workday. | EDUCATION

Calculated Fields

Course Manual and Activity Guide

This booklet is for the personal use of only the individuals who have enrolled in this specific Workday training course. You may make copies only as necessary for your own use. Any distribution, even within your organization, is strictly prohibited unless Workday has authorized such distribution in writing.

© 2018 Workday, Inc. All rights reserved. Workday, the Workday logo, Workday Enterprise Business Services, Workday Human Capital Management, Workday Financial Management, Workday Resource Management and Workday Revenue Management are all trademarks of Workday, Inc. All other brand and product names are trademarks or registered trademarks of their respective holders. Version 30.1 (April 2018)

workday. | EDUCATION

Training the way you want it, within your budget

We offer a variety of learning delivery options, ranging from accreditation to self-paced independent learning offerings.

Workday Pro

This customer-focused accreditation program helps drive greater Workday competency and self-sufficiency for your organization.

Workday Touchpoints Kit

The Workday Touchpoints Kit helps you identify cross-functional impacts across the full suite. By providing a macro view of the Workday components and the relationships among them, it ensures higher quality and smarter implementations.

Adoption Kit

This collection of templates and resources accelerates student training and your Workday rollout. It includes a combination of videos, job aids, and facilitation and marketing materials. All content can be tailored to your needs, or used as-is.

The Next Level

A series of online demonstrations that show Workday in action and give you tips on deploying features.

Confidential © 2018 Workday, Inc.

Enablement Workshops

In-person training with hands-on configuration in your own sandbox tenant.

Learn Independent

This learning experience combines videos, interactive exercises, quizzes, and tests into a comprehensive, online learning curriculum that students can complete at their own pace. Students also experience hands-on activities in a Workday tenant.

Learn Virtual

Our virtual classroom offers the advantages of live instructors without the expense and time associated with travel. Students connect to our training environment and participate remotely, complete hands-on activities, and interact with instructors and other students.

Learn On-Demand

As a supplement to instructor-led offerings, this training provides immediate access to specific courses and includes short, topic-specific videos and job aids.

Learn In-Person

This instructor-led, in-classroom training prepares students to meet their job requirements. It combines lectures, social learning, product demonstrations, and hands-on activities.

Learn more about our training opportunities on Community:

https://community.workday.com/training/km

Confidential © 2018 Workday, Inc.

CONTENTS

Calculated Fields for Workday 30 10

Description 10

Goal & Objectives 10

Proxy Access in Training Tenants 11

Chapter 1 – Calculated Fields Overview 12

Overview 12

Objectives 12

Calculated Fields Overview 13

Characteristics of Calculated Fields 14

System-Wide vs. Report-Specific Calculated Fields 15

Calculated Field Functions 18

Creating a Calculated Field 20

Naming Conventions 23

Access to Calculated Fields 24

Activity 1.1 (Walkthrough) – Creating and AccessinG Calculated Fields 26

Locating Existing Calculated Fields 29

Demo – Where Can You Find Calculated Fields? 31

Activity 1.2 – Find Existing Calculated Fields 33

Performance Considerations 35

Chapter 1 Knowledge Check 36

Chapter 2 – Working with Dates and Text Strings 37

Overview 37

Objectives 37

Scenario 38

Global Calculated Fields 38

Confidential © 2018 Workday, Inc.

Numeric Constant 39
Increment or Decrement Date 41
Date Difference 43
Activity 2.1 – Date Functions 45
Scenario 49
Substring Text 49
Convert Text to Number 51
Activity 2.2 – Text Functions 52
Text Length 56
Chapter 2 Knowledge Check 57
Chapter 3 – Evaluating Conditions 58
Overview 58
Objectives 58
Scenario 59
Constant Fields 60
True/False Condition 62
Evaluate Expression 63
Calculation Hierarchy 64
Demo – Evaluate Expression and View Calculation Hierarchy 66
planning Your Calculated Fields 68
Activity 3.1 – True/False Condition and Evaluate Expression 69
Lookup Range Band 75
Demo – Lookup Range Band 76
Evaluate Expression vs. Lookup Range Band 80
Performance Considerations 81
Chapter 3 Knowledge Check 82

Confidential © 2018 Workday, Inc.

