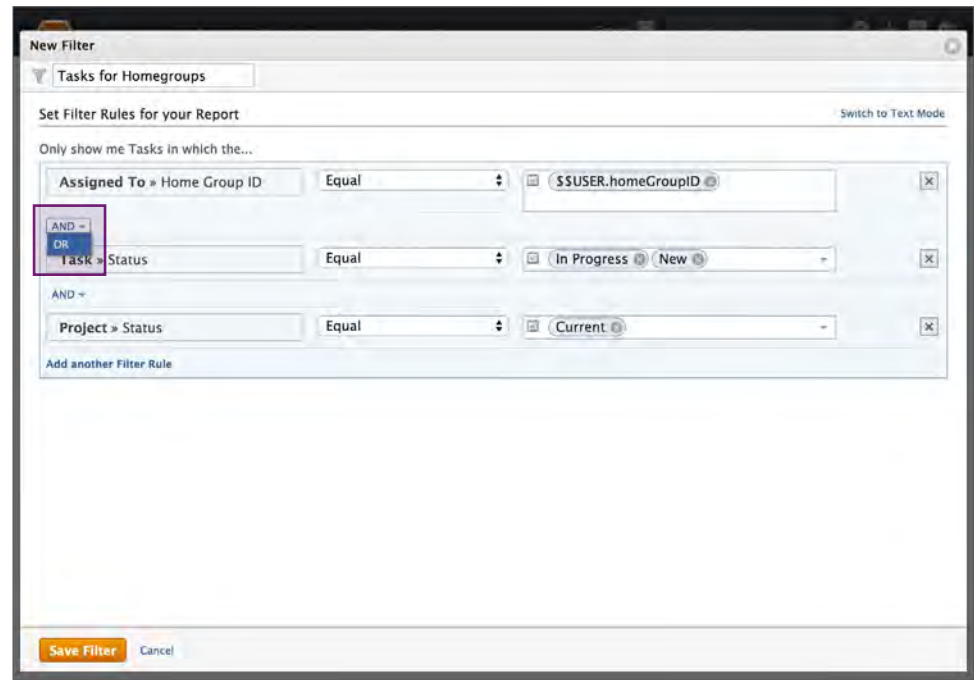
OR statements can only be used with a filter. For example, combine the filters used for the following reports:

- My Upcoming Tasks
- Unassigned Tasks in My Roles
- Late Tasks in Owned By Me Projects

An OR statement provides the ability to combine all three of the filters or clauses from these reports into a single report displaying all of the tasks of interest.

To identify a line as an OR clause, select the AND option between the filter statements and change it to an OR. Your first clause does not require an OR prefix.

Anything that represents a constant must be declared in each clause.

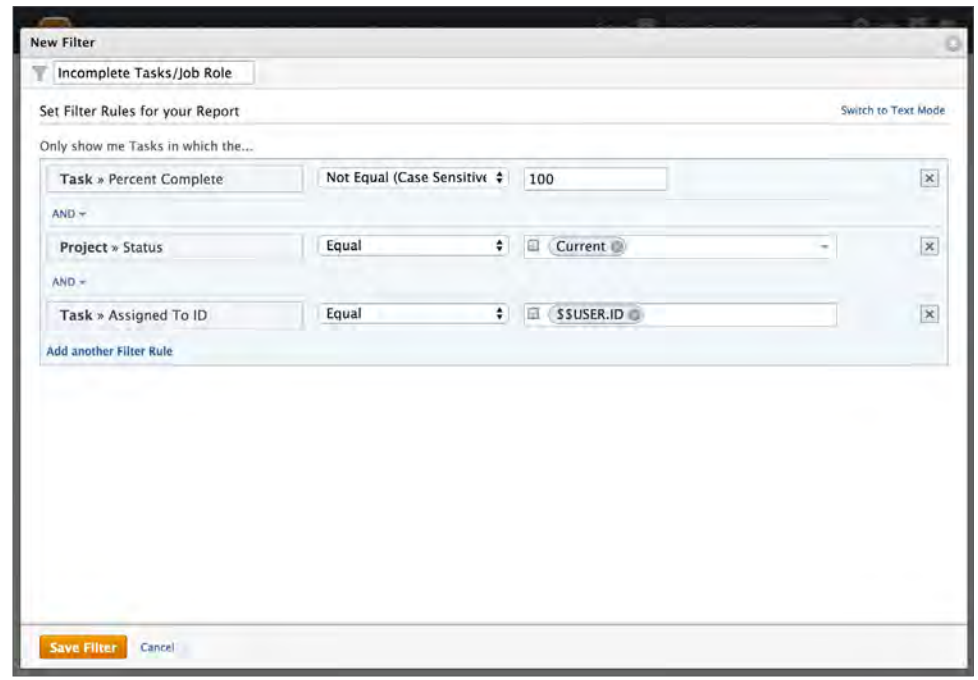


OR Qualifier (continued)

SCENARIO — Create a filter that searches for incomplete tasks on current projects that are either assigned to me or unassigned in my job role.

Create an Or Statement

1. From the Reporting area menu, select an existing Task Report.
2. Create a new Filter, and name the filter (e.g. 'Incomplete tasks/ Job role').
3. Select the Percent Complete field name, select the Not Equal qualifier, and input '100'.
4. Add a new Filter rule.
5. Select Project Status, use the Equal qualifier, and input 'Current'.
6. Add a new Filter Rule.
7. Select the Assigned To field source, select the ID field name, use the Equal To qualifier, and input '$$USER.ID'.
8. Add a new Filter Rule.
9. Select the Percent Complete field name, select the Not Equal qualifier, and input '100'.



OR Qualifier (continued)

10. Add a new Filter rule.

11. Select Project Status, use the Equal qualifier, and input 'Current'.

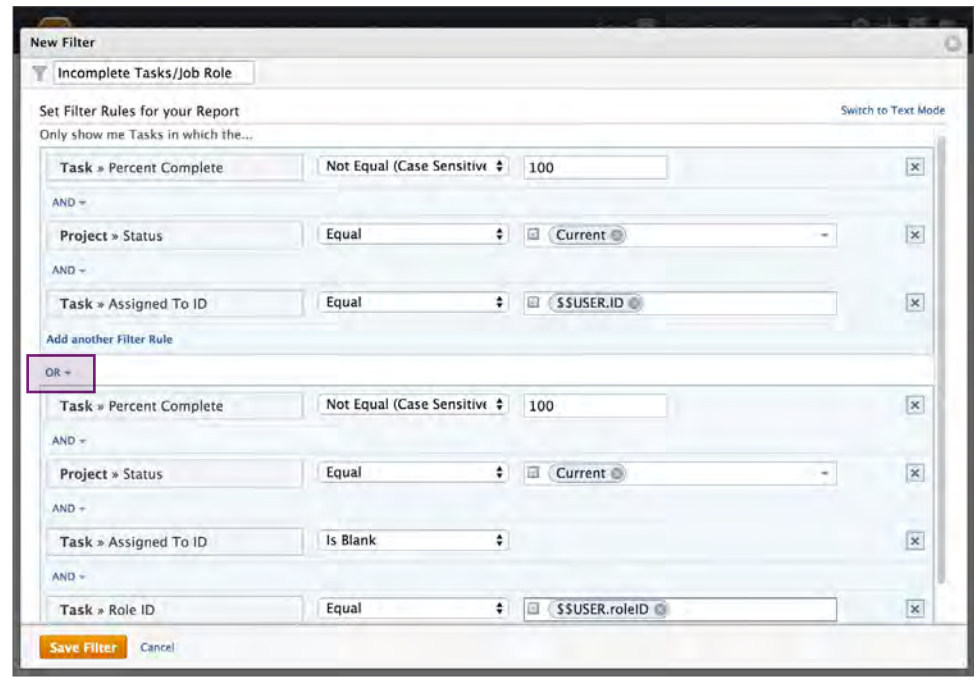
12. Add a New Filter rule.

13. Select the Assigned To field source, select the ID field name, use the is blank qualifier, add a new filter rule.

14. Select the Task Role ID field name, use the Equal qualifier, and input '$$USER.roleID'.

15. Click the AND after the third filter (Assigned to ID) and switch it to OR.

16. Save when finished.



LIMITATIONS

- There is a limitation when working with OR statements. As the filter queries the database it is limited to searching for five objects, including the object for the report. When you search this limit within the builder, only eligible field sources display in the search drop-down menu.

- Also, be aware that OR statements cannot cross objects. In other words, it does not give users the ability to combine a task list and an issue list in a single report.

CHAPTER 2

ADVANCED FILTERS

OBJECTIVES

After completing this chapter, you will be able to:

- Utilize API Explorer relationships
- Use AND statements and wildcards
- Reference related objects
- Use custom prompts

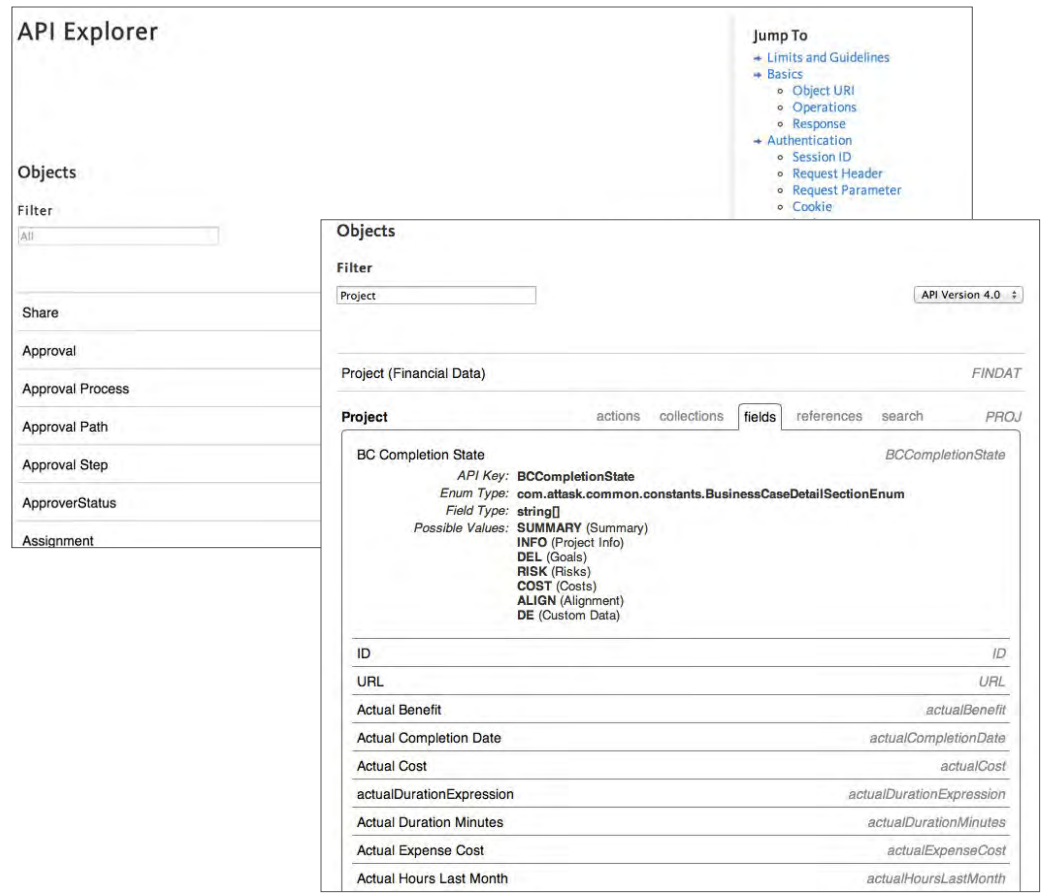
API Explorer

The API Explorer is likely the most critical reference source used in learning how to write text mode statements.

A text mode statement is the Workfront syntax used to create custom filters. The tables are a comprehensive list of fields for each object and the relationships between objects that can be used when inputting filter criteria.

Each object is displayed in a table, and each table is divided into five sections:

- Actions
- Collections
- Fields
- References
- Search



API Explorer (continued)

API EXPLORER TABS	
Reference source with a comprehensive list of fields for each object and the relationships between them. Can be used when learning to write text mode statements, which is the Workfront syntax used to create custom files.	
ACTIONS	Conducts a sequence of mini events. Not used in reporting. Used for integrating products.
COLLECTIONS	Represents a relationship with another object. Displays one-to-MANY relationships.
FIELDS	Fields or columns available for this object as defined in the database.
REFERENCES	Display links to other tables that the object is related to. Displays one-to-one relationships.
SEARCH	Lists aliases that have been created to simplify queries. With filters, you can only reference objects that are one object away. So, the Search section provides mappings for relationships that are several objects away.

API Explorer (continued)

Actions
Actions conduct a sequence of events, typically mini actions. This area is not used in reporting but is for users integrating products with Workfront.

Collections
Collections represent a relationship to another object and display one-to-many relationships. For example, one-to-many relationships mean you can pull in a column that shows all assignments on a task or project. This is when you need to use collections.

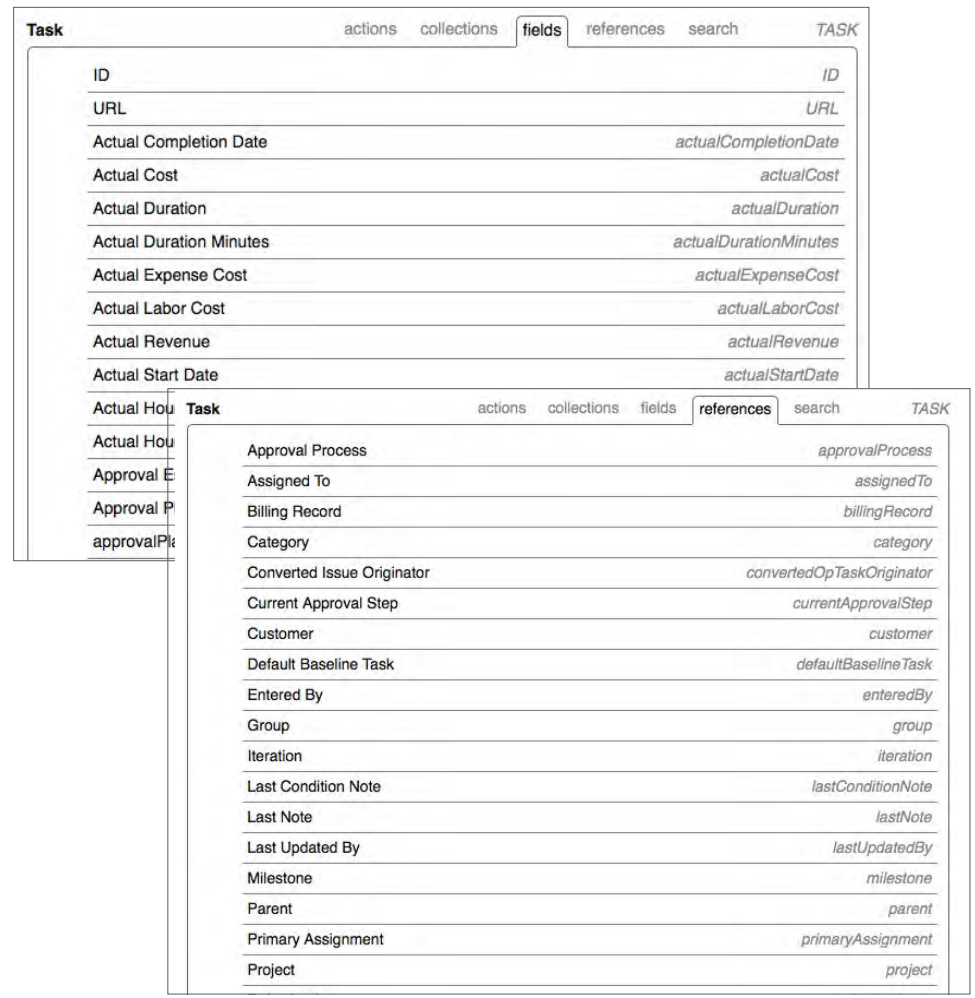
For example, each task may have several hour entries recorded. By referencing the Collection Name 'hours,' you can query for tasks where any of the hour entries match the criteria. When you input hours:entryDate=$$TODAY, the search returns all tasks where hours have been recorded today.

API Explorer (continued)

Fields
The section identifies the fields or columns available for this object as defined in the database.

References
The References section displays links to the other tables the object is related to. Generally, these represent one-to-one relationships. For example, each task can only be associated with a single custom form (category), so the option to navigate to the Custom Form table is available.

The References section contains names used in cross-object searches. When creating text mode statements, reference these related objects by inputting the reference name, colon, and the field camel case from the second object (e.g., category:name=...)



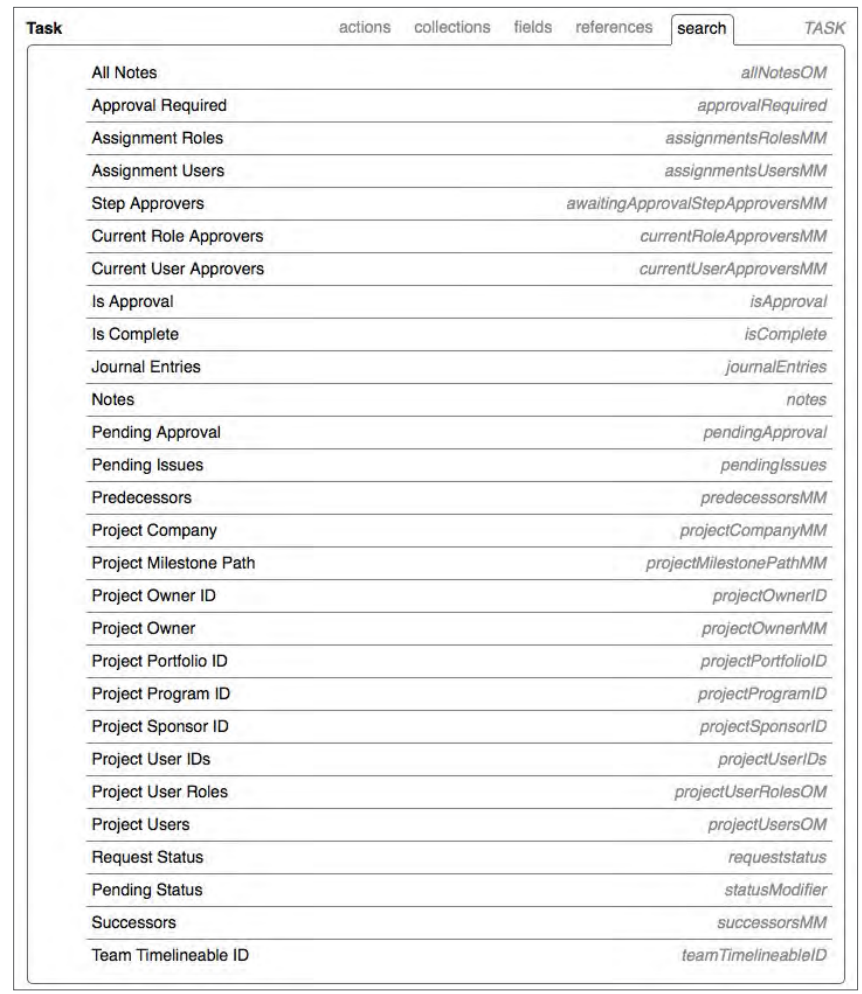
API Explorer (continued)

Search

The Search section lists aliases that have been created to simplify queries. For example, the database does not contain a column for Is Complete; just the same, the application provides a field, isComplete, to allow for quick query of tasks that are either complete or incomplete.

One of the limitations of filters is that you can only reference objects one degree away. The search section provides mappings, or aliases, for relationships that are several objects away.

For example, every task must belong to a project, and each project may belong to a portfolio. Browsing through the searches section, notice a portfolioID option that allows you to create filters based on the portfolio a task belongs to. This is another field that is not actually stored on the tasks table in the database, but the application provides it as a reference.



API Explorer (continued)

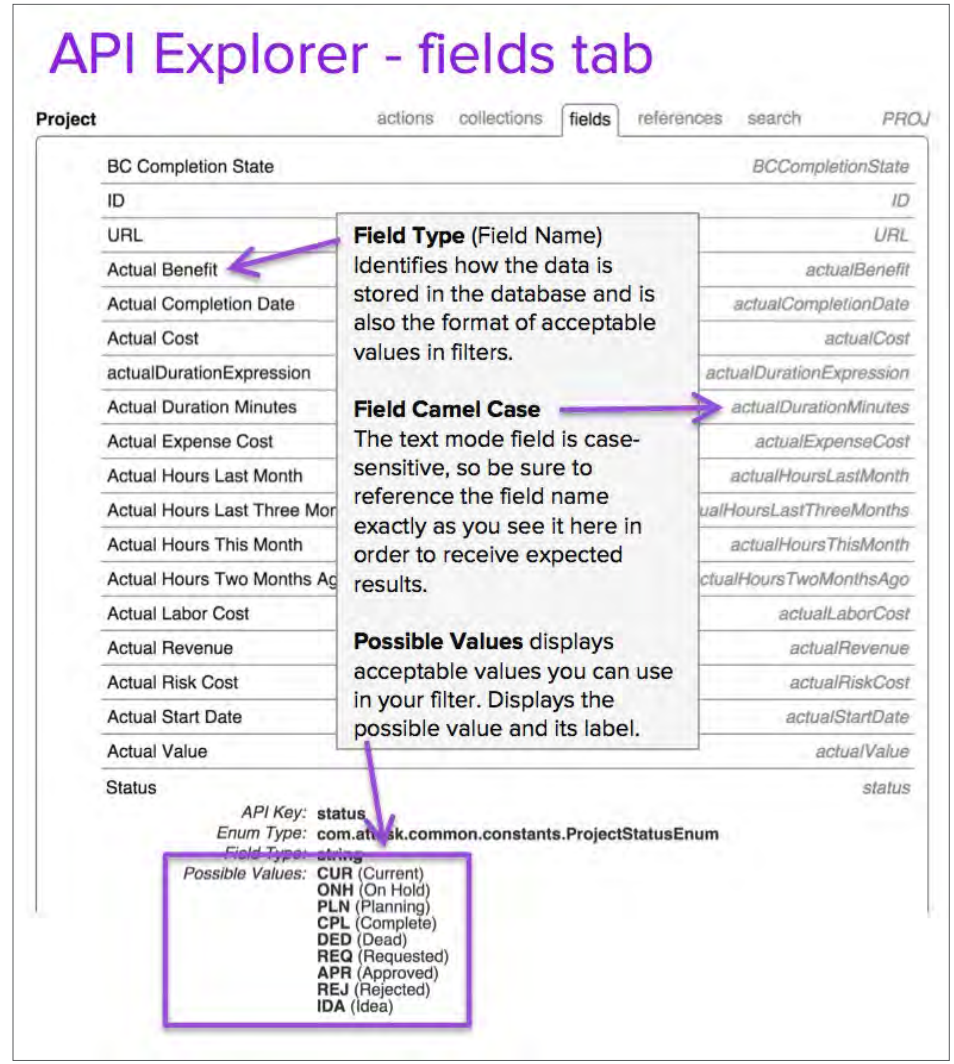
The image displays segments of the Task table taken from the API Explorer. To see more details about a field, click the name to open a display box. Clicking the name again closes it.

Fields
Each field in Workfront has an associated field label seen in the left column in the image. Notice each field has an associated field camel case (right column) that uses medial capitals.

The field camel case is what you will use in text mode, and it is case-sensitive. Be sure to reference the field correctly; otherwise, you will not receive the results you anticipate.

Field Type
The Field Data Type identifies how the data is stored in the database and the format of acceptable values in filters.

Possible Values
When applicable, this column displays the acceptable values you should use in your filter. Both a label and a value are provided.



Data Types

Data Types are used in the API Explorer. The following table provides some data type examples. These are also used in Text Mode.

ATTRIBUTE DATA TYPE	DESCRIPTION	EXAMPLE
INTEGER	A whole number	numberOfOpenIssues=1
BOOLEAN	A true or false value	isCritical=true
STRING	A word or phrase	name=Project XYZ
DOUBLE	A number that can use decimals	percentComplete=100.00
DATE	A calendar date	plannedCompletionDate=05/24/2010
BEAN	This references another searchable Workfront object with its own set of attributes.	enteredBy:lastName=Smith In this case, you may be using a task query. The enteredBy attribute references the user object. The lastName attribute of the user object is Smith.

Variation In Verbiage

When working with the API Explorer, notice that some field camel cases don't match the Field Labels.

This is true when working with Planned and Actual Hours in Workfront. These terms are referenced as workRequired. It is important that any time you are referencing these items in text mode, do so using workRequired and not Planned Hours.

The table indicates how these fields are viewed in the interface builder versus how they are viewed by the database.

When using the interface builder to establish a reporting element and then switching to text mode, Workfront recognizes the terms and adjusts the verbiage to assist in setting up queries.

FOUND IN INTERFACE BUILDER	FOUND IN DATABASE
Planned Hours	workRequired
Actual Hours	actualWorkRequired
Original Planned Hours	originalWorkRequired
Number of Open Issues	numberOpenOpTasks

Text Mode Structure and Syntax

The format of a text mode statement must be exact; otherwise, the results do not render. From a generic level, the syntax looks something like this:

field camel case=value

More specific examples are included in the table to the right. The examples here are related to the Task Field Source.

EXAMPLE
name=Task ABC
percentComplete=0
taskConstraint=ASAP
durationType=A

Using Text from the Course Book

This course book is full of great resources to assist in further developing your reporting needs. If formatting or expressions from the course book are copied directly into the Workfront interface, you should confirm that no additional spaces are present after statements or within the expression. This will result in breaking the format and will not return the expected results.

Watch the quotation marks
Furthermore, when writing text mode statements that include quotation marks, it is important to know that a straight double quotation mark (") is needed for the statement to work properly. Should statements be written and transferred to the text mode builder, please check to confirm that the quotations are in the desired format (") and not in a the standard slanted (“ or ”) format.

Using Text Mode

SCENARIO — Create a report to show all working tasks (tasks with no children).

1. From the Reporting area, create a new task report.
2. Click the Filters tab.
3. Select Switch to text mode.
4. Open a new window, navigate to the API Explorer, and find the Task table.
5. Locate the field camel case for Number of Children, copy it, and paste it into your text mode filter.
6. Add an equal sign and input the number zero (0).
7. Click the Save + Close button.
8. Name the report 'All Working Tasks'.

Using Text Mode (continued)

SCENARIO — Create a report that shows all tasks in the New status.

1. From the Reporting area, create a new task report.
2. Click the Filters tab.
3. Select Switch to text mode.
4. Open a new window, navigate to the API Explorer, and find the Task table.
5. Locate the field camel case for Status, copy it, and paste it into your text mode filter.
6. Add an equal sign.
7. Return to the task table in the API Explorer and under Possible Values find the New value. Copy and paste this after the equal sign in your text mode Filter.
8. Click the Save + Close button.
9. Name the report 'New Tasks'.

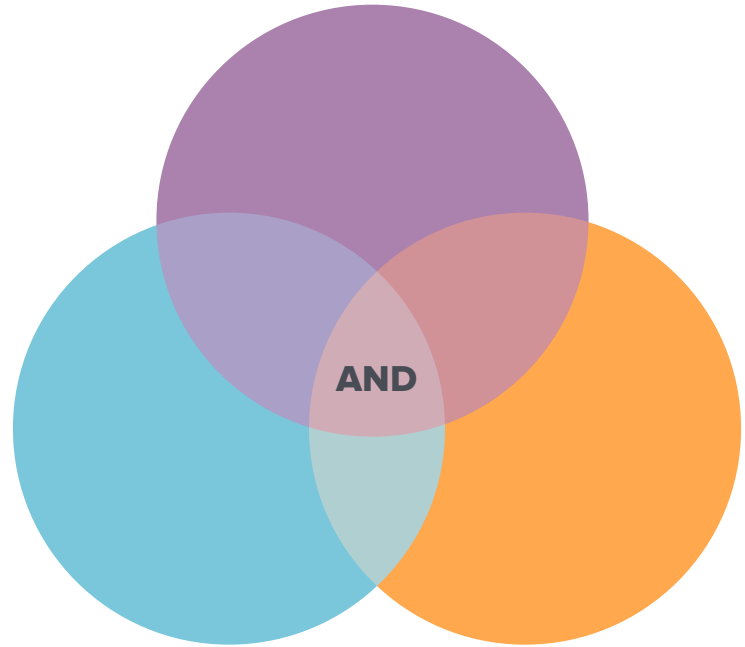
AND Statements

The AND option is usually employed to minimize the number of reports that have to be distributed to other users. For example, combine the filters used for the following reports:

- My Upcoming Tasks
- Unassigned Tasks in My Roles
- Late Tasks in Projects Owned By Me

The default behavior in the filter builder is to remove duplicate criteria that reference the same field. The AND statement in the text mode interface gives the ability to bypass the builder restrictions.

An AND statement provides the ability to combine all three filters or clauses from these reports into a single report displaying all tasks of interest. The diagram illustrates that an AND statement provides results from all three clauses.



With AND statements, only the portion where each clause intersects are returned on the results.

To identify a line as an AND clause in text mode add ‘AND:1:’ or ‘AND:2:’ and so on, to the beginning of a line that deviates from the base clause. The first clause does not require an AND prefix. You can add up to three AND statements.

Using AND Statements

SCENARIO — For this example, assume that you are interested in viewing all projects that contain several key words in the description, including:

- Technolog -y and -ies
- Industr -y and -ies
- Green

Create the AND Filter Described in the Scenario

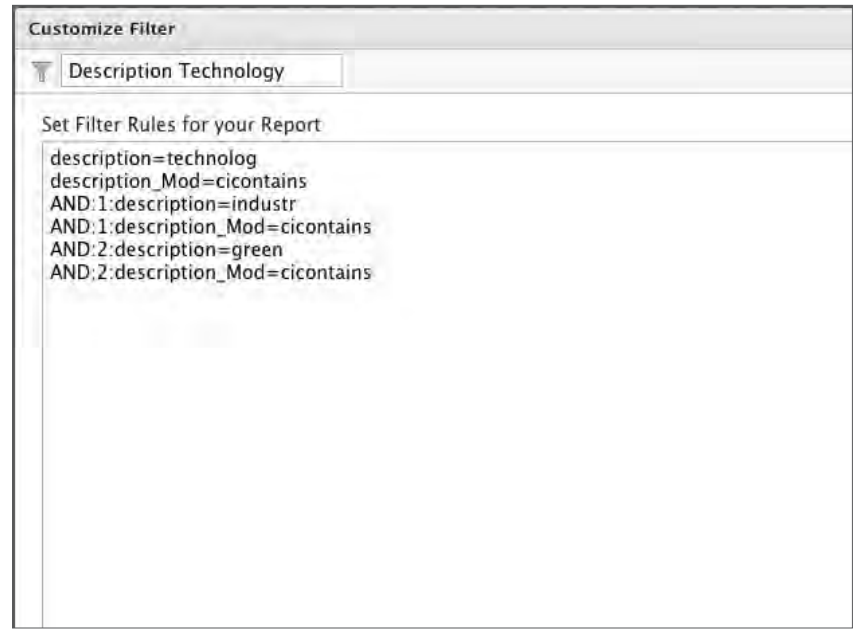
1. Create a new filter on a project. Name it 'Description Technology'.
2. Using the builder, enter Project >> description contains technolog.
3. Click Switch to text mode.
4. Copy the filter text and paste it twice.
5. In front of one of the copied conditions, insert AND:1: on both lines.
6. Change the criteria to industr.
7. In front of the other copied condition, insert AND:2 on both lines.
8. Change the criteria to green.
9. Save Filter.

Using AND Statements (continued)

The project's description must contain all three words. If it only contains two it does not return the desired results. These key words can appear in any order within the text and the AND statement returns results.

If you want the results to return the project name or the description containing any of the three words, then an OR statement is more appropriate.

The benefit of an AND statement is that it is somewhat easier to compose than a Like filter because you do not have to account for each possible sequence of words. However, it has some of the same limitations that an OR filter possesses. Namely, there is a limitation of four fields. This means that a field can be referenced up to four times when using AND statements.



Qualifiers

Users do not always search for a discrete value; rather, they search for a range of possible values. Within the interface they have the ability to use qualifiers such as greater than, less than, between, contains, etc.

To use a qualifier hit return and input the field label followed by '_Mod=' and the qualifier. For example, to search for tasks where the percentage complete is less than 50% you could use:

percentComplete=50
percentComplete_Mod=lt

The table displays the qualifier options, the text mode syntax to reference each modifier, and an example.

QUALIFIER	TEXT MODE SYNTAX	EXAMPLE
Equal	eq	hours=5 hours_Mod=eq
Not Equal	ne	hours=5 hours_Mod=ne
In	in	priority=1,2,3 priority_Mod=in
Not In	notin	priority=1,2,3 priority_Mod=notin
Between	between	workRequired=5 workRequired_Mod=between workRequired_Range=10
Not Between	notbetween	workRequired=5 workRequired_Mod=notbetween workRequired_Range=10
Less Than	lt	hours=5 hours_Mod=lt
Less Than/Equal	lte	hours=5 hours_Mod=lte
Greater Than	gt	hours=5 hours_Mod=gt
Greater Than/Equal	gte	hours=5 hours_Mod=gte

Text Attribute and Field Qualifiers

QUALIFIER	TEXT MODE SYNTAX	EXAMPLE
Contains	contains	name=Proj name_Mod=contains
Does Not Contain	notcontains	name=Proj name_Mod=notcontains
Equal	eq	name=Project XYZ name_Mod=eq or name=Project XYZ
Not Equal	ne	name=Project XYZ name_Mod=ne
Null	isnull	actualCompletionDate=0 actualCompletionDate_Mod=isnull
Not Null	notnull	actualCompletionDate=0 actualCompletionDate_Mod=notnull
Like	like	description=%important%meeting% description_Mod=like *or for single character replacement use a '?'* description=%important?meeting% description_Mod=like
In	in	status=CUR,PLN,APR status_Mod=in
Not In	notin	status=CUR,PLN,APR status_Mod=notin

Text Attribute and Field Qualifiers (continued)

QUALIFIER	TEXT MODE SYNTAX	EXAMPLE
Blank	isblank	actualCompletionDate=0 actualCompletionDate_Mod=isblank
Not Blank	notblank	actualCompletionDate=0 actualCompletionDate_Mod=notblank
Sounds Like	soundex	name=their name_Mod=soundex This is the same as searching for their, there, they're, and several other similar words.
Contains (case insensitive)	cicontains	name=Proj name_Mod=cicontains
Does Not Contain (case insensitive)	cinotcontains	name=Proj name_Mod=cinotcontains
Equal (case insensitive)	cieq	name=project xyz name_Mod=cieq
Not Equal (case insensitive)	cine	name=project xyz name_Mod=cine

Using Qualifiers

SCENARIO — Create a report to show tasks with more than 10 Actual Hours reported on them.

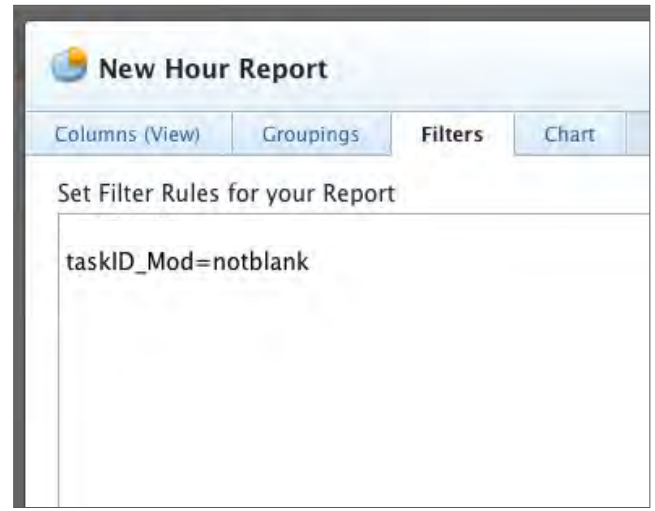
1. From the Reporting area, create a Task Report.
2. Click the Filters tab. Switch to text mode.
3. Go to the API Explorer, and find the task table.
4. Find the field camel case for Actual Hours on a task.
5. Copy/paste or input the field camel case into your text mode filter. Add =600.
6. Add the qualifier for 'greater than'.
7. Go to the Columns tab and select Work Breakdown from Apply an Existing View.
8. Click the Save + Close button. Name the report 'Tasks with Actual Hours gt 10'.

NOTE
The Work Breakdown view shows actual hours. Actual Hours has a field camel case of actualWorkRequired and Planned Hours has a field camel case of workRequired. Both these values are stored in minutes.

Using Qualifiers (continued)

SCENARIO — Create a report to show all hour entries that belong to tasks.

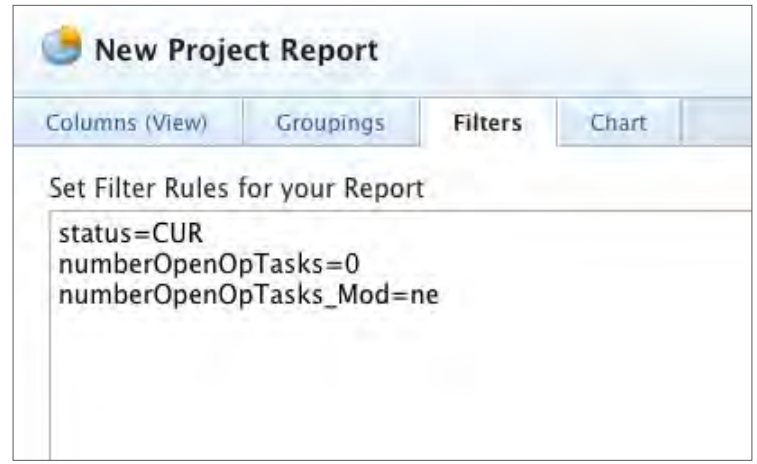
1. From the Reporting Area menu, create an Hour Report.
2. Click the Filters tab; switch to text mode.
3. Go to the API Explorer, and find the Hour table.
4. Find the field camel case for Task ID.
5. Copy/paste or input the field camel case, add+Mod=, and then add the notblank qualifier in the text mode filter.
6. Click the Save + Close button. Name the report Hours Belonging to Tasks.



Using Qualifiers (continued)

SCENARIO — Create a report to show current projects that have open issues.

1. From the Reporting Area menu, create a Project Report.
2. Click on the Filters tab; switch to text mode.
3. Go to the API Explorer and find the Project table. Find the field camel case and valid values for Current status.
4. Find the field camel case to identify projects with issues (Hint: Issues are referred to as opTasks when creating filters, views, and groupings).
5. Copy/paste or input the values you need for your search into your text mode filter.
6. Click the Save + Close button. Name the report 'Current Projects With Open Issues'.



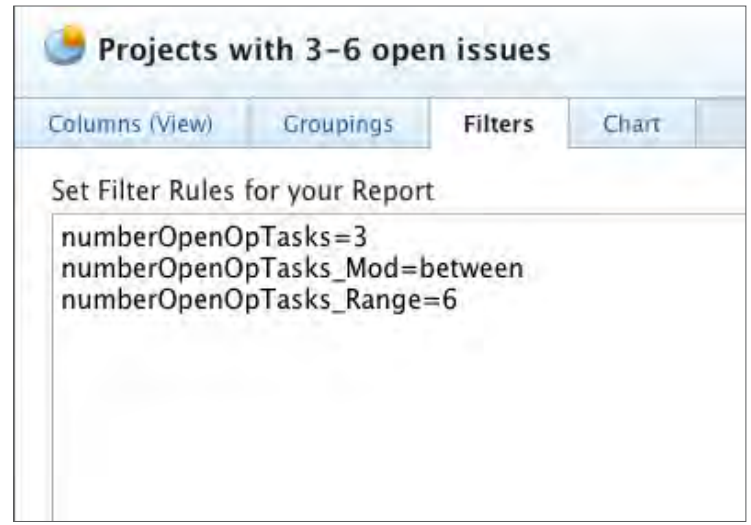
Using Qualifiers (continued)

SCENARIO — Create a report to show projects that have between 3 and 6 open issues.