Chapter 4 – Performing Mathematical Calculations 83

Overview 83

Objectives 83

Scenario 84

Count Related Instances 85

Sum Related Instances 87

Activity 4.1 – Count and Sum Related Instances 89

Arithmetic Calculation 93

Activity 4.2 – Arithmetic Calculation 95

Convert Currency 98

Chapter 4 Knowledge Check 100

Chapter 5 – Retrieving Data From Related Objects 101

Overview 101

Objectives 101

Scenario 102

Working with Related Business Objects 103

Lookup Related Value 104

Extract Single Instance 106

Activity 5.1 – Lookup Related Value and Extract Single Instance 110

Scenario 114

Extract Multi-Instance 115

Extract Multi-Instance Operation Types 116

Activity 5.2 – Extract Multi-Instance 118

Performance Considerations 122

Scenario (On Your Own) 123

Activity 5.3 – Retrieving Data from Related Objects (On Your Own) 124

Confidential © 2018 Workday, Inc.

Chapter 5 Knowledge Check 125

Chapter 6 – Working With Lookups 126

Overview 126

Objectives 126

Demo – Lookup Hierarchies 127

Scenario 129

Lookup Hierarchy 130

Lookup Hierarchy Rollup 131

Activity 6.1 – Lookup Hierarchy Rollup and Lookup Hierarchy 133

Chapter 6 Knowledge Check 137

Chapter 7 – Change Detection 138

Overview 138

Objectives 138

Scenario 139

Lookup Value as of Date 140

Change Detection 143

Activity 7.1 – Change Detection 145

Reporting on Business Process Events 153

Reporting on Events: PBO vs. RBO 155

Current and Proposed Values 156

Appendix A – Workday Pro 157

customer accretidation program 157

Appendix B – Activity Question Reference Guide 159

Activity Questions Answer Key 159

Activity 1.2 – Find Existing Calculated Fields 160

Activity 2.1 – Date Functions 161

Confidential © 2018 Workday, Inc.

Activity 3.1 – True/False Condition and Evaluate Expression 162

Activity 4.2 – Arithmetic Calculation 163

Activity 5.2 – Extract Multi-Instance 164

Activity 5.3 – (On Your Own) Retrieving Data from Related Objects – Solution Guide 165

Activity 7.1 – Change Detection 167

Appendix C – Knowledge Check Answer Keys 168

Introduction 168

Chapter 1 Knowledge Check 168

Chapter 2 Knowledge Check 168

Chapter 3 Knowledge Check 169

Chapter 4 Knowledge Check 169

Chapter 5 Knowledge Check 170

Chapter 6 Knowledge Check 170

Appendix D – Calculated Fields Quick Guide 171

Calculated Fields Quick Guide 171

Appendix E – Calculated Fields Performance Points 179

Calculated Fields Performance Points 179

Appendix F – Helpful Resources 181

Helpful Reports 181

Workday Community 183

Appendix G – Class Evaluations 184

Available at the Start of the Last Day of Class 184

Available After Class Ends and Roster Submitted 184

Class Evaluation (Session Within a Curriculum): Available at the Start of the Last Day of Class 185

Class Evaluation (Within a Curriculum): Available After Class Ends and Roster Submitted 186

Confidential © 2018 Workday, Inc.

Confidential © 2018 Workday, Inc.

CALCULATED FIELDS FOR WORKDAY 30

DESCRIPTION

Calculated fields allow users to perform arithmetic, date calculations, text concatenation, logical expressions, retrieval of related data, formatting, and transformations of existing data. Calculated fields can be based on Workday-delivered fields, other calculated fields, or available custom fields. You can use calculated fields in reporting, business processes, integrations, scheduling recurring processes, and other areas within Workday. In other words, calculated fields enable you to see the data where you want it and how you want it. Through hands-on activities and demonstrations, you will learn how calculated fields can enable rich, customized reports without coding or programming, using simple field configurations.