1. From the Reporting Area menu, create a new Project Report.
2. From the Columns tab, click on + Add Column. Set up this column to show Number of Open Issues.
3. Click on the Filters tab. Switch to text mode.
4. Go to the API Explorer and find the Project table.
5. Find the field camel case for Number of Open Issues. Copy/paste or input the field camel case into your text mode filter. Add =3. This specifies one end of your range.
6. Add the qualifier between.
7. Now add _Range to your field camel case and add =6 after it. This specifies the other end of your range. Your text mode code should look like this:

   numberOpenOpTasks=3
   numberOpenOpTasks_Mod=between
   numberOpenOpTasks_Range=6

8. Click Done to save your text mode code.
9. Click the Save + Close button. Name the report 'Projects with 3 to 6 Open Issues.'



Date-Based Wildcards

Date wildcards can be combined with the attribute ‘q’, ‘h’, ‘d’, ‘w’, ‘m’, and ‘y’ for calendar quarter, hour, day, week, month, year respectively.

The modifier ‘b’ and ‘e’ stand for ‘beginning’ and ‘ending’ respectively.

The operators ‘+’ and ‘-’ are used to add or subtract values from the wildcard value.

Example
The wildcard, $$TODAYb+2w is the same as saying, ‘Two weeks from the beginning of this week’. The wildcard $$NOW+2h is the same as saying ‘two hours from now’.

There are several built-in date wildcards like ‘This Quarter’ or ‘Next Week’ available to use in a filter as well.

There are several date filters built in Workfront that incorporate wildcards for the user’s convenience.

However, you may find the need to build upon those foundations to gather information for your reports.

DATE-BASED WILDCARD	DESCRIPTION
$$NOW	This wildcard looks at the date and time as of right now. This option is used in combination with any date filter attribute. For example, if you want to display all hour entries provided up to the current time, you can do this by using the following expression: Planned Start Date < $$NOW. This is preferred over defining a filter and using the actual current date and time. That way each time the filter runs, you won’t have to modify it. $$NOW is equal the current date and time.
$$TODAY	This wildcard looks at the date and time as of midnight today. This option can be used in combination with any date filter attribute. For example, if you want to display all tasks due before today, you could use the following expression: Planned Start Date < $$TODAY. This is preferable to defining a filter with today’s date so you will not have to modify the filter again tomorrow, next week, or next month. $$TODAY is always equal to midnight for the current day.

User-Based Wildcard Filter Variables

You can also use wildcards in text mode statements.

USER-BASED WILDCARD	DESCRIPTION
$$USER.ID	$$USER.ID is a variable equal to the logged-in user's ID. This is the ID used to identify work assignments and who created each object. Therefore, it is the variable used on the My reports, such as My Tasks, My Projects, My Hours, etc. This wildcard option decreases the number of reports an Implementation Manager needs to create because the same report can be used for several users and the results change based on the logged in user's ID.
$$USER.name	The $$USER.name variable allows you to do name matches in a filter. It provides the logged-in user's full name (first name + last name). This is not the logged in user's username.
$$USER.homeGroupID	The $$USER.homeGroupID variable identifies the logged-in user's home group ID. This is used primarily for group managers who want to see only objects related to their home group. For example, a manager may want to see all incomplete tasks on projects in his group: Project: Home Group ID = $$USER.homeGroupID Percent Complete < 100. Or a manager may want to see all incomplete tasks assigned to individuals in their group: Assigned To: Home Group ID = $$USER.homeGroupID Percent Complete < 100.

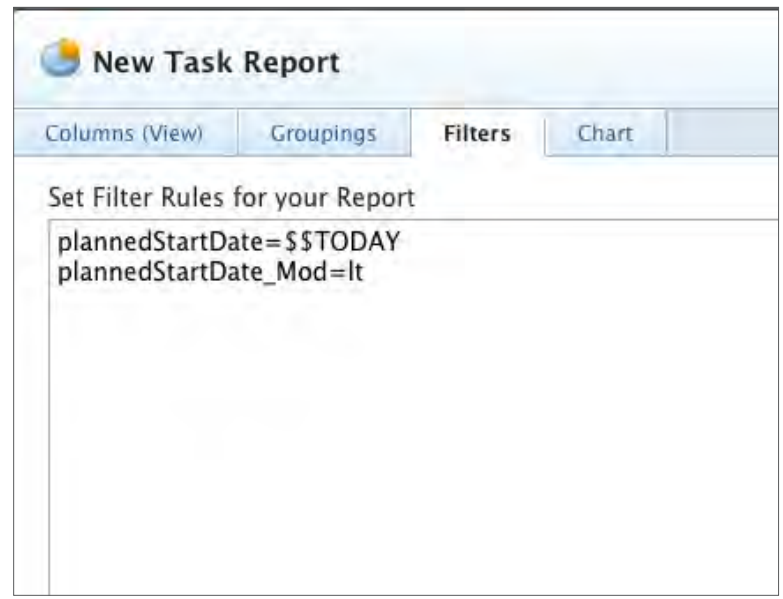
User-Based Wildcard Filter Variables (continued)

USER-BASED VARIABLES	DESCRIPTION
$$USER.categoryID	The $$USER.categoryID variable identifies the custom data category associated with the logged in user's profile and returns the ID number of the category.
$$USER.accessLevelID	The $$USER.accessLevelID variable identifies the access level associated with the logged in user's profile and returns the ID number of the access level.
$$USER.companyID	The $$USER.companyID variable identifies the company associated with the logged-in user's profile and returns the ID number of the company.
$$USER.customerID	The $$USER.customerID variable identifies the customer account ID associated with your environment. This variable is unique because it is typically only used when building integrations through the API.
$$USER.otherGroupIDs	The $$USER.otherGroupIDs variable returns an array of all of the group's ID values associated with the logged-in user's profile. The use cases for this variable are similar to the $$USER.homeGroupID option, except the results would only display work across all groups the manager belongs to.
$$USER.roleID	The $$USER.roleID variable returns the logged in user's default role assignment. This allows you to report on tasks or issues assigned to a default job role. $$USER.roleIDs provides an array of the logged-in user's role assignments, allowing you to create filters that return results associated with all of the logged-in user's role associations. If a user has job roles defined beyond his/her default job role, this variable returns the values of those additional roles. You can use those values to find all of the logged-in user's role associations.
$$USER.roleIDs	If a user has job roles defined beyond his/her default job role, this variable returns the values of those additional roles. You can use those values to find all of the logged in user's role associations.

Date-Based Wildcards

SCENARIO — Create a report to show tasks with a Planned Start Date earlier than today.

1. From the Reporting Area menu, create a Task Report.
2. Click the Filters tab, switch to text mode.
3. Go to the API Explorer and find the Task table. Find the field camel case for planned start date.
4. Copy/paste or input the field camel case into your text mode filter; use the $$TODAY wildcard and a Less Than qualifier.
5. Click the Save + Close button. Name the report 'Tasks Starting Before Today'.



Sometimes you need to search for numeric values and dates based on a range of values. This can be done by substituting the '_Mod' with '_Range' to specify a second value. For example, you might search for all tasks with a planned completion date between January 1, 2012, and February 28, 2012. This can be done using the following statement:

plannedCompletionDate=01/01/2012
plannedCompletionDate_Range=02/28/2012

Instead of using fixed dates to show tasks between January 1, 20XX, and February 28, 20XX, it may be more beneficial to display tasks through a wildcard range. The statement to display the tasks due to start in the this quarter may look like this:

plannedStartDate=$$TODAYbq
plannedStartDate_Range=$$TODAYeq

User-Based Wildcards

SCENARIO — Create a report to show tasks assigned to one of the job roles belonging to the logged-in user.

1. From the Reporting area, create a Task report.
2. Click the Filters tab; switch to text mode.
3. Go to the API Explorer and find the Task table. Find the field camel case for Role ID.
4. Copy/paste or input the field camel case into your text mode filter; use the $$USER.roleIDs wildcard and the appropriate qualifier.
5. Click the Save + Close button. Name the report 'Tasks Assigned in My Roles'.

NOTE
This report shows all unassigned tasks associated with one of the logged in users Primary and Other job roles.

Referencing Related Objects

The text mode field allows you to search for fields not available in the builder. Text mode extends your filter criteria to access relationships through the References section of the API Explorer. This enables users to filter on more criteria than the builder interface allows. Keep in mind that when referencing other object types in Workfront, you can reference only one other table on a filter. Views and groupings allow you to reference more object tables, but depending on the table you start from, you are limited as to the number of references you can make.

To use a relationship, reference the object as identified in the API Explorer followed by a colon (:).

The following example produces results based on both task and project criteria in a task report.

```
percentComplete=100
percentComplete_Mod=lt
project:status=CUR,PLN
project:status_Mod=in
project:plannedCompletionDate=$$TODAY
project:plannedCompletionDate_Mod=lte
```

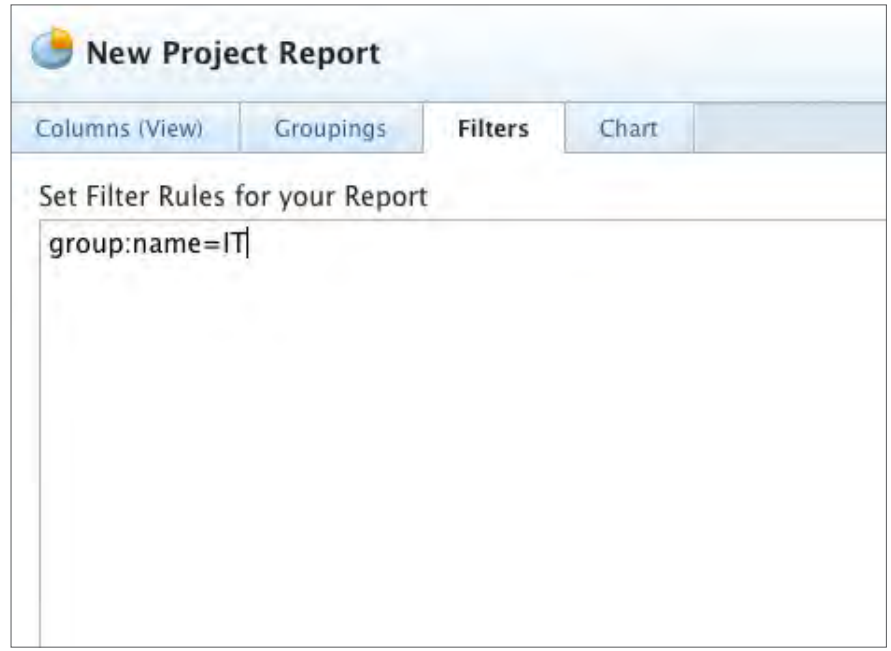
NOTE

It is permissible to filter on several attributes or field labels in a single text mode filter. In this case, each line break is treated as an AND condition, meaning all the conditions must be met for an item to be included in the results.

Referencing Related Objects (continued)

SCENARIO — Create a report to show projects in the IT group.

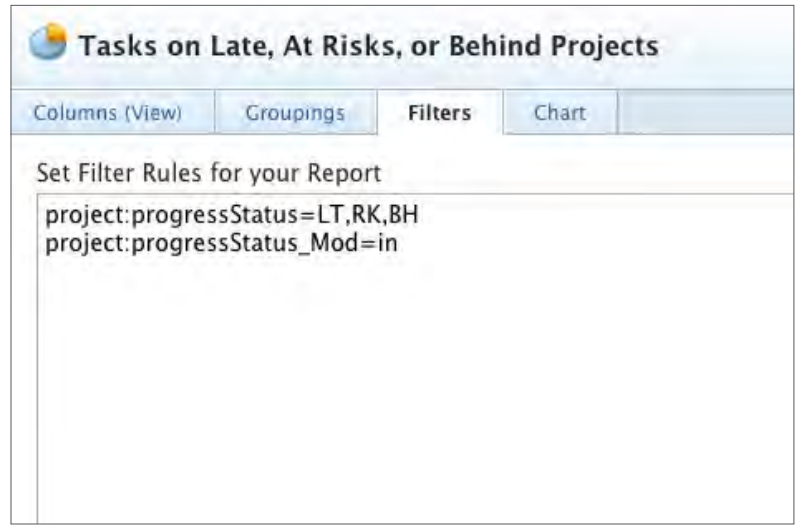
1. From the Reporting area, create a Project Report.
2. Click the Filters tab.
3. Switch to text mode.
4. Go to the API Explorer and find the Project table. Find the reference name for Group from the References tab and copy it.
5. Click the link to the Group table and find the Name field.
6. Copy/paste or input the reference name and field camel case into your text mode filter.
7. Your statement should be group:name=IT
8. Click the Save + Close button. Name the report 'Projects in the IT Group'.



Referencing Related Objects (continued)

SCENARIO — Create a report to show tasks where the project progress status is Late, At Risk, or Behind.

1. From the Reporting area, create a task report.
2. Click the Filters tab. Switch to text mode.
3. Go to the API Explorer and find the Task table. Find and copy the reference name for Project from the reference tab.
4. From the Project table, find the Progress Status field label and make note of the available values for Progress Status.
5. Copy/paste or input the reference name, field camel case, and possible values into your text mode filter.
6. Your statement should be:
   project:progressStatus=LT,RK,BH
   project:progressStatus_Mod=in
7. Click the Save + Close button. Name the report 'Tasks on Late, At Risk, or Behind Projects'.



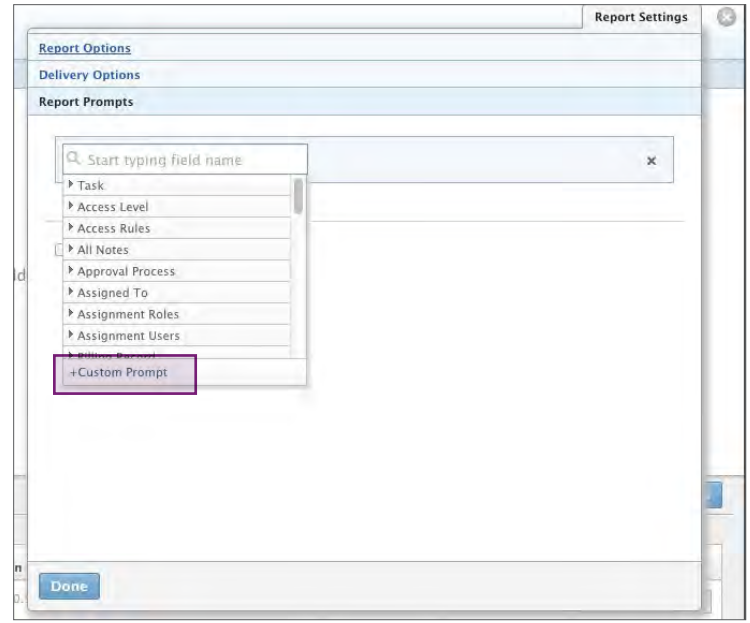
Custom Prompts

Utilize text mode syntax when building prompts on a report to build custom drop-down fields. The custom filter drop-down menu on the prompt screen allows for multiple conditions to be applied in a single field.

The last option in the Report Settings drop-down menu is Custom Prompts. The Custom Prompts option defines a custom list of drop-down menu prompts for the report.

The options that appear in the Prompts screen are defined in the drop-down menu Item Label field, and the logic behind each label is input into the Condition field.

NOTE
The condition for each option is written in text mode syntax. Instead of hard returns in the text-box, identify line breaks using an ampersand (&).



Custom Prompts (continued)

SCENARIO — Create a task report custom drop-down menu prompt that will allow the user to just see tasks on:

- All Future Projects
- All Late Projects
- Projects Due This Month
- Projects Due Next Month

For each of these options we assume the projects are in the Idea, Requested, Planning, or Current statuses.

1. From the Reporting area, create a task report.
2. Select Report Settings > Report Options in the upper-right corner.
3. Select the Add a Prompt button and Custom Prompt from the bottom of the options list.
4. In the Field Name box located on the right, enter the name Quick Filters.
5. In the Item Label field put the name of each prompt label, and include the text mode describing the condition to be executed for that prompt in the corresponding condition field.
6. Click the Save + Close button. Name the report 'Tasks with Custom Prompt.'

LABEL	CONDITION
All Future Projects	project:plannedStartDate=$$TODAY& project:plannedStartDate_Mod=gte& project:status=IDA,REQ,PLN,CUR&project:status_Mod=in
All Late Projects	project:plannedCompletionDate=$$TODAY& project:plannedCompletionDate_Mod=lt& project:status=IDA,REQ,PLN,CUR&project:status_Mod=in
Projects Due This Month	project:plannedCompletionDate=$$TODAYbm&project: plannedCompletionDate_Range=$$TODAYem&project:status= IDA,REQ,PLN,CUR&project:status_Mod=in
Projects Due Next Month	project:plannedCompletionDate=$$TODAYb+1m&project: plannedCompletionDate_Range=$$TODAYe+1m&project:status= IDA,REQ,PLN,CUR&project:status_Mod=in

CHAPTER 3

ADVANCED VIEWS

OBJECTIVES

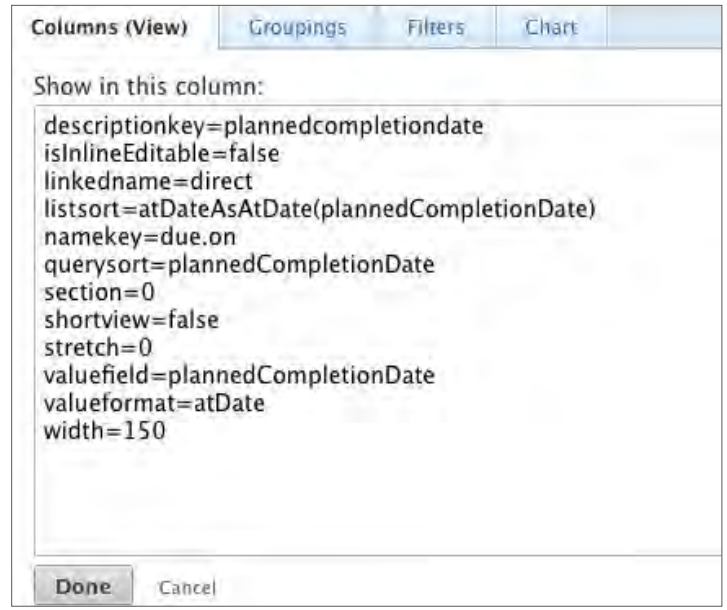
After completing this chapter, you will be able to:

- Understand the basic structure of text views
- Create shared columns
- Reference related objects
- Utilize calculated custom data
- Add calculated columns

Anatomy of a Text View

Views can also use text mode to create columns not otherwise available through the builder interface.

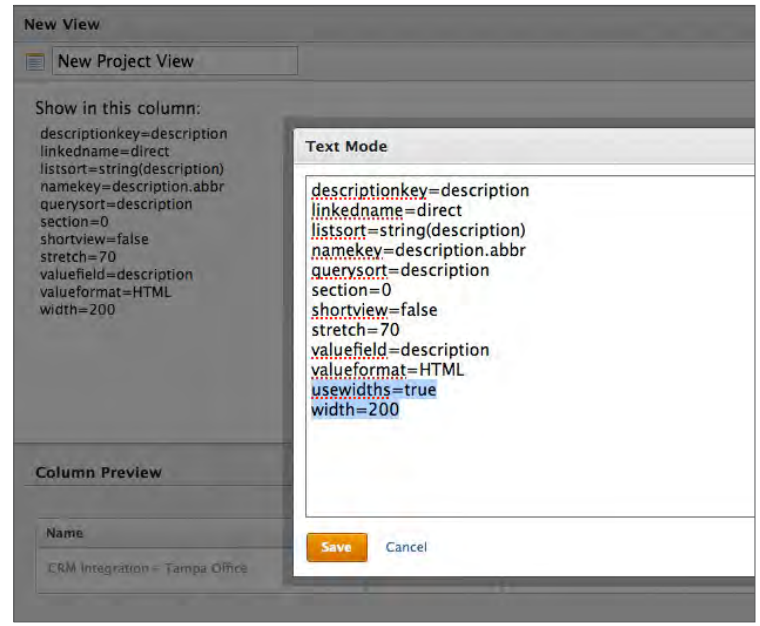
It is strongly recommended building as much of the view in the builder interface as possible, then convert the view to text to edit the view's column's definitions. Even the most experienced Workfront consultants and developers do not build a view directly in the text mode interface.



Adjusting Column Widths

The browser automatically adjusts column widths on lists based on content. Widths are manually set by going to any column in text mode and adding the text usewidths=true. You only need to enter usewidths=true in one column. This allows you to adjust the width of all columns that follow.

The defined widths on each column will then be honored. But be aware, if you go this route, you need to define the width on each column. If columns are defined outside of the available 1500 pixels they do not render. However, a scroll bar appears to assist with large columns.



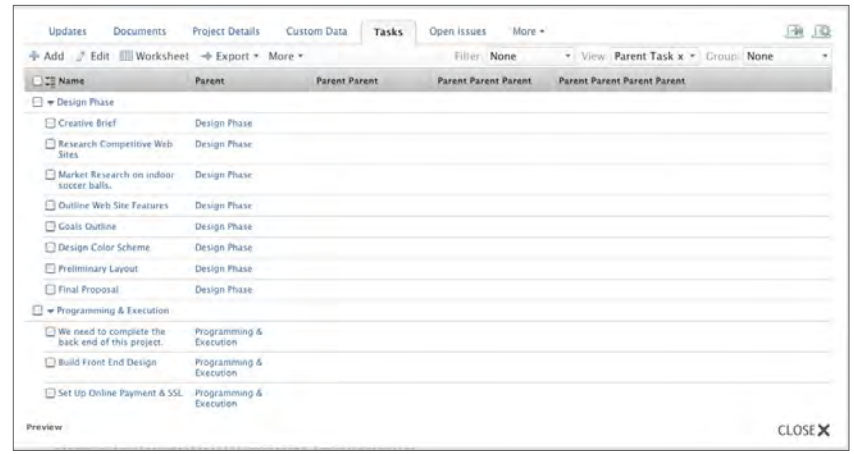
Essential Components of a Column View

SAMPLE LINE	DESCRIPTION
descriptionkey= - or - description=	This line defines the text of a tool tip as you hover over the name of the column. In this case it is using a key to translate the name value in the description text. If you want to modify the description, change this line to read: description=Your Value
namekey= - or - name=	This line defines the column label. In this case it is using the abbreviated value based on the key. If you want to modify the column name, change this value to: name=Your Value - or - Add the following line, which suspends the namekey: displayname=Your Value 'name=' allows you to enter whatever text you want for the column name, while 'namekey=' requires you enter a key that is used to translate the name of a column.
querysort=	This line defines how the results are sorted when the column header is clicked. If it is not present then the column cannot be sorted after the report is run.
valuefield=	This line represents the text displayed in the results under the column header. The attribute input for the valuefield is the same used in a filter statement.
valueformat=	This line represents the format used to display the text, number, or date.
name=	This is the field pulled from the database and displayed in the results of a search list or report.

Using Custom Reporting Elements

SCENARIO — Incorporate the Parent Task x 4 view on a task report.

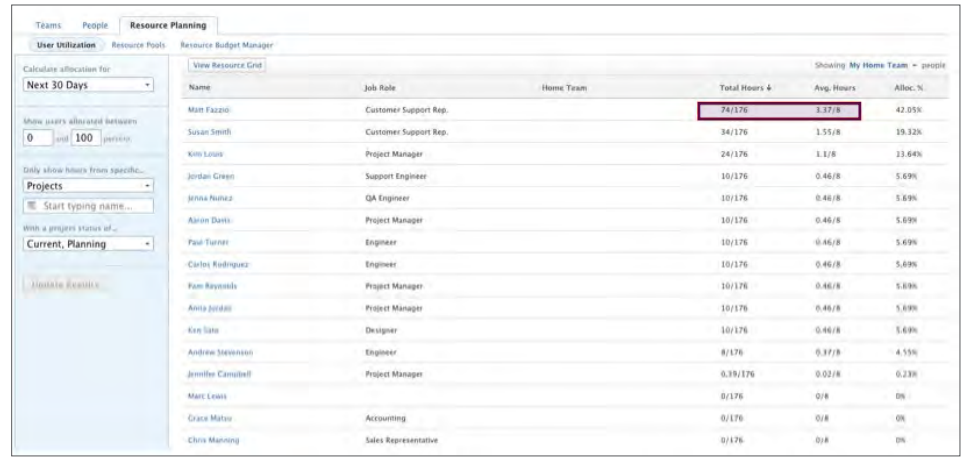
1. Go to the Custom Report Elements section of the Workfront Community Website (https://community.attask.com/custom-report-elements).
2. Select the View Element type and the Task Object type.
3. Find the Parent Task x 4 view. Open the view.
4. Select and copy the view definition listed below the Text Mode Code label.
5. Go to the Workfront view menu in the report header on the My Tasks report.
6. Select New View and call the view Parent Task x 4.
7. In the preview area, click the name of the first column.
8. Switch to text mode and delete the current text in the box.
9. Paste the text from your clipboard into the text area.
10. Click Done to save the text mode code.
11. Click Save View button when done.



Shared Columns

The shared column is a view attribute that allows for the combination of multiple data points under the same column header.

This section shows examples of how this is used in views provided in Workfront and demonstrates how to build shared column views.



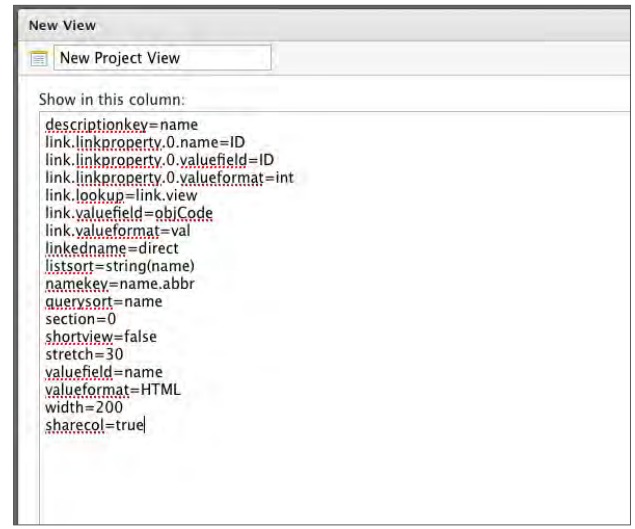
Shared Columns (continued)

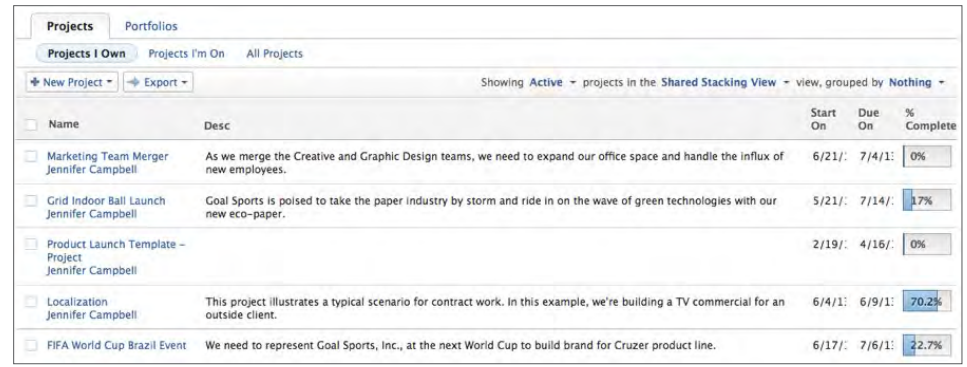
SCENARIO — Create a view that shows the name of the project and the owner in the same column. The information should display stacked.

1. Navigate to the Projects area and locate the view drop-down menu.
2. Click New View.
3. In the view builder create a new column. Without selecting any value for the column, drag it and place it between the Name and the Owner columns. This placeholder column is used to stack the values.
4. Switch to text mode in this blank column and insert the following lines of code:

   value=
   valueformat=HTML
   width=1
   sharecol=true

   This code shares our blank column with the Owner column to the right. It also inserts a <br> code as a line break for stacking.
5. Click Done.
6. Next, select the Name column and then Switch to text mode.
7. At the bottom of the text mode code, enter sharecol=true.





Shared Columns (continued)

SCENARIO — Create a task report with a shared column that includes the task name and assigned to name.

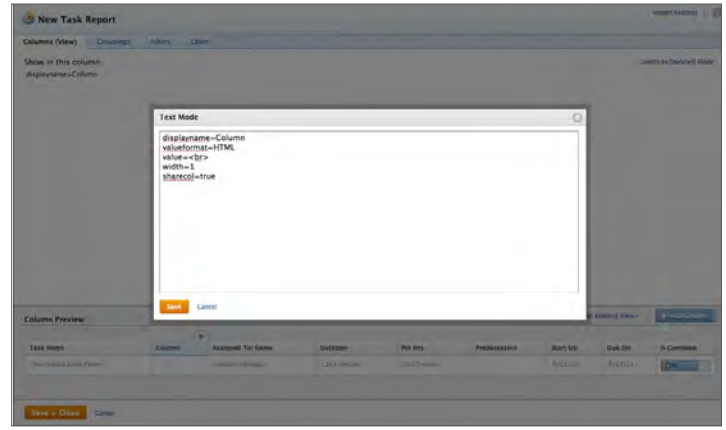
1. Navigate to the Reporting area and create a Task Report.
2. Change the Assignments column to Assigned To Name.
3. Insert a blank column, and drag it in between the Task Name and Assigned To Name columns.
4. Convert the blank column to text mode and insert the following lines:

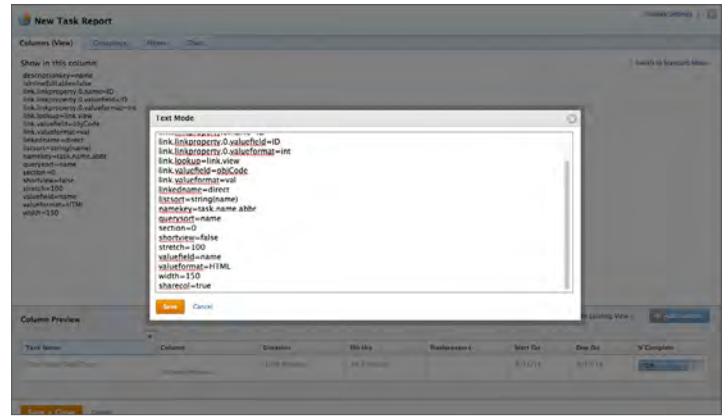
   value=
   valueformat=HTML
   width=1
   sharecol=true

5. Click the Task Name column and Switch to text mode. Insert a new line with the following:

   sharecol=true

6. Save and Close.





Cross-Object References

Cross-Object References allow for the expanding of views through text mode.

One question that may be presented is, “Why can’t we find all related fields mapped out in the View Builder?” This is because the builder contains most of the primary relationships, but if everything was mapped, the builder would be cluttered. This is where the text mode interface comes in to play.

Remember, the API Explorer is a great tool for referencing and locating related fields. It contains a list of fields for each object and the relationships between them, which can be used when inputting the view fields. For example, the fields section of the API Explorer contains object tables of all listed fields and their associated camel case values. You can then use the References tab on any of these tables to refer to fields in other object types to expand what you see in your report. Keep in mind that when referencing other object types in Workfront, you can reference only one other table on a filter. Views and groupings allow you to reference more object tables, but depending on the table you start from, you are limited as to the number of references you can make.

When referencing fields from other tables, you should create the view in the standard builder interface first to get as close as possible to the intended outcome and then make adjustments for your references. To do this, insert placeholder columns where you want to include data that cannot be accessed through the builder.

Cross-Object References

SCENARIO — Create a Project Report that includes a column showing the name of the Project Owner's Manager.

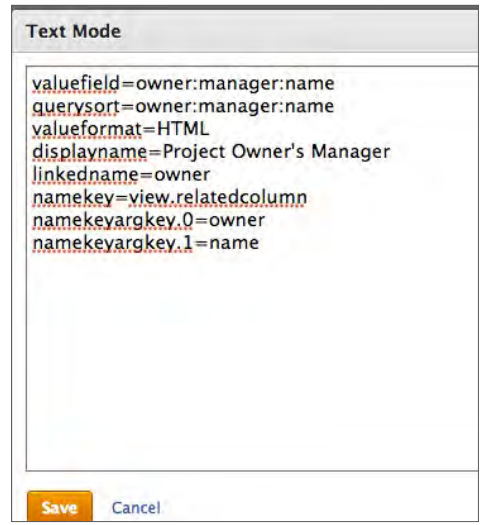
1. In the Reporting area create a new Project report.
2. Add the Project Name column as a placeholder and Switch to text mode.
3. Navigate to the API Explorer site in a separate browser tab and search for the Project table. Click on the References tab to refer to other tables.
4. In text mode on your Project Name column, change the following lines from this:

   valuefield=project:name
   querysort=project:name
   displayname=

   To this:

   valuefield=owner:manager:name
   querysort=owner:manager:name
   displayname=Project Owner's Manager

5. Save and close. Name the report 'Project Owner's Manager'.



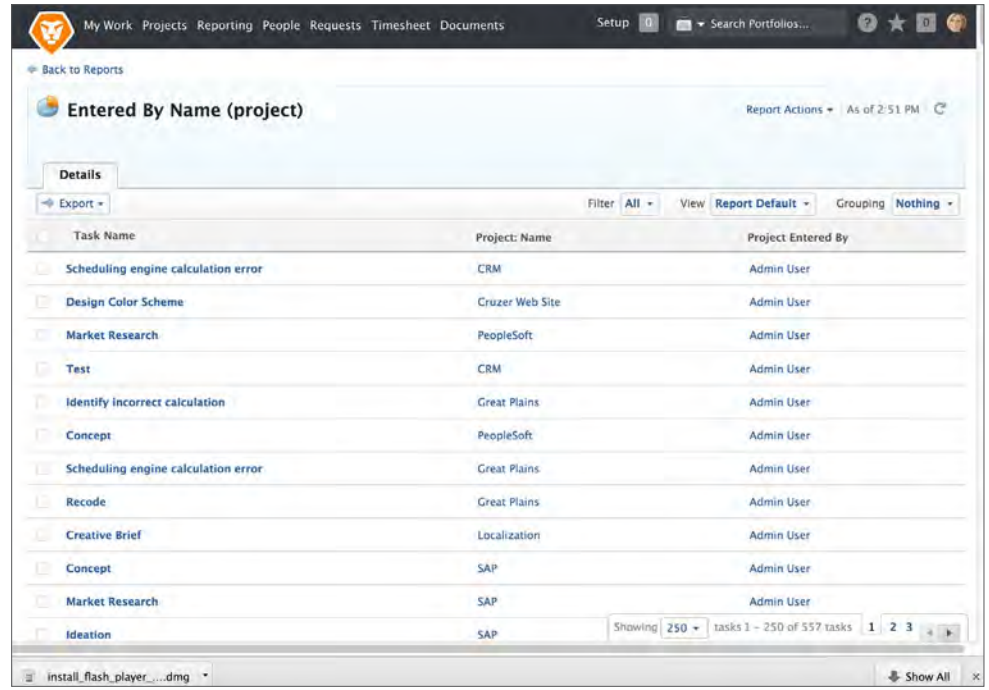
Cross-Object References (continued)

From a task view, it is not currently possible to see who it was that entered the project the task was on. By going into text mode you can pull that information into the view through the bean relationships described in the API Explorer.

SCENARIO — Create a Task Report that displays the:

- Task: Name
- Project: Name
- Entered By: Name

1. Create a Task Report.
2. In the Column Preview area, click the second column tab.
3. Change the selection for column 2 to Project > Name.
4. Delete columns 4-8 and select column 3. Change the selection to Project > Name. This becomes a placeholder column.
5. Switch to text mode for column 3.

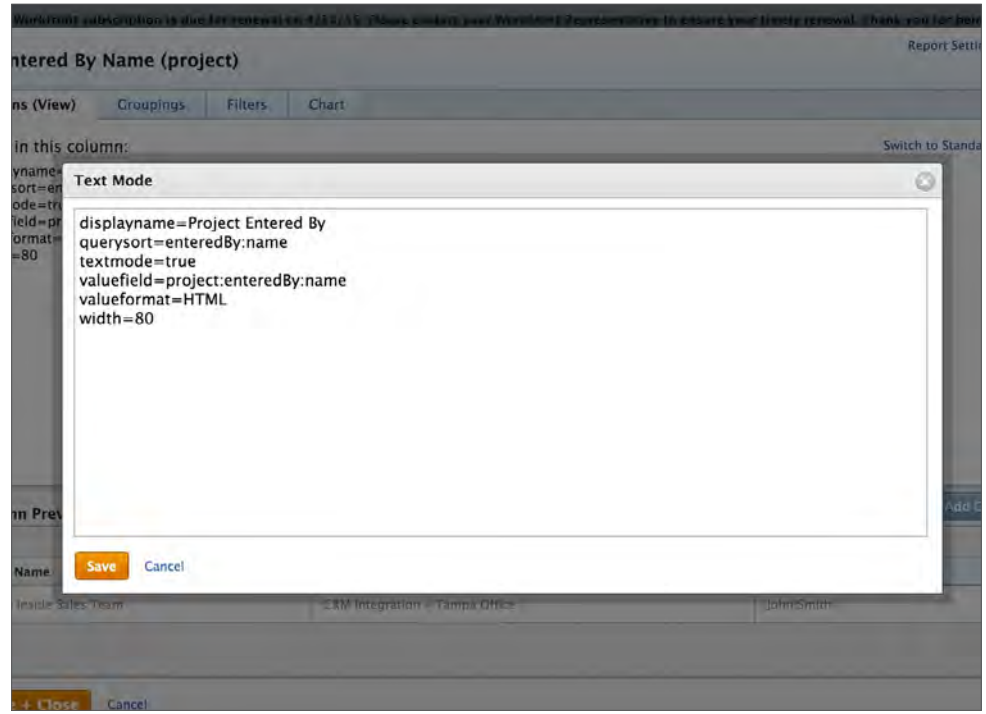


Cross-Object References (continued)

6. Change the following lines in the text mode to this:

   displayname=Project Entered By
   querysort=project:enteredBy:name
   valuefield=project:enteredBy:name

7. Click the Done button to save the text mode code for the column. Click Save + Close. Name the report 'Entered by Name (project).'



Naming Columns

Instead of using the keys (name, description etc.), you can remove the word key from the line and type whatever you want following the equal sign. Alternatively, you may consider adding the displayname line, which is always used instead of the namekey.

When you change namekey= to name= the value provided is not translated. But if you include an additional line of displayname= the value translation remains in tact.

Use key or displayname, the value you provide is not translated into other Workfront-supported languages.

Using Custom Data in a View

Custom Forms allow fields and information to be added to Workfront. A System Administrator can access and modify the custom field area by gong to Setup › Custom Forms

Create a New Custom Form

1. Go to the Setup area and click Custom Forms. Then click New Custom Form.
2. Select the object type where the custom form will be applied.
3. Select existing custom fields to add to your form, or create and add a new field from the form builder.
4. Click Save when finished

It is possible to include custom fields in reports. Custom Forms can also be referenced or included in filters and groupings.

When building a view, select a field specific to the object type to display. The Field Name displays all mapped fields in the search box for the selected Field Source. For example, use the field camel case numberOfChildren to identify a task as a parent task.

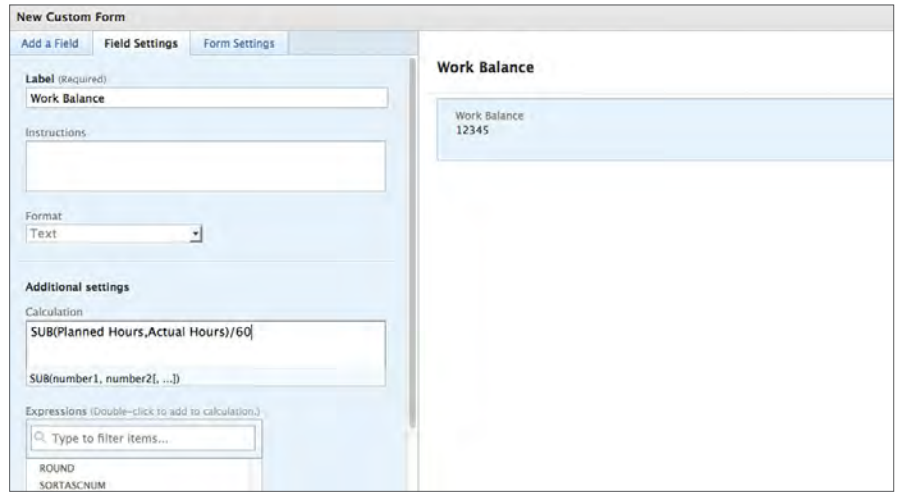
In addition to the built-in fields, the search box displays the available custom data fields that have been associated with the selected object.