This course will cover the following topics:

- Calculated Fields Overview
- Working with Dates and Text Strings
- Evaluating Conditions
- Retrieving Data from Related Objects
- Performing Mathematical Calculations
- Working with Lookups
- Change Detection

GOAL & OBJECTIVES

In this class, you will be stepping into the roles of two workers at Global Modern Services. Logan McNeil, the Chief Human Resources Officer (CHRO), is the report writer for the HCM side of the business. Teresa Serrano, Chief Financial Officer (CFO), is the report writer for the financial side of the business. Throughout this class, you will help them create calculated fields to solve more complex reporting requirements.

By the end of this course, you will:

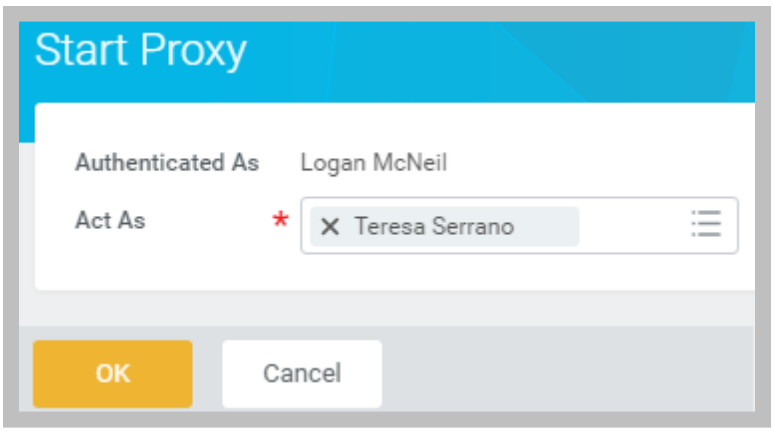
- Create calculated fields that manipulate dates and text, evaluate conditions, work with data from related objects, and perform arithmetic calculations.
- Use a combination of calculated fields to solve complex business requirements.
- Describe the security features that control access to calculated fields.
- Explain the performance considerations when creating a calculated field.

Confidential © 2018 Workday, Inc.

PROXY ACCESS IN TRAINING TENANTS

Throughout this class, you will use proxy access in your training tenants to make it easy to test reports as other users. Proxy access can only be enabled in training, sandbox, and other non-production environments. In order to use proxy access, a proxy access policy must be configured in the tenant.

You can use the Start Proxy task to act as another user in the tenant.

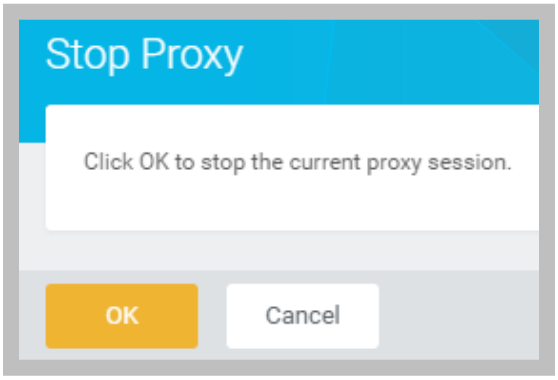


1 - Start Proxy

When acting as another user, you will see “On behalf of:” in the top right corner of the screen.

2 - On Behalf of Another User

You can use the Stop Proxy task to act as yourself again.



3 - Stop Proxy

Confidential © 2018 Workday, Inc.

CHAPTER 1 – CALCULATED FIELDS OVERVIEW

OVERVIEW

In this chapter, you will be introduced to calculated fields. You will review the different types of calculated fields, including report-specific and system-wide, and see how to identify and access the calculated fields that exist in your tenant.

OBJECTIVES

By the end of this chapter, you will be able to:

- Describe the capabilities of calculated fields.
- Explain the purpose of each calculated field function.
- Describe the security features that control access to calculated fields.
- Determine if a calculated field already exists in the system.

Confidential © 2018 Workday, Inc.

CALCULATED FIELDS OVERVIEW

Calculated fields are new field definitions that you can configure that allow you to manipulate, transform, retrieve, and derive values based on existing data. As you will see in this course, you can use calculated fields to:

- Perform date calculations and formatting.
- Perform math calculations.
- Manipulate text with concatenate, substring, and formatting functions.
- Convert currency fields.
- Derive range bands from numeric or currency fields.
- Determine if a condition is true or not.
- Drilldown and lookup levels and values in hierarchies and organizations.
- Sum, count, and aggregate information across related instances.
- Lookup values in related objects.