Calculated Custom Data

Workfront lets you take existing fields and plug them into another field. These are known as Calculated Field Expressions and are for creating numeric-based, date-based, and text-based formulas.

You may recognize many of the available options often used in spreadsheets. Some of these scenarios involve using CONCAT (). This can be used in both a valueexpression and a calculated custom data expression.

SCENARIO — You want to supplement the core fields provided in Workfront with a calculated field that displays the balance of work remaining based on the hours input on a project.

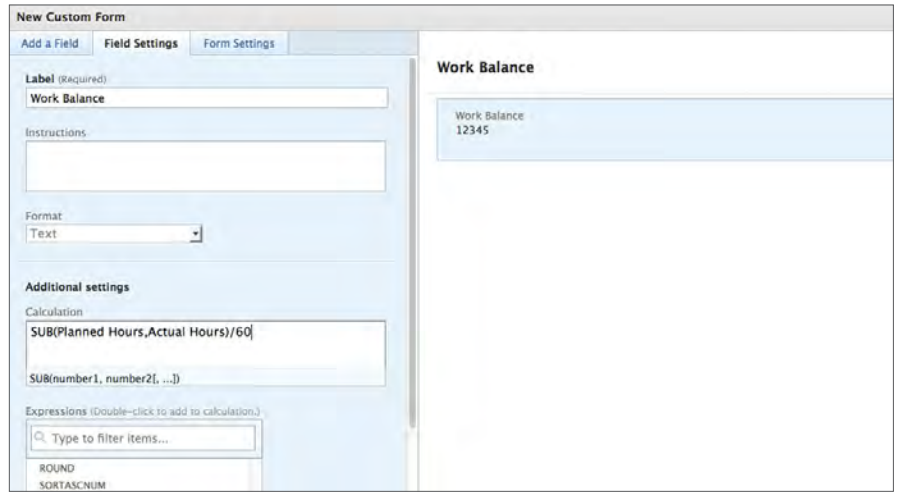


1. From the Setup area menu, click Custom Forms.
2. Select the project object type on the new Custom Form.
3. Add a new calculated field named Work Balance.
4. Double click on SUB in the Expressions box to begin your calculation.
5. Select Planned Hours from the Fields box to add it to the Calculation box. Make sure it appears before the comma.

Calculated Custom Data (continued)

6. Add Actual Hours from the Fields box after the comma. Divide your formula by 60 to convert the result to hours. Remember, time in Workfront is stored in minutes. Your calculation should look like this:
   SUB(Planned Hours,Actual Hours)/60

7. In Form Settings, name the form 'Project Info' and click the Save + Close button



Calculated Custom Data (continued)

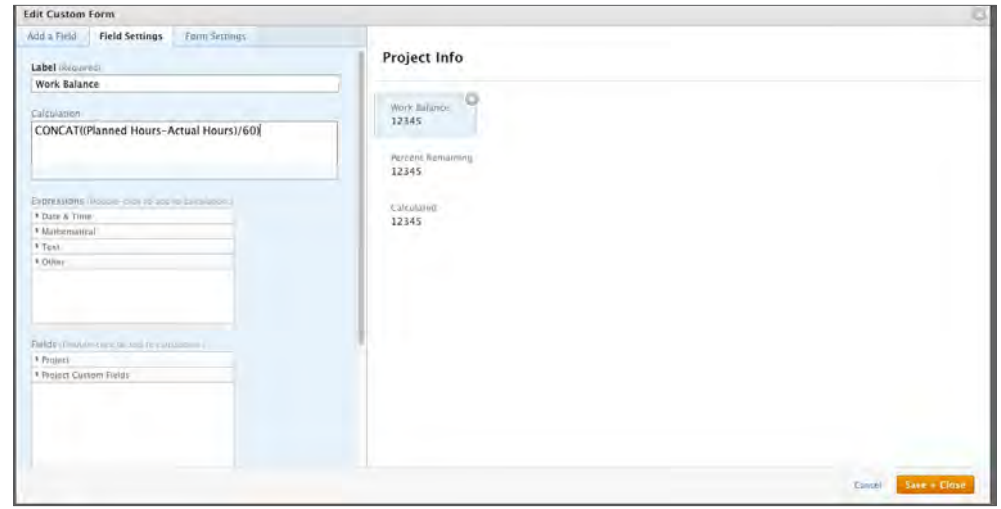
SCENARIO — Modify the Work Balance field to use the CONCAT() function to display the word 'Hours' after the number that is produced.

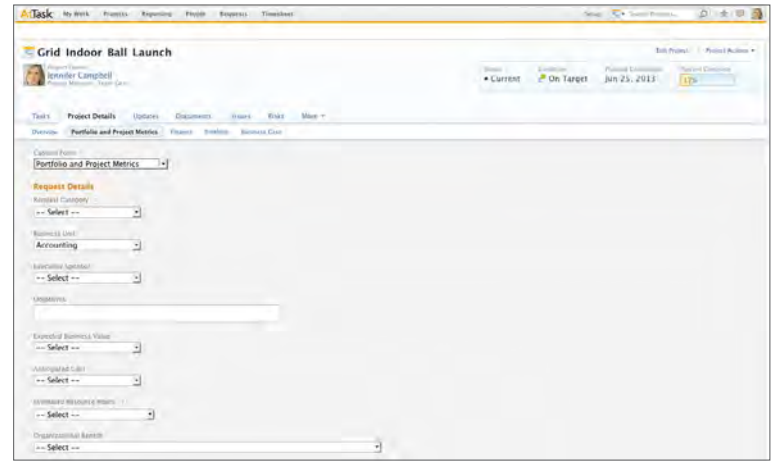
1. Open the Project Info form and click on the Work Balance box in the preview area.

2. At the beginning of the calculation, input CONCAT(.

3. At the end of the calculation, input ," Hours"), which will append the word 'Hours' to the initial calculation and close the CONCAT() expression. Your calculation should look like this:

   CONCAT((Planned Hours-Actual Hours)/60," Hours")

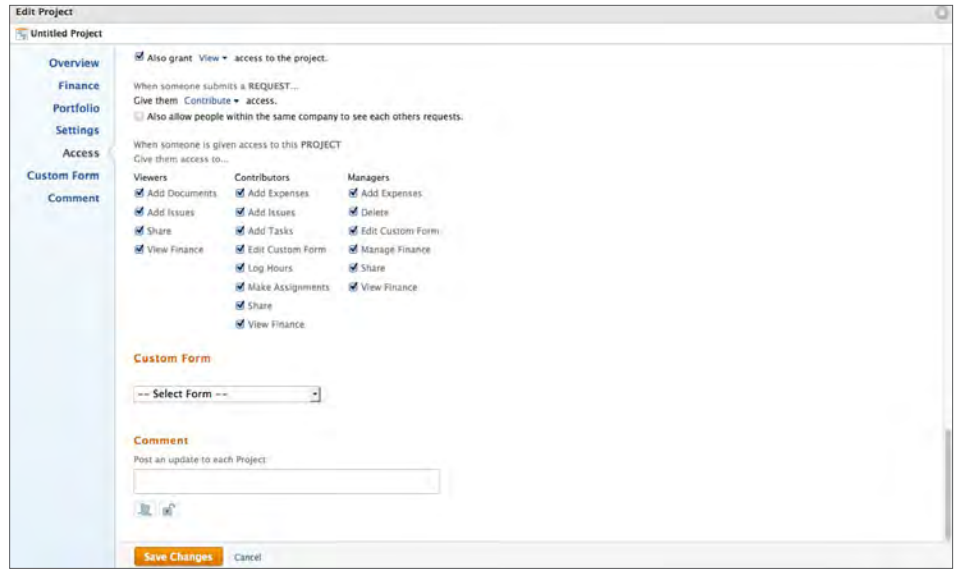




Calculated Custom Data (continued)

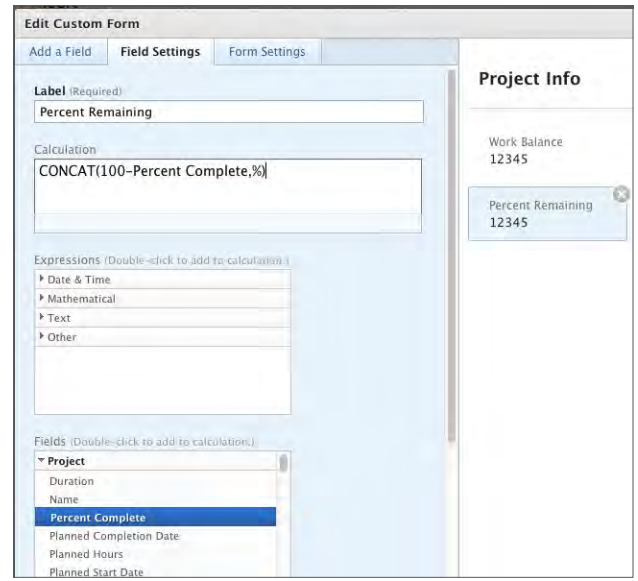
Attach a Custom Form to a Project

1. Navigate to a project and select the Project Details tab.
2. Select the second tab under Project Details to locate the custom form for the project.
3. Click Edit Custom Form, and attach the form you just created by selecting it from the drop-down menu.
4. Save your changes.



Calculated Custom Data (continued)

SCENARIO — Create a new calculated field called Percent Remaining that will be displayed on your project custom form. Use the CONCAT() function to add the percent symbol to the field.



Create the field and do the math

1. Go to the 'Project Info' Custom Form previously created.
2. Add a new calculated field and call it Percent Remaining.
3. Enter 100 followed by a minus sign in the Calculation box.
4. Add Percent Complete from the fields box. Your calculation should look like this:

   100-Percent Complete

Add the Percent Symbol to the Results

1. At the beginning of the calculation, input CONCAT(
2. At the end of the calculation, input ,"%"), which appends the percent symbol to the initial calculation and closes the CONCAT() expression. Your calculation should now look like this:

   CONCAT(100-Percent Complete,"%")

3. Click the Save + Close button to submit the expression.

Cross-Object References in Calculated Custom Data

It is possible to create Calculated Fields using fields from other objects. Cross-Object references were established when setting filter fields. This specific relationship can be continued when setting up views using Cross-Objects in Calculated Custom Data views.

Cross-object references as part of custom data are slightly different from those used in the text mode interface for filters and views. Instead of using the bean reference (:), which is always in camel case, object aliases have been developed for the Custom Data interfaces.

Text mode attributes navigate between relationships using a colon; however, when making these connections in calculated fields, use a period. The examples show the connection to specific attributes from the task level.

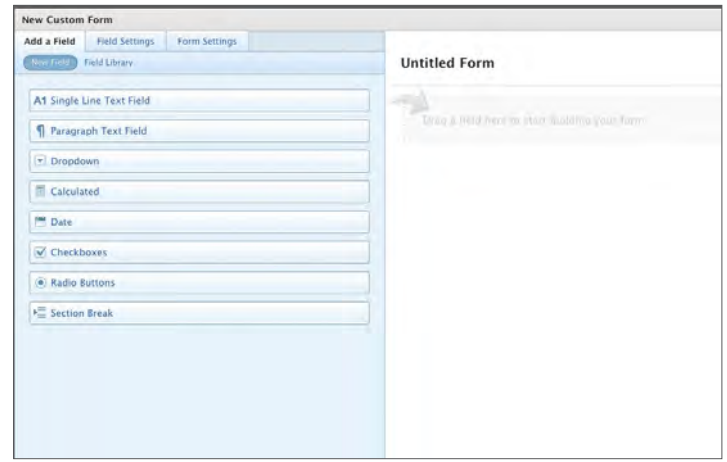
Remember, it is not possible to reference data from child objects (e.g. subtasks). For example, task data cannot be pulled into a project-level expression because of the sub-level relationship. However, from the task perspective, project-level details can be included.

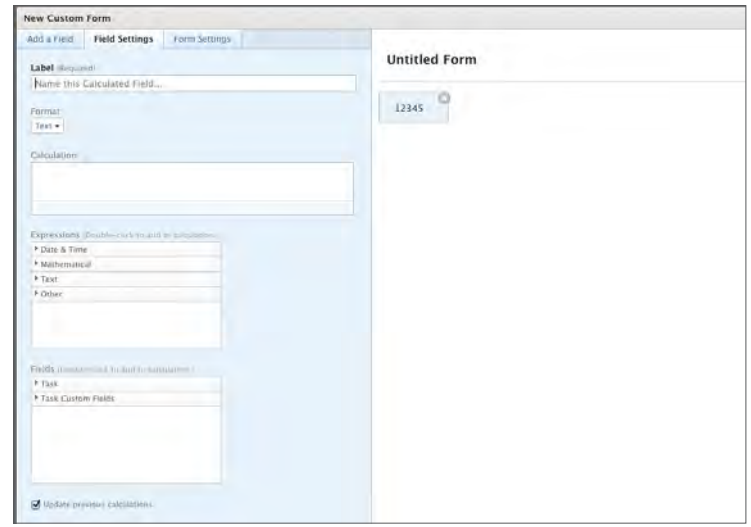
OBJECT AND ATTRIBUTE	TEXT MODE REFERENCES (Filter/View)	CUSTOM DATA REFERENCES (Calculated Custom Data)
Project Name	project:name	Project.Name
Group Name	group:name	Group.Name
Company Name	project:company:name	Project.Company.Name

Calculated Custom Data on a Form

SCENARIO — Create a custom form field that takes the assigned hours on a task and shows what percent that is of the project as a whole.

1. Navigate to the Setup page and select Custom Forms.
2. Create a new Task Custom Form.
3. In the Add a Field area, select Calculated.
4. Give the field a name in the Label area. Call it 'Percentage of Project Work'.
5. Change the format field to number.
6. Locate the Expressions Field and choose the Mathematical drop-down menu.
7. Select DIV. A formula appears in the Calculation area. This is the formula we will use to calculate the percentage of work this task represents in the project. Select the Task drop-down menu. Find and click Planned Hours.
8. Next, move the cursor next to the comma after Planned Hours and type in the word Project.Planned Hours (it is case sensitive).
9. Click the Form Settings tab and give the form a name. Call it 'Additional Task Information'. Click the group and then Save and Close.





Calculated Custom Data on a Form (continued)

Calculating the Percentage on a Custom Form

1. Select the Calculated Custom Data field you just created.

2. To add the percentage to our calculation, add *100. The formula appears similar to the following:

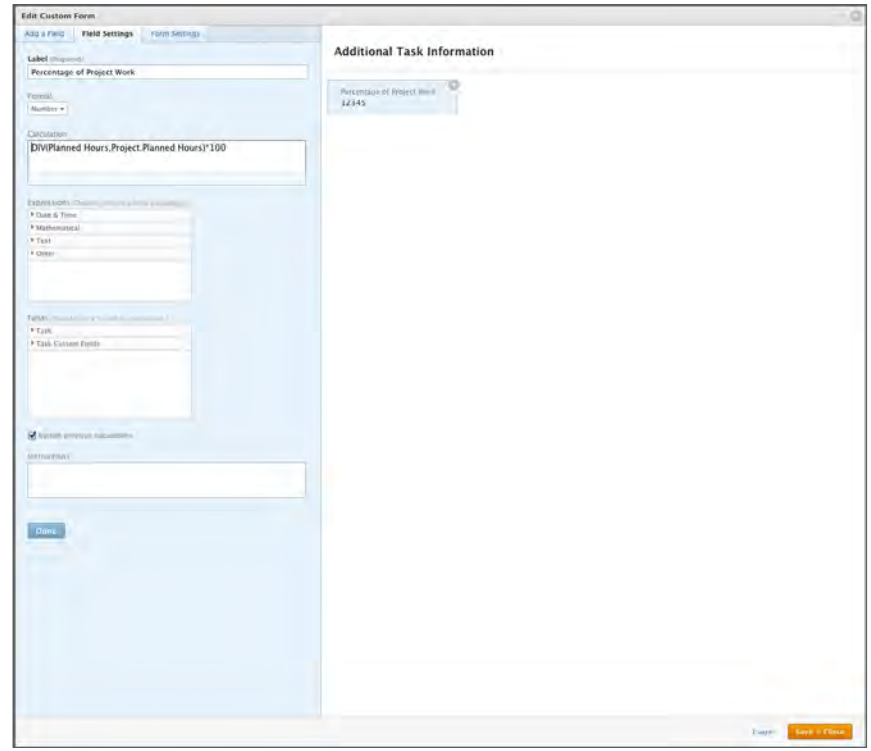
   DIV(Planned Hours,Project.Planned Hours)*100

   To make this calculation round to the nearest percent, we are going to wrap an additional formula around the one we just created.

3. Navigate back to the mathematical expressions drop-down menu and double click the ROUND expression. This inserts the formula at the end of the equation. Move it to the beginning.

4. Notice the format for the ROUND expression appears:

   ROUND(number[, precision])



Calculated Custom Data on a Form (continued)

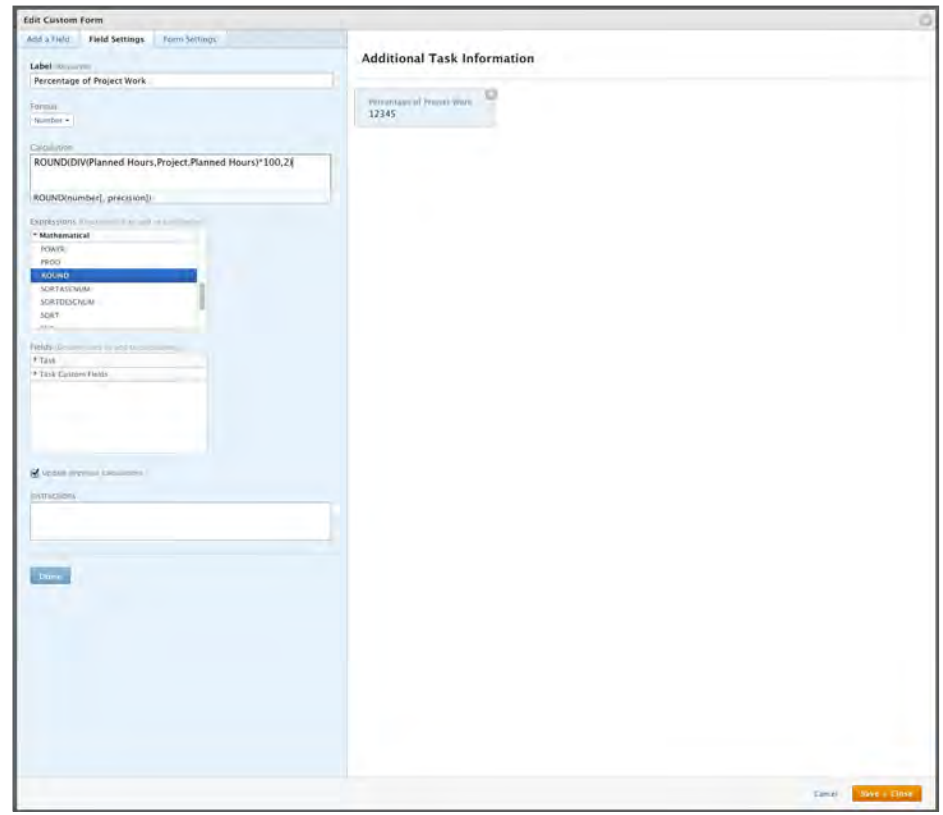
5. The number section is calculated from the division and multiplication we are doing.

6. The precision determines how many decimal places the calculation uses.

7. Add a comma at the end of the formula and the number to represent the decimal places. Similar to the following:

   ROUND(DIV(Planned Hours,Project.Planned Hours)*100,2)

8. Save and Close.



PRACTICE EXERCISES

1. Write the Calculated Custom Data expressions for the following prompts:

   - Hours Remaining for a Task
   - Percent Remaining for a Task
   - Variance of Days Between Planned Start Date and the Projected Completion Date for a Task
   - Percentage of Task Planned Hours to Project Planned Hours
   - Users' Employment Duration *

*Assume that you have created a custom data field on the user's profile called Hire Date and use the $$TODAY wildcard.

Calculated Columns

The custom value is set by creating a placeholder, changing the valuefield to valueexpression, and then inserting the expression.

Formatting for the column is also set in the valueexpression statement. Using the expressions provided in earlier tables, statements can be made to set the column's format to the desired display. To ensure your format displays correctly, modify valueformat to = HTML. This ensures the greatest chance your format displays as intended.

CUSTOM DATA	TEXT MODE FILTER	CALCULATED VIEW
Planned Hours	workRequired	workRequired
Actual Hours	actualWorkRequired	{actualWorkRequired}
Project.Duration	project:duration	{project}.{duration}
A Custom Data Field	DE:Custom Data Field	{DE:Custom Data Field}

Using Custom Expressions in a View

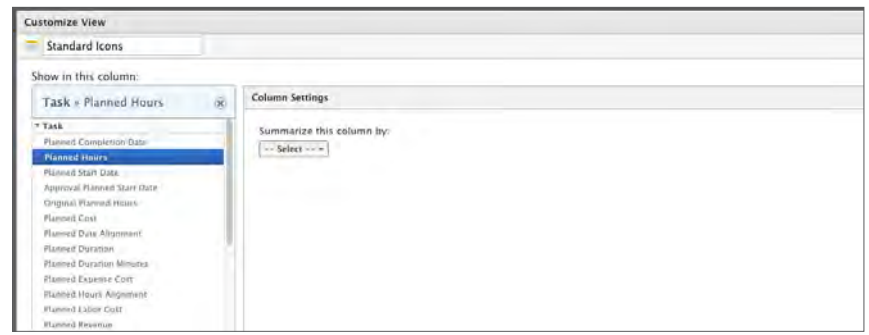
SCENARIO — We want to create a custom expression that automatically calculates the percentage of work on a project every time we apply the view.

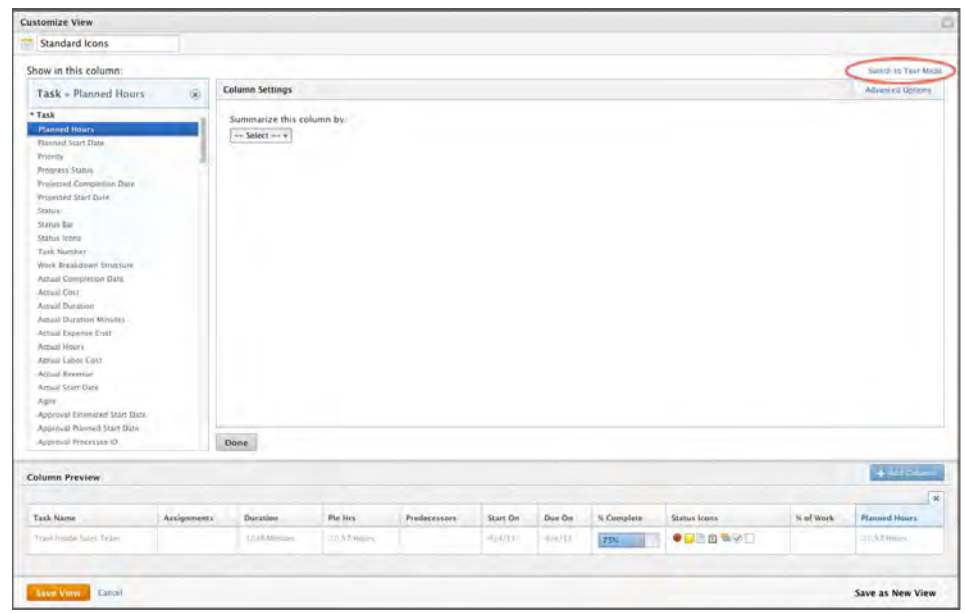
Create View

1. Navigate to a task list. Select the view drop-down menu and customize the view.
2. Add a new column in the type ahead, enter Planned Hours.
3. Select the Planned Hours column, and switch to text mode.
4. Change valuefield to valueexpression. Insert the following formula in the value expression:

   valueexpression=DIV({workRequired},{project}.{workRequired})

5. At the end of the formula multiply the equation by 100 so it becomes a percentage.





Using Custom Expressions in a View (continued)

6. To make this expression round to the nearest percent, we have to include the percentage formula. Insert ROUND in front of the DIV. Include the number of decimal places you want separated by a comma. In this case use:

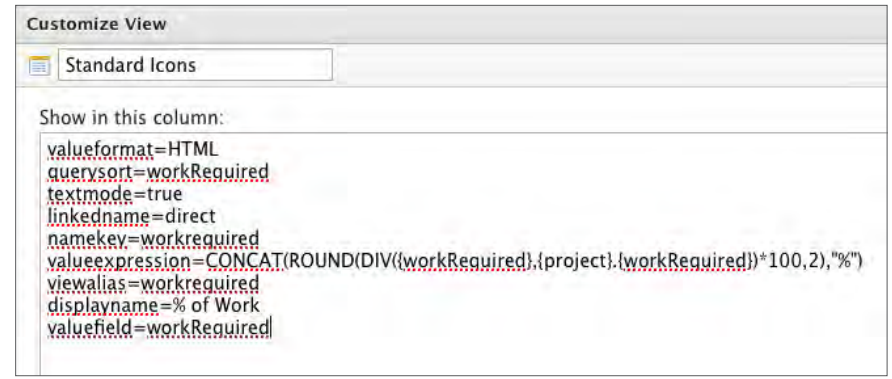
   ROUND(DIV({workRequired},{project}.{workRequired})*100,2)

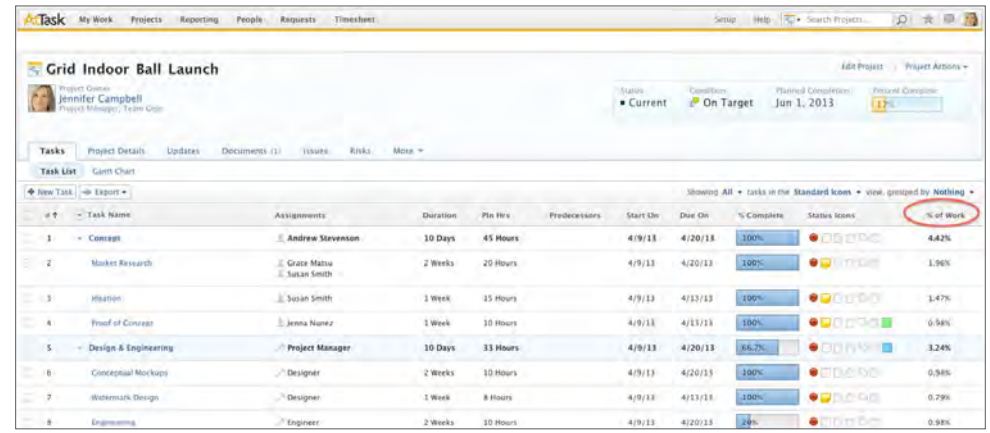
7. Next, change the valueformat to HTML, and the displayname to % of Work.

8. To create a visual reminder that this view is a percentage value, add CONCAT to the value and a % sign.

   valueexpression=CONCAT(ROUND(DIV({workRequired}, {project}.{workRequired})*100,2),"%")

9. Click Save View.





NOTE

Generally, you want to remove the querysort column. This line determines which field the column sorts on when you click the column header. It is suggested you remove this ability to reduce confusion for users accessing data.

Because you can only sort on stored values, you do not want to provide the option to sort on only one of the components making up the calculation. The results will be reorganized, but not necessarily according to what is being displayed.

PRACTICE EXERCISES

1. Practice writing the Calculated Column Value expressions for the following prompts:

    - Hours Remaining for a Task
    - Percent Remaining for a Task
    - Task Planned Hours Percentage of Project Planned Hours
    - Users' Employment Duration
    - Users' Employment Duration multiplied by the Users' Hourly Rate
    - Users' Employment Duration on a Task View

*Assume that you have created a custom data field on the users' profiles called Hire Date and use the $$TODAY wildcard.

Calculated Custom Data vs. Calculated Columns

When determining whether to make calculations based on calculated custom data or calculated columns, keep in mind that custom data can be used on filters, groupings, conditional formatting on a view, and the axes on a chart. Calculated columns cannot. Calculated columns, however, can solve a key deficiency in calculated custom data. The following material is a great reference for understanding the differences between the two.

When to Use Calculated Columns

- When you need to see real time data needs on reports.
- When you don't plan to group by aggregated results.
- If you do not plan to aggregate the data beyond the initial view setup (data can only be aggregated once).

When to use Calculated Custom Data

- To group the aggregated results.
- To further aggregate the data beyond the initial data setup.
- Okay with once-a-day updates.

When do Calculated Custom Data updates occur?

- When a user edits the object
- On bulk edit with activated Recalculate Custom expressions
- Modifications to the form with selected 'Update previous calculations' option

Due to the limitations described earlier, it is strongly recommended that Calculated Custom Data does not transcend objects. Calculations should only reference other fields on the custom form.

Calculated Custom Data is necessary in the following cases

- Calculated custom data is needed on filters. The system only allows you to filter on stored values.
- Calculated custom data is always needed for conditional formatting on a view.
- Calculated data is needed for groupings and axes on aggregate charts.

Keep in mind that calculated custom data has the potential to become stale if certain conditions are present. For example, native fields like Work Required or Actual Work Required can be modified without editing a task directly. If a custom data calculation using these fields has been made on the task itself, the calculation will not update as changes are made to those fields. Additionally, native fields that are tied to calculated custom data may not update instantaneously as custom fields are not updated nightly. Calculated views are always fresh, because the calculation is made when the report is run or when the view is applied.

Calculated Expression Operators

DATE & TIME EXPRESSION	EXAMPLE	DESCRIPTION
ADDDAYS	ADDDAYS(date, number)	Adds the number of days to the date.
ADDMONTHS	ADDMONTHS(date, number)	Adds the number of months to the date.
ADDYEARS	ADDYEARS(date, number)	Add the number of years to the date.
CLEARTIME	CLEARTIME(date)	Clears the time portion of a date.
DATE	DATE(string)	Converts a string to a date.
DMAX	DMAX(date1, date2{,.....})	Returns the latest date in the list.
DMIN	DMIN(date1, date2{,...})	Returns the earliest date in the list.
DATEDIFF	DATEDIFF(date1, date2)	Returns the number of days between two dates.
WEEKDAYDIFF	WEEKDAYDIFF(date1, date2)	Returns the number of weekdays between two dates.
WORKMINUTESDIFF	WORKMINUTESDIFF(date1, date2)	Returns the number of scheduled minutes between the dates according to the default schedule.
DAYSINYEAR	DAYSINYEAR(date)	Returns the total days in the year of a given date as a number.
DAYSINMONTH	DAYSINMONTH(date)	Returns the total days in months of the given date as a number.
DAYSINSPLITWEEK	DAYSINSPLITWEEK	Returns the total weekdays between the date and the end of the week or the end of the month, whichever comes first.
YEAR	YEAR(date)	Returns the year of the given date as a number.

Calculated Expression Operators (continued)

DATE & TIME EXPRESSION	EXAMPLE	DESCRIPTION
MONTH	MONTH(date)	Returns the month of the given date as a number.
DAYOFMONTH	DAYOFMONTH	Returns the day of the month for the given date as a number. The first day of the month has a value of 1.
DAYOFWEEK	DAYOFWEEK(date)	Returns the day of the week for the given date as a number between 1 (Sunday) and 7 (Saturday).
HOUR	HOUR(date)	Returns the hour of the given date as a number between 0 and 23.
MINUTE	MINUTE(date)	Returns the minute of the given date as a number.
SECOND	SECOND(date)	Returns the second of the given date as a number.

Calculated Expression Operators (continued)

MATHEMATICAL EXPRESSION	EXAMPLE	DESCRIPTION
ABS	ABS(number)	Returns the absolute value of the number.
AVERAGE	AVERAGE(number 1, number 2[,...])	Returns the average of the numbers.
CEIL	CEIL(number)	Rounds a number up to the nearest integer.
DIV	DIV(number 1, number 2[, ...])	Divides all the numbers in the order provided.
FLOOR	FLOOR(number)	Rounds a number down to the nearest integer.
LN	LN(number)	Returns the natural logarithm value of the number.
LOG	LOG(number 1, number 2[, ...])	Returns the logarithm value of number 2 to the base of number 1.
MAX	MAX(number 1, number 2[, ...])	Returns the largest number provided in this list.
MIN	MIN(number 1, number 2[, ...])	Returns the smallest number provided in this list.
NUMBER	NUMBER(string)	Converts a string to a number.
POWER	POWER(number, power)	Returns a number raised to a power.
PROD	PROD(number 1, number 2[, ...])	Multiplies all the numbers provided in the list.
ROUND	ROUND(number[, precision])	Rounds the number up to the specified decimals of the precision.
SQRT	SQRT(number)	Returns the square root of the number.
SUB	SUB(number 1, number 2[, ...])	Subtracts all the numbers in the order provided.
SUM	SUM(number 1, number 2[, ...])	Add all the numbers provided in the list.

Calculated Expression Operators (continued)

TEXT EXPRESSION	EXAMPLE	DESCRIPTION
CONCAT	CONCAT(sting 1, string 2[, ...])	Concatonates the strings.
LEFT	LEFT(string, length)	Returns a specified number of characters from the left side of the string.
LEN	LEN(string)	Returns the length of the string.
LOWER	LOWER(string)	Returns the string in lower case.
REPLACE	REPLACE(sting 1, string 2[, ...]	Replaces all occurrences of string2 with string3 in string1.
RIGHT	RIGHT(sting, lenght)	Returns a specified number of characters from the right side of the string.
STRING	STRING(number[, precision])	Converts a number to a string with the specified decimals of precision.
SUBSTR	SUBSTR(string,start[, end])	Returns characters of a string based on the start and end index specified.
CONTAINS	CONTAINS(findText, withinText)	Returns true if the findText string is found within the withinText string.
SEARCH	SEARCH(findText, withinText[start])	Returns the index of the first occurrence of the findText in the string withinText, starting at the given position or -1 if the text is not found.
UPPER	UPPER(string)	Returns the string in upper case.
ENCODEURL	ENCODEURL(string)	Extracts any special characters in the string so they can be included in a URL argument.
TRIM	TRIM(sting)	Removes whitespace from the beginning and end of a string.

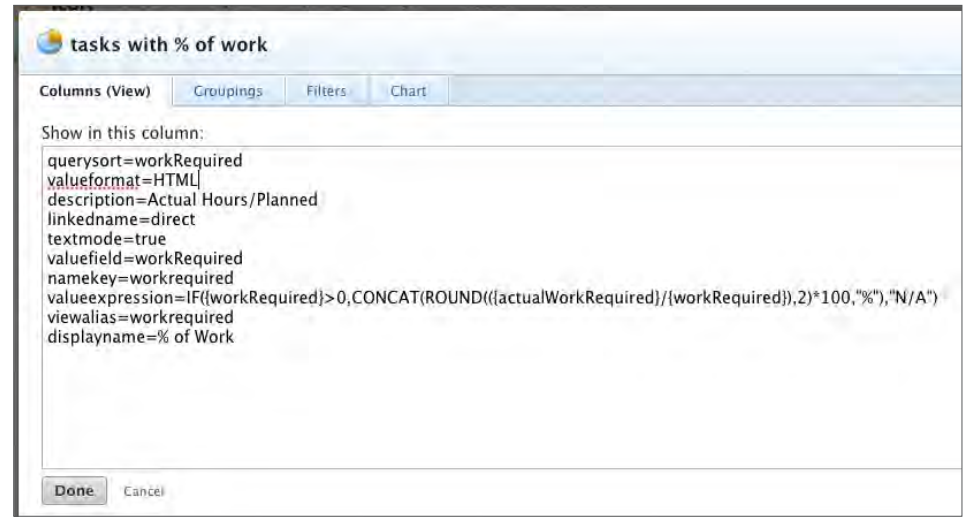
Calculated Expression Operators (continued)

OTHER EXPRESSIONS	EXAMPLE	DESCRIPTION
IF	IF(condtion, trueExpression, falseExpression)	Evaluates the condition parameter and returns the trueExpression if it is true, or the falseExpression if it is false.
CASE	CASE(indexNumber, value1, [value2, ...])	Chooses a value from a list, based on an index number.
ISBLANK	ISBLANK(value)	Returns true if the value is null or empty, false if the value is otherwise.
IN	IN(value, value1[, value2 ...])	Returns true if the value equals one of the provided value1, value2 .... otherwise it returns false.
IFIN	IFIN(value, value1[, value2...], trueExpression, falseExpression)	If the value equals one of the value1, value2... then returns the trueExpression, otherwise returns falseExpression. Must have at least 4 parameters.

Calculated Custom Data

SCENARIO — Create a Task Report that displays the following:

- Task: Name
- Task: Actual Hours
- Task: Planned Hours
- % of Work (this will be a calculated column that divides Actual Hours by Planned Hours)



1. Create a new Task report.
2. In the Column Preview area, click the second column tab.
3. Leave the first column as Task > Name.
4. Change column 2 to Task > Actual Hours and column 3 to Task > Planned Hours.
5. Change the selection for column 4 to Task > Planned Hours. This becomes your placeholder column.
6. Delete columns 5 thru 8.

Calculated Custom Data (continued)

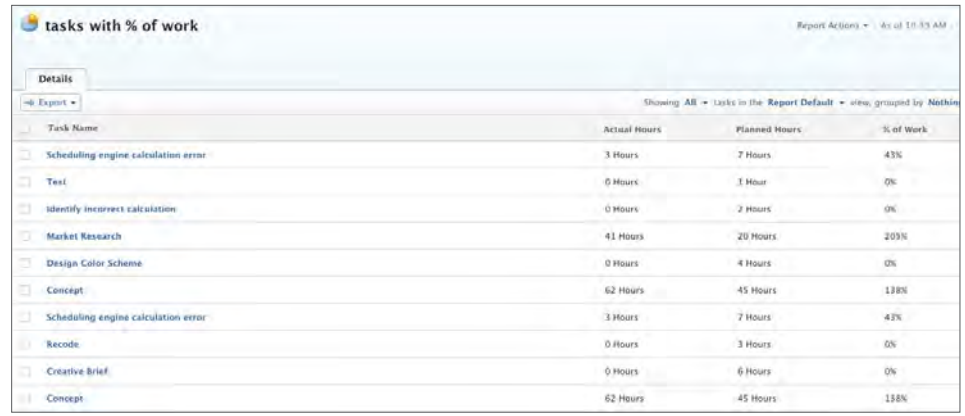
7. Select column 4 and then Switch to text mode.

8. Replace all the text mode code in column 4 with the following:

   description=Actual Hours / Planned
   valueexpression=IF({workRequired}>0,CONCAT(ROUND(
   ({actualWorkRequired}/{workRequired}),2)*100, "% "),"N/A")
   displayname=% of Work

9. Click the Done button to save the text mode code for the column.

Click the Save + Close button. Name the report ‘Tasks with % of Work’.

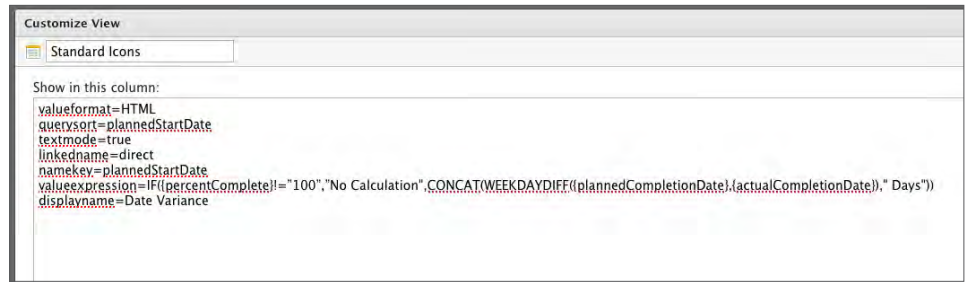


Calculated Custom Data (continued)

SCENARIO — Create a View with a Calculated Column for tasks that display the following columns:

- Name
- Planned Completion Date
- Actual Completion Date
- Date Variance

Use the WEEKDAYDIFF operator. Include an IF condition to display 'No Calculation' if the task is not complete.