WHERE CAN CALCULATED FIELDS BE USED?

Calculated fields are frequently used in reporting to deliver data that would otherwise be unavailable from the primary business object of the report. However, calculated fields can be used in a variety of ways:

Reporting

- Creating new fields to add to a custom report
    - Example: Creating a Date Difference calculated field to determine how overdue an employee's performance review is

- Creating custom prompts or filters to affect the report output
    - Example: Creating a True/False Condition calculated field to only display workers with a Regular or Full-Time status and exclude contract workers

- Accessing data from the Primary Business Object
    - Example: Moving data from a Related Business Object (RBO) to the Primary Business Object (PBO) for use in specific report types and functions, as well as in other calculated fields

Business Processes

- Controlling condition steps in a business process
    - Example: Creating a Text Length calculated field to determine how many letters are in a new hire's name. Add as a condition to the Hire business process so that if the new hire's name is more than 20 characters, a request for a custom nametag will be submitted

Confidential © 2018 Workday, Inc.

Integrations

- Used with connectors and in reports that may be used to collect data for either document transformation or EIBs
    - Example: Using a Format Text calculated field to format employee first names to uppercase to align with the needs of the external system in the integration

Scheduling Recurring Processes

- Determine dynamic run-time parameters for recurring scheduled processes.
    - Example: Using an Increment or Decrement Date calculated field to determine the date parameters necessary to run a specific report for each day from today through two months ago

CHARACTERISTICS OF CALCULATED FIELDS

CALCULATED AT RUNTIME

All calculated fields are resolved at runtime. The value can be calculated based on other Workday-delivered fields, other calculated fields, and/or available custom fields. Calculated fields are resolved at runtime because the values of the other fields used to determine the value of the calculated field can vary from day to day or even moment to moment. These field and object instance values are retrieved as of the moment you run the report or execute the condition rule that uses the calculated field.

ASSOCIATED WITH BUSINESS OBJECT

Calculated fields are associated with a business object (BO). This BO determines which fields are available for use within your calculated field. Any calculated fields you create for a BO appear and behave just like any other Workday-delivered fields for the BO. The BO also controls when the calculated field appears in prompts and reports.

Example: A calculated field built on the Worker business object would be based on the existing fields on the Worker object. That calculated field would become a new field on Worker and could be used wherever other fields on Worker are used.

BASED ON EXISTING DATA

Calculated fields are based on data already existing within the tenant. Their value is not stored, but instead, pulled from existing fields at runtime. This means that calculated fields will not be affected by changes to the underlying objects and fields used in the calculation. In other words, when values in your tenant change, the new values will automatically be included in any calculated field calculations.

Confidential © 2018 Workday, Inc.

SYSTEM-WIDE VS. REPORT-SPECIFIC CALCULATED FIELDS

You typically create calculated fields with either the Create Calculated Field task or the Maintain Calculated Fields report. Any calculated field created using one of these methods is automatically enabled for system-wide use and referred to as a system-wide calculated field. However, you can also create a calculated field with a more limited scope directly within report definitions. These calculated fields are called report-specific calculated fields. We will explore both types in this class.

SYSTEM-WIDE CALCULATED FIELDS

Some key benefits of using system-wide calculated fields include:

- They are available throughout Workday, not just in reports.
- They are available for use in multiple reports.
- Since they can be reused in other reports and processes, you will have fewer duplicate calculated fields.

However, there are cases where the use of a report-specific calculated field might be advantageous to a specific report definition.

REPORT-SPECIFIC CALCULATED FIELDS

Report-specific calculated fields are identical to system-wide calculated fields, except that they are only available to a single report definition and do not appear in the list of system-wide calculated fields that appears when you run the Maintain Calculated Fields task. You can use report-specific calculated fields in your report definitions.

The key benefits of report-specific calculated fields are that they:

- Reduce the "clutter" associated with having calculated fields defined system-wide, when they are used only by a single report or integration.
- Allow report authors to define calculations without having to coordinate the creation of a calculated field with others.

CREATING REPORT-SPECIFIC CALCULATED FIELDS

There are several ways that you can create report-specific calculated fields for a given custom report definition. Be aware that if you create a report-specific calculated field and it is no longer referenced in your report, but is still associated with and defined for your report, you will see a warning.