1. Create a Task Report.
2. Leave the first column as Task > Name.
3. Click the second column tab in the Column Preview area.
4. Change the selection for column 2 to Task > Planned Completion Date.
5. Change the selection for column 3 to Task > Actual Completion Date.

Calculated Custom Data (continued)

6. Change the selection for column 4 to Task > Planned Completion Date. This becomes your placeholder column.

7. Delete columns 5 through 8.

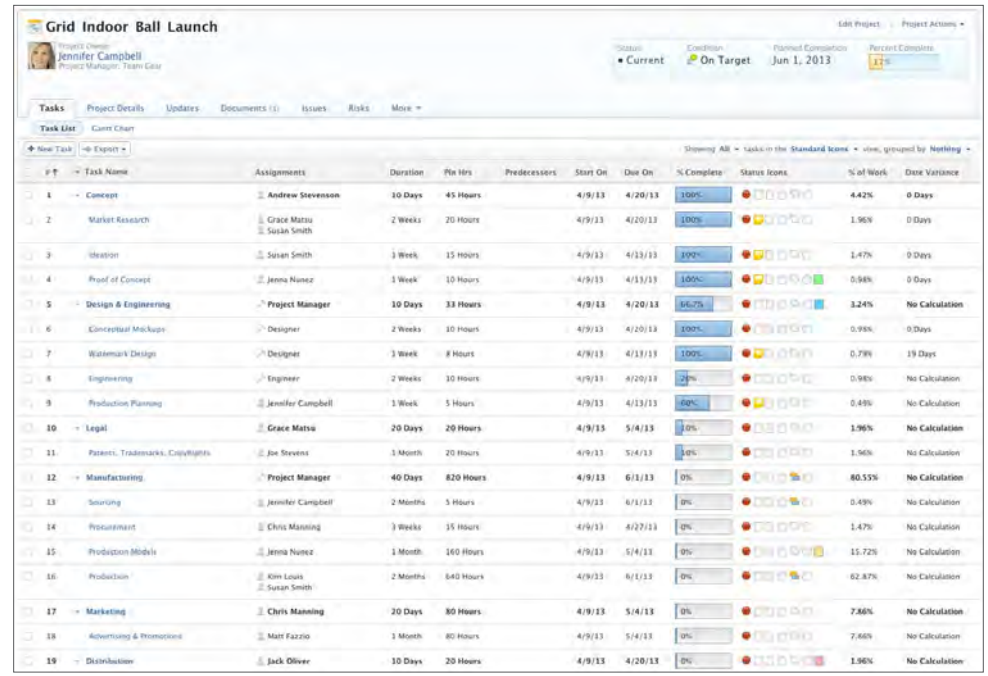
8. Click on column 4 and then Switch to text mode.

9. Replace all the text mode code in column 4 with the following:

   description=Planned – Actual Completion Dates
   valueexpression=IF({percentComplete}!=100,"No Calculation",CONCAT(WEEKDAYDIFF ({plannedCompletionDate},{actualCompletionDate})," Days"))
   displayname=Date Variance
   valueformat=HTML

10. Click the Done button to save the text mode code for the column.

11. Select the Save + Close button. Name the report 'Tasks with Date Variance.'



Calculated Aggregates

Calculated Aggregates work very much like Calculated Views and are likely to be part of any text mode calculated view that results in a numeric output.

Apply aggregate custom expressions the same way you do the sum aggregate for the Planned Hours field, so they accurately appear in the grouping bar.

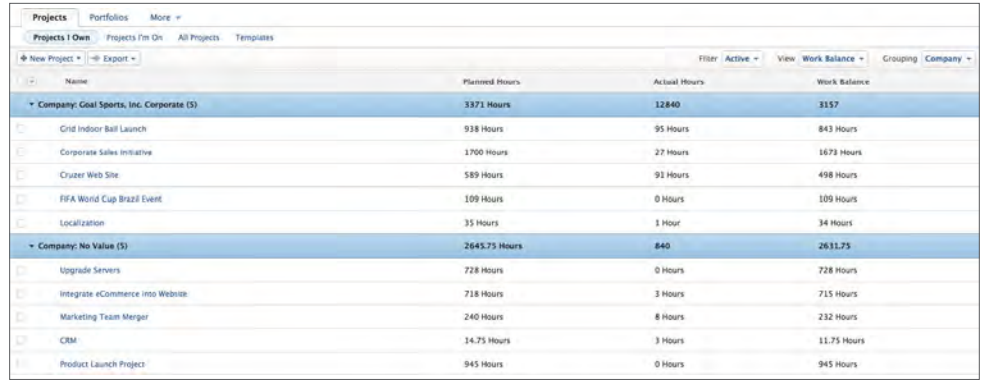
For the results shown in the image, expect the Work Balance column to show the sum of all the values in the column based on the groupings (3157 hours), not the original Planned Hours values (3371 hours).

Calculated Aggregates (continued)

The following shows the text mode code for the view. Notice the aggregator section in bold.

valueformat=compound
aggregator.displayformat=minutesAsHoursString
aggregator.function=SUM
aggregator.valueformat=val
aggregator.valuefield=workRequired
aggregator.namekey=workrequired
linkedname=direct
textmode=true
valuefield=workRequired
namekey=workrequired
valueexpression=CONCAT(ROUND(({workRequired}-{actualWorkRequired})/60,2)," Hours")
viewalias=workrequired
displayname=Work Balance

In order to get the aggregated value in the grouping to display the aggregated difference between the Planned Hours and Actual Hours fields, input the same equation into the aggregator.valuefield line.



Calculated Aggregates (continued)

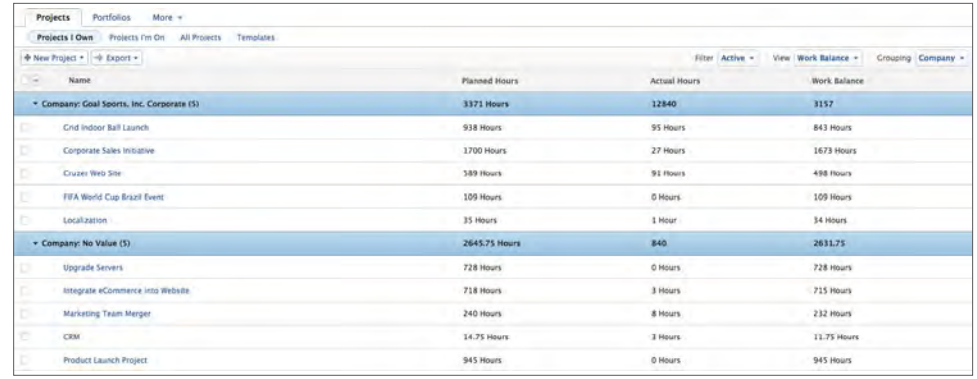
The aggregator.displayformat used for the Planned Hours column converts minutes to hours. Because the Planned Hours field was used as a placeholder, this line doesn't need to be adjusted.

The minutesAsHoursString definition means there is no need to divide each field by 60 as done on the valueexpression for the results.

In this aggregator.valuefield=workRequired becomes: aggregator.valueexpression=ROUND(({workRequired}-{actualWorkRequired}),2)

Below is what you should have displayed in text mode:

```
valueformat=compound
aggregator.displayformat=minutesAsHoursString
aggregator.valueexpression=ROUND(({workRequired}-
{actualWorkRequired}),2)
aggregator.function=SUM
aggregator.valueformat=val
aggregator.namekey=workrequired
linkedname=direct
textmode=true
valuefield=workRequired
namekey=workrequired
valueexpression=CONCAT(ROUND(({workRequired}-
{actualWorkRequired})/60,2)," Hours")
viewalias=workrequired
displayname=Work Balance
```



NOTE

Because there are several lines involved in creating an aggregator, it is recommended to define the view in the builder interface first on another column and then go to text mode to produce this code.

The querysort line has been removed in the sample code above. This line is not needed and may cause confusion if left in the view, because it allows the column header to sort by the field label to the right of the equal sign, which in this case has been changed to an expression.

Calculated Aggregates (continued)

AGGREGATOR ATTRIBUTES	DESCRIPTION
column.#aggregator.	The aggregator tag precedes all aggregate definition lines to separate these attributes from other view attributes for the column.
displayformat	Controls how aggregate value will be rendered in the grouping. Through this line you define any text that will be displayed with the value. Minutes ..... minutesAsMinutesString Hours..... MinutesAsHoursString Days..... minutesAsDaysString Currency.....$1234.56..... currencyStringCurrency Percent.....(12.34%)..... doubleAsPercent (12%)..... doubleAsPercentRounded
function	Identifies the mathematical function used on the values returned in the results. (i.e. SUM, AVG, MIN, MAX, COUNT)
name or namekey	The aggregate name is not necessary for list view aggregates; it is used as a label on aggregate charts.
valuefield or valueexpression	Defines the values that will be used by the aggregator for each result in the report. The aggregator only interprets numeric values, so when using the valueexpression there is no point in using CONCAT to append text to the number (i.e. '1234 Hours'). The word Hours is attached to the aggregated value through dispalyformat.
valueformat	Describes the format of the value produced by the valuefield or valueepxression. The valueformat is usually always Int or IntAsint.

CHAPTER 4

ADVANCED GROUPINGS

OBJECTIVES

After completing this chapter, you will be able to:

- Expand objects through groupings
- Utilize calculated groupings

Referencing Related Objects in Groupings

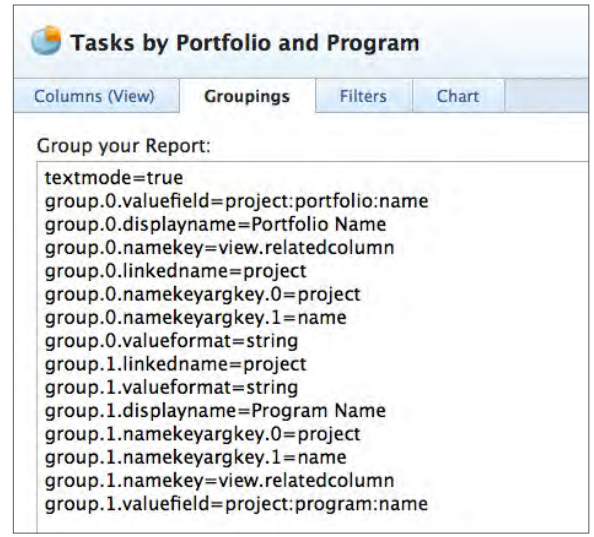
SCENARIO — Group the task list by the portfolio and program of the project where the task resides. These two options do not appear in the Builder; however, we know a relationship exists, because each task must reside on a project. And projects can belong to both portfolios and programs.

1. From the Reporting Area, create a task report.
2. Select the Groupings tab and click on the Add Grouping button.
3. Select group by project name. This becomes the placeholder grouping for Portfolio.
4. Select Add another Grouping.
5. Select group by project name again. This becomes the placeholder grouping for Program.
6. Switch to text mode.
7. Change the following lines in group 0 to extend it to the Portfolio:

   group.0.valuefield=project:name

   to

   group.0.valuefield=project:portfolio:name



Referencing Related Objects in Groupings (continued)

8. Add the following line in group 0 to name the grouping:

   group.0.displayname=Portfolio Name

9. Change the following lines in group 1 to extend it to the Program:

   group.1.valuefield=project:name

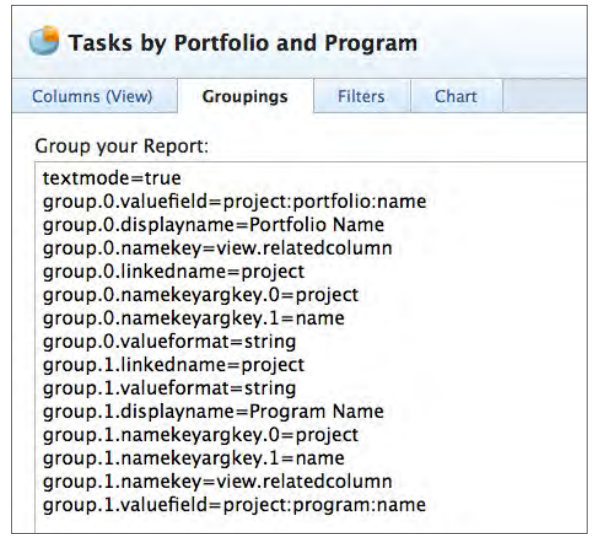
   to

   group.1.valuefield=project:program:name

10. Add the following line in group 1 to name the grouping:

    group.1.displayname=Program Name

11. Click the Save + Close button. Name the report 'Tasks by Portfolio and Program'.



NOTE

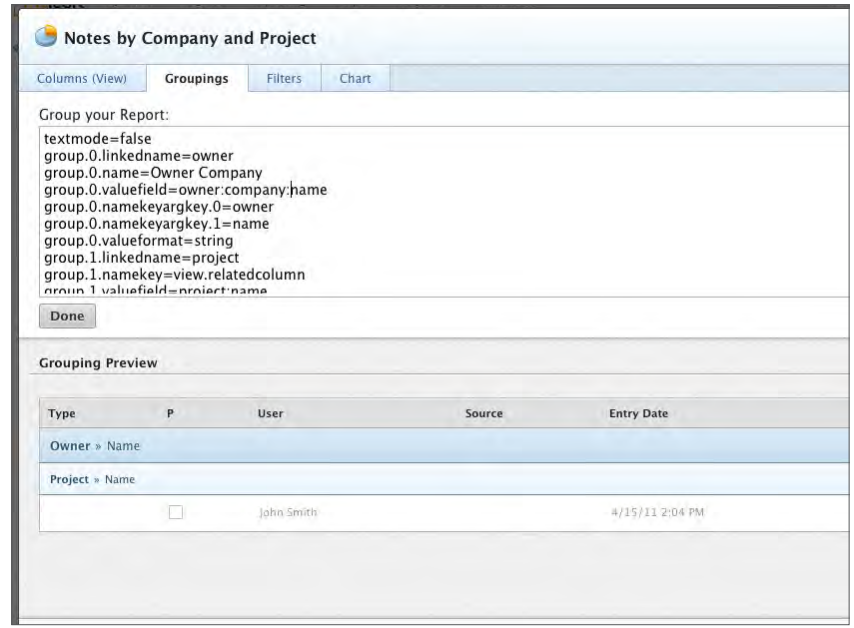
Text mode groupings also allow you to build four-level groupings; whereas, the builder interface only provides drop-down menus for three tiers.

Referencing Related Objects in Groupings (continued)

SCENARIO —Create a Note report with a grouping that displays these tiers:

- Owner: Company: Name
- Project: Name

1. From the Reporting area menu, create a note report.
2. Select the Groupings tab; click the Add Grouping button.
3. Select to group by owner name. This becomes the placeholder grouping for Owner:Company.
4. Click Add another Grouping. Select Group By Project Name.
5. Click Switch to text mode.



Referencing Related Objects in Groupings (continued)

6. Change the following lines in group 0 to extend it to the Owner:Company.

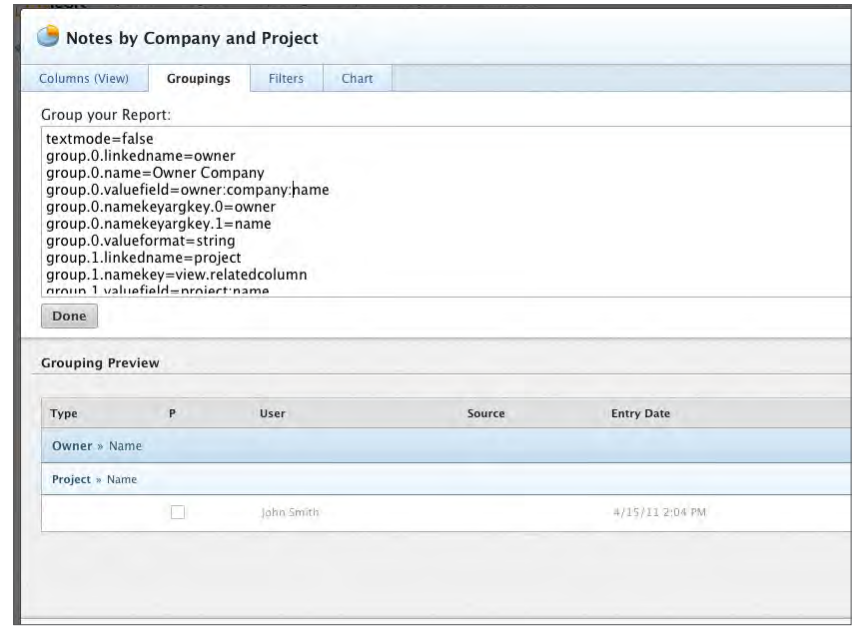
   group.0.namekey=view.relatedcolumn
   to
   group.0.name=Owner Company

   group.0.valuefield=owner:name
   to
   group.0.valuefield=owner:company:name

7. Click the Done button to save text mode code.

8. Click the View tab and add at least one column to the view.

9. Save + Close. Name the report 'Notes by Company and Project'.



Calculated Groupings

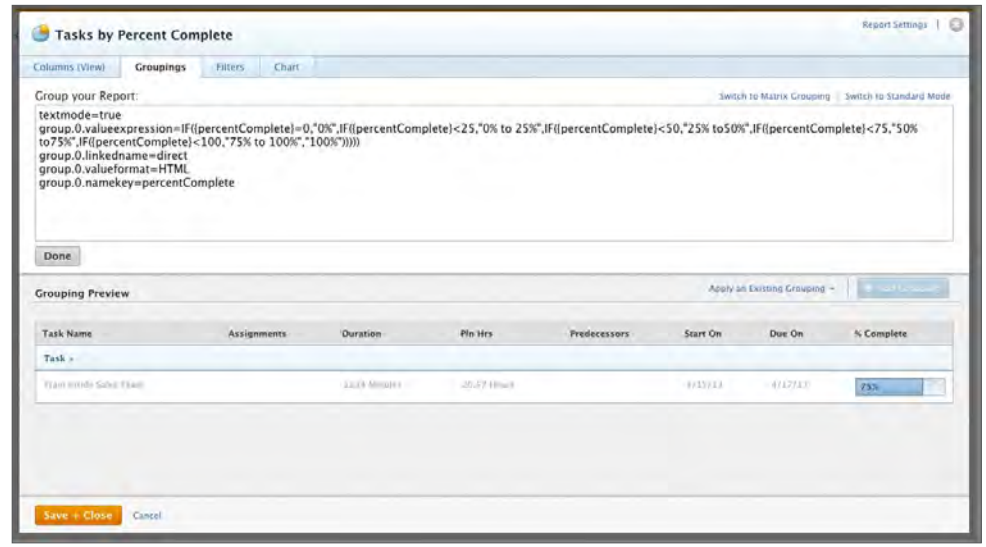
When working with groupings it is important to know that aggregated custom data does not show on summary reports.

When viewing reports you may find it useful to group the results by percent complete for each task. This is a useful way to see which tasks are complete, nearly complete, nowhere near complete, and not started. This can be useful, but when you have tasks that are 0%, 12%, 24%, 25%, 75%, 82%, 83%, 99%, etc., each task with a unique percentage complete will appear in its own grouping.

Calculated Groupings (continued)

SCENARIO — Create ranges of percentages to simplify the organization of the task list. Use the following grouping breakdown:

- 0%
- 0% to 25%
- 25% to 50%
- 50% to 75%
- 75% to 100%
- 100%



1. From the Reporting area menu, create a new Task report.
2. Select the Groupings tab. Click the '+ Add Grouping' button.
3. Select Group by Percent Complete.
4. Switch to text mode.

Calculated Groupings (continued)

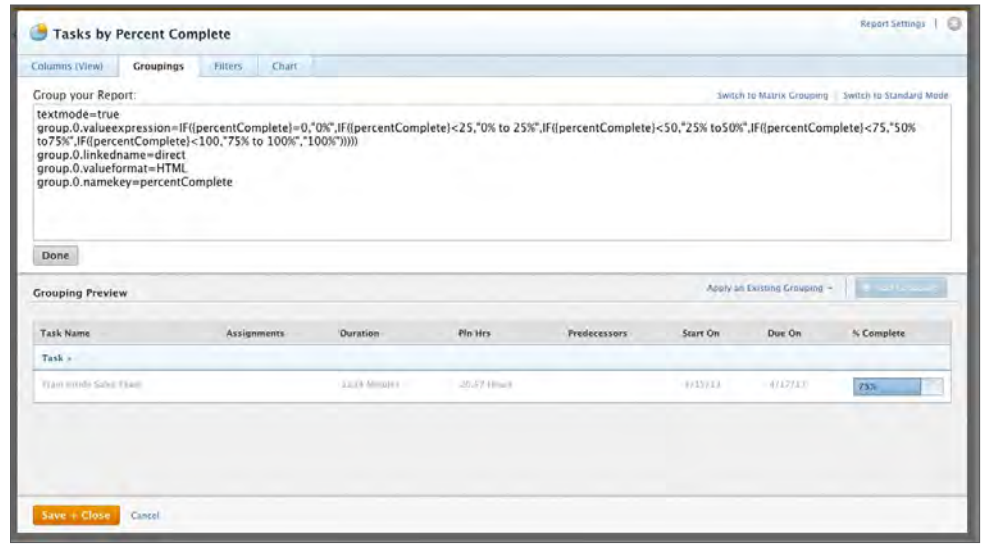
5. Replace the value field line with the following value expression:

   group.0.valueexpression=
   IF({percentComplete}=0,"0%",
   IF({percentComplete}<25,"0% to 25%",
   IF({percentComplete}<50,"25% to 50%",
   IF({percentComplete}<75,"50% to 75%",
   IF({percentComplete}<100,"75% to 100%"
   IF({percentComplete=100,"100%"))))))

6. Click Save + Close. Name the report Tasks by Percent Complete.

7. To adjust the order of the results, edit the report and add the Percent Complete column to the view.

8. With the Percent Complete column selected, check the option to sort by this column. Sort by ascending order.



NOTE
The valueexpression text must be on a single line in the text mode interface with no line breaks. It is shown above with returns to make it easier to read.

Group By Multiple Parent Tasks

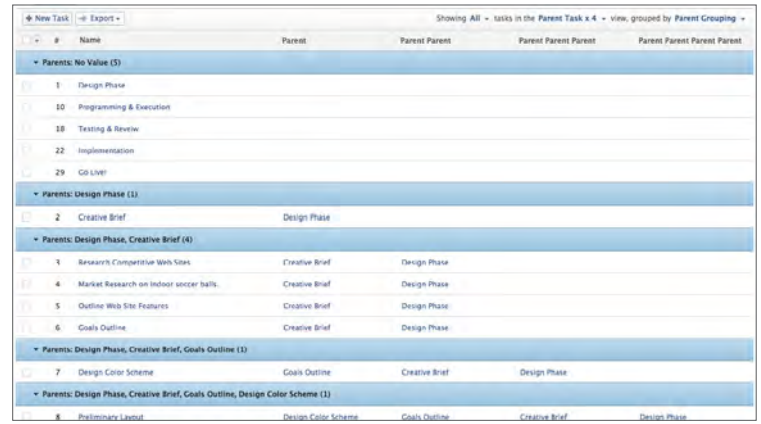
SCENARIO — Suppose that in your organization you use many levels of subtasks. In some cases subtasks have the same names, and can only be accurately identified by their associated parent task(s). Your boss comes to you with a request that you create a task grouping that groups based on the parents of a task up to four generations back.

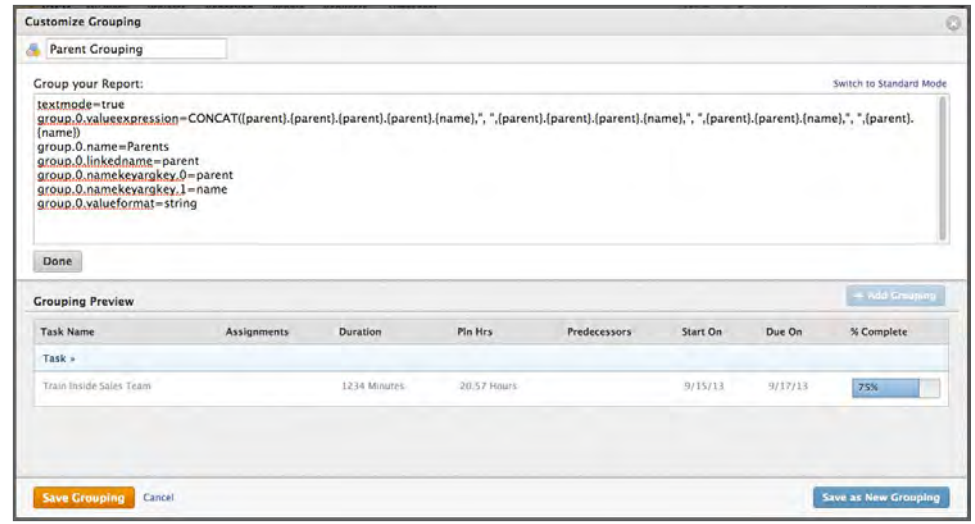
Your boss wants all the parent tasks to display in the grouping bar, separated by commas. If there is a grouping with fewer than four generations of parents, your boss only wants the actual parents shown, and doesn't want to see a lone comma in the place of a blank parent.

1. Create a task grouping that groups by the name of the parent task.

2. Switch to text mode.

3. Use a CONCAT statement in a valueexpression such as: group.0.valueexpression=CONCAT({parent}.{parent}.{parent}.{parent}.{name},", ",{parent}.{parent}.{parent}.{name},", ",{parent}.{parent}.{name},", ",{parent}.{name})





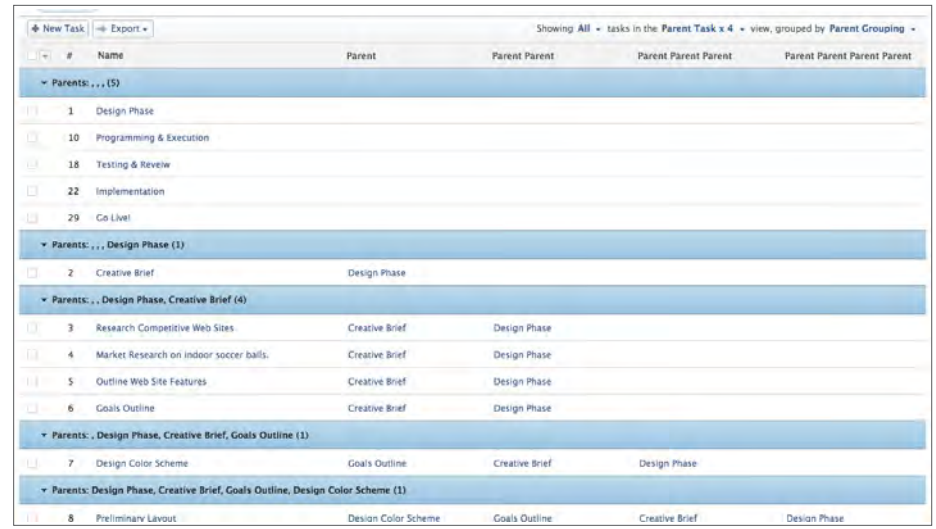
Group By Multiple Parent Tasks (continued)

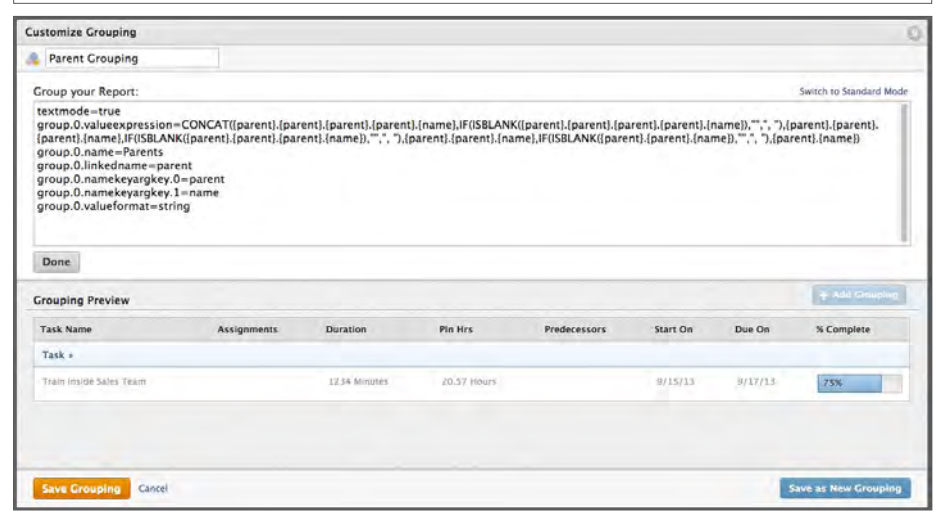
This works well with the exception of tasks that have fewer than four parents.

How to handle these?

Put an IF statement in the CONCAT to check to see if a parent name is blank. Only place a comma between parents that are not blank, as shown in the image.

group.0.valueexpression=CONCAT({parent}.{parent}.{parent}.{parent}.{name},IF(ISBLANK({parent}.{parent}.{parent}.{parent}.{name}),"",", "),{parent}.{parent}.{parent}.{name},IF(ISBLANK({parent}.{parent}.{parent}.{name}),"",", "),{parent}.{parent}.{name},IF(ISBLANK({parent}.{parent}.{name}),"",", "),{parent}.{name})





APPENDIX

OBJECTIVES

After completing this chapter, you will be able to:

- Create a custom form
- Create custom icons

Exercise: Calculated Custom Data Expressions

Write the Calculation Custom Data expressions for the following fields:

- Hours Remaining for a Task
  SUB(Planned Hours,Actual Hours)/60 or
  SUB(Planned Hours/60,Actual Hours/60) or
  (Planned Hours/60)-(Actual Hours/60) or
  (Planned Hours-Actual Hours)/60

- Percent Remaining for a Task
  SUB(100,Percent Complete) or
  100-Percent Complete

- Variance of Days Between Planned Start Date and the Projected Completion Date for a Task
  ABS(DATEDIFF(Planned Start Date, Projected Completion Date)) or
  ABS(WEEKDAYDIFF(Planned Start Date, Projected Completion Date))

- Percentage of Task Planned Hours to Project Planned Hours
  ROUND(DIV(Planned Hours,Project.Planned Hours)*100,2)

- User's Employment Duration
  DATEDIFF($$TODAY,Hire Date)
  or
  WEEKDAYDIFF($$TODAY,Hire Date)
  or
  CONCAT(DATEDIFF($$TODAY,Hire Date), "Days")
  or
  CONCAT(WEEKDAYDIFF($$TODAY,Hire Date)," Week Days")

Exercise: Calculated Column Expressions

Write the Calculation Custom Data expressions for the following fields:

- Hours Remaining for a Task
  SUB({workRequired},{actualWorkRequired})/60

- Percent Remaining for a Task
  SUB(100,{percentComplete})

- Percentage of Task Planned Hours to Project Planned Hours
  ROUND(DIV({workRequired},{project}.{workRequired})*100,2)

- User's Employment Duration

  DATEDIFF($$TODAY,{DE:Hire Date})
  or
  CONCAT(DATEDIFF($$TODAY,{DE:Hire Date}),," Days")

- User's Employment Duration multiplied by the User's Hourly Rate
  DATEDIFF($$TODAY,{DE:Hire Date})*{billionPerHour}
  or
  {DE:User's Employment Duration}*{billingPerHour})

- User's Employment Duration on a Task View
  DATEDIFF($$TODAY,{assignedTo}{DE:Hire Date})

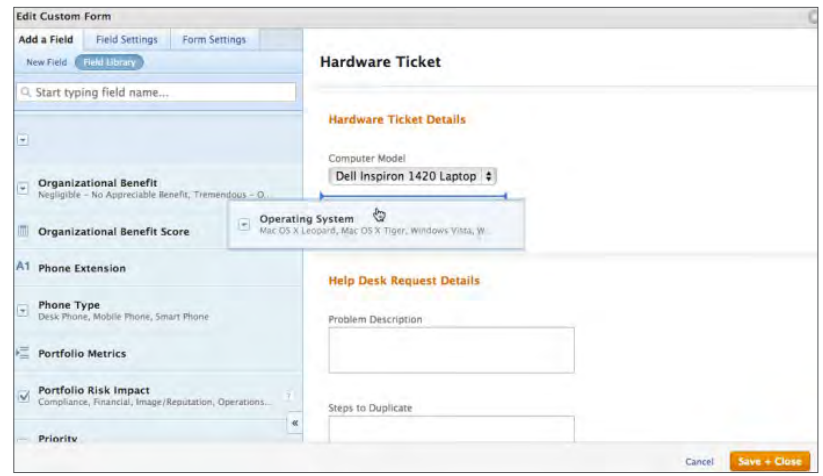
Custom Forms

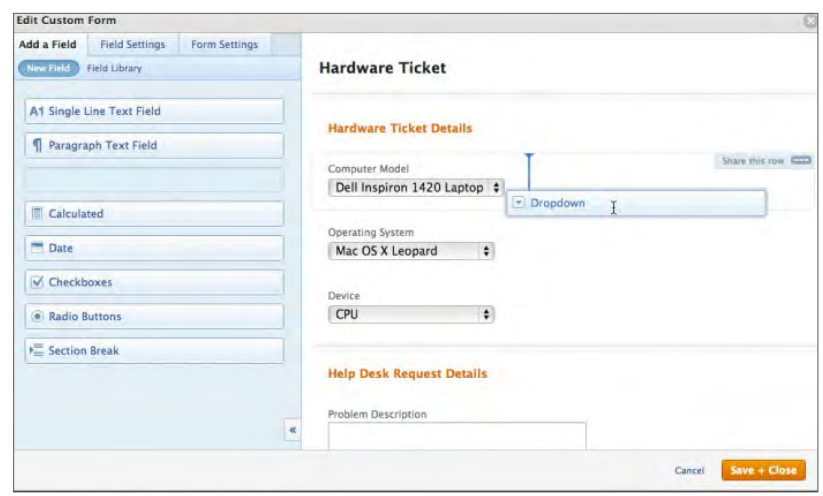
Custom Forms allow fields and information otherwise not included to be added to Workfront. Organizations have the freedom to customize Workfront.

A System Administrator can access and modify the custom field area by going to Setup ▶ Custom Forms.

Create a New Custom Form

1. Click the New Custom Form button.
2. Select the object type where the custom form will be applied.
    - Custom Forms can be added to Projects, Tasks, Issues, Documents, Portfolios, Expenses, Programs, People, Companies, and Iterations. When a form is applied to a record, the sub-tab is relabeled from 'custom form' to the name of the form you selected.
3. Select existing custom fields to add to your form, or create and add a new field from the form builder.
4. Click Save when finished.





Custom Forms (continued)

Existing custom fields can be added to newly created forms. Just search for them in the Field Library and drag them onto the form preview on the right.

A warning will be displayed if a field is used on other forms, indicating that a change to the field settings will change the field on all forms.

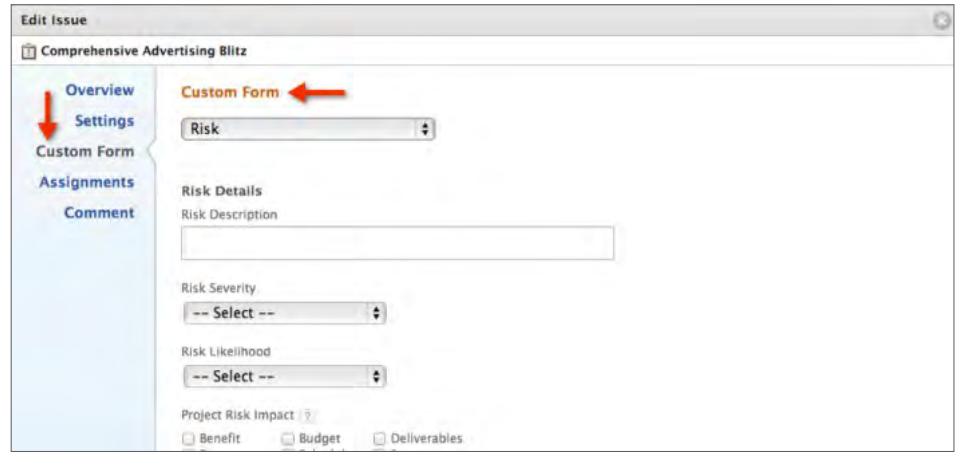
Creating a new field right on the form is simple as well. Just choose the type of field and drag it over to the form.

Field settings and options can be modified when selecting a field in the form. Users can add choices, make a field required, set the data type, and add instructions that appear as tool tips.

Organize the fields on the form with section breaks or by dragging the fields into position. By dragging a field to the right of another, you can add fields to share the same row.

In order to create forms users must have edit rights to all custom form fields (parameters).

CUSTOM FORM TERMS	
CUSTOM FORM	A way to create and include data you want to track on projects, tasks, and other Workfront objects.
FIELD	A customized field where a user can enter and view information on the form.
SECTION BREAK	A section heading or divider on the form. Helps organize and group the various fields.



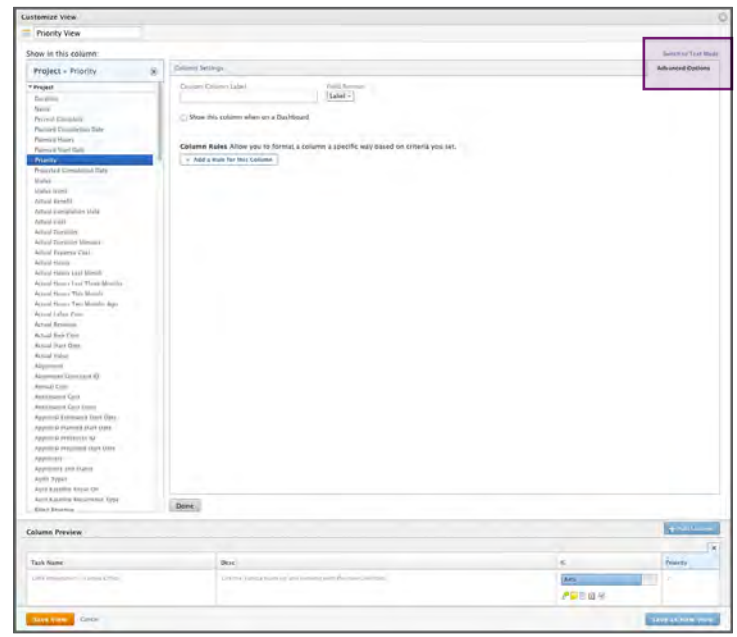
Customizing Icons

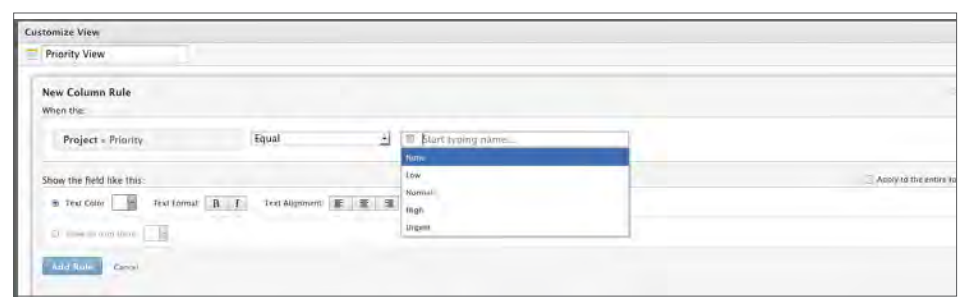
Placing an image in a view presents a number of powerful ways to communicate and display data in a more concise and easy-to-read report.

For example, images can be used to create stop light reports, which provide report viewers a quick and intuitive way to read and interpret relevant data. When images are used as icons the view becomes easier to read because it is not cluttered with unnecessary text.

Customize Icons in a View

1. Upload the image as a document on a project.
2. Preview the document and copy the complete URL located in the browser.
3. Create a new column on a view. Create a project priority column.
4. Select Advanced Options. Add a rule.
5. Select Not Null as the qualifier. This ensures the image always appears. Select ‘show an icon here’. Choose any icon. This becomes your placeholder.





Customizing Icons (continued)

6. Click Add Rule.
7. Click Switch to text mode.
8. Locate the line that contains truetext=
9. Highlight and delete all text after truetext=
10. Replace the deleted text with the complete URL you copied earlier.
11. Add the following line:

    image.width=20

12. Click Done.