Confidential © 2018 Workday, Inc.

- From a field prompt in the report definition, you can select Create Calculated Field for Report to add a report-specific calculated field to your report column, prompt, filter, sort, etc.
- From a report's Related Actions, you can select:
    - Calculated Field for Report > Create.
    - Calculated Field for Report > Maintain.
- Use the Maintain Calculated Fields for Report task for a given report to access the Add, Edit, and Delete options.

MAINTAIN REPORT-SPECIFIC CALCULATED FIELDS

The Maintain Calculated Field for Report task works the same as the Maintain Calculated Fields task for system-wide calculated fields, but results are shown by custom report and the output will display only report-specific calculated fields used in that report. You can edit, delete, and add report-specific calculated fields from this task option as well. We will discuss this more later.

CONVERTING REPORT-SPECIFIC AND SYSTEM-WIDE CALCULATED FIELDS

If you create a report-specific calculated field, only to later determine that you want to use it in another report, there is no need to create an additional calculated field. You can convert both system-wide and report-specific calculated fields to suit your reporting needs.

To convert a report-specific calculated field to a system-wide calculated field (so that other custom reports can reference it), follow these steps:

1. Access the Convert Calculated Field for Report task.
2. Select the Report Name where the calculated field is referenced.
3. Select the Business Object associated with the calculated field.
4. Select the Field.
5. Click OK and Done.

To convert a system-wide calculated field to a report-specific calculated field (so that it is no longer available to other custom reports), follow these steps:

1. Access the Convert Calculated Field task.
2. Select the Report Name where the calculated field is referenced.
3. Select the Business Object associated with the calculated field.
4. Select the Field.

Confidential © 2018 Workday, Inc.

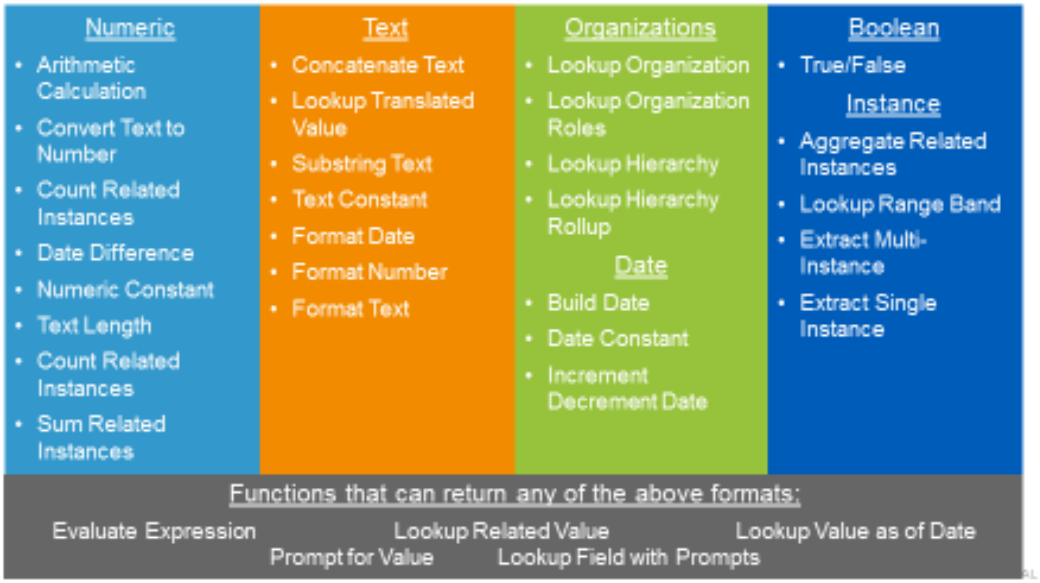
5. Click OK and Done.

Note: If a system-wide calculated field is being used in anything other than a report (including business process conditions or calculated fields), then it cannot be converted to report-specific. If it is only being used in the report you want to tie it to, then it can be converted.

Confidential © 2018 Workday, Inc.

CALCULATED FIELD FUNCTIONS

Calculated fields can be date, numeric, currency, text, Boolean, single instance, and multi-instance fields. The calculation function determines the possible field types that can be returned. By having different field types returned, further calculations can be done from calculated fields themselves. The following table lists all of Workday's calculated field functions by the types of fields returned. For more information on these calculated field functions, check out Workday Documentation and search for "Calculated Fields Reference".



CALCULATED FIELD FUNCTIONS

- Aggregate Related Instances
- Arithmetic Calculation
- Build Date
- Concatenate Text
- Convert Currency
- Convert Text to Number
- Count Related Instances
- Date Constant
- Date Difference
- Evaluate Expression
- Extract Multi-Instance
- Extract Single Instance
- Format Date
- Format Number
- Format Text

Confidential © 2018 Workday, Inc.

- Increment or Decrement Date
- Lookup Date Rollup
- Lookup Field with Prompts
- Lookup Hierarchy
- Lookup Hierarchy Rollup
- Lookup Organization
- Lookup Organizational Roles
- Lookup Range Band
- Lookup Related Value
- Lookup Translated Value
- Lookup Value as of Date
- Numeric Constant
- Prompt for Value
- Substring Text
- Sum Related Instances
- Text Constant
- Text Length
- True/False Condition

Confidential © 2018 Workday, Inc.

CREATING A CALCULATED FIELD

To create system-wide calculated fields, use the Create Calculated Field task.

There are three basic steps to create a calculated field:

1. Enter Initial Information
    - Provide a Name
    - Select a Business Object
    - Choose a function
2. Calculation Tab
    - Specify the parameters. Parameters vary depending on the calculated field function selected.
3. Additional Information Tab
    - Specify, as needed, to help organize, document, locate, and reference your calculated field.

INITIAL INFORMATION

First, you are prompted to enter a Field Name, select the Business Object, and Function desired. The business object choice determines two major outcomes:

- What fields will be available within the calculation
    - If you choose the Employee Business Object, then all class report fields on the Employee business object will be available for use in your calculated field.
- Where the new calculated field will be available to be used
    - If you choose the Employee Business Object, then your calculated field will be available to be used anywhere where fields on Employee are able to be used. The calculated field would be a new field on the Employee business object and have the same access rules and characteristics as the other fields on Employee.

CALCULATION TAB

This is where you specify the parameters of the calculated field. The parameters you configure here will vary depending on the calculated field function selected.

Confidential © 2018 Workday, Inc.

ADDITIONAL INFORMATION TAB

Use the following fields in this tab to specify additional information, as needed, to help organize, document, locate, and reference your calculated field.

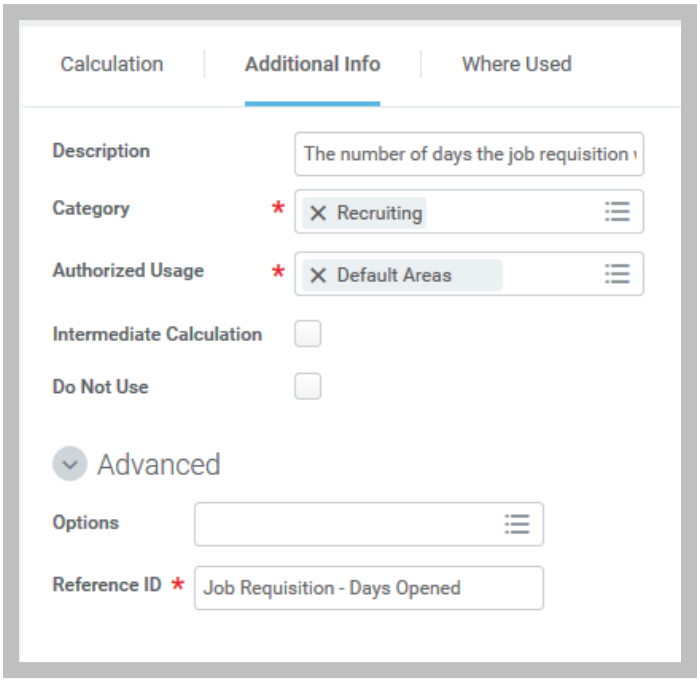
Field	Definition
Description	This will help you and other users to track the purpose of each calculated field.
Category	Categorizing your calculated fields can help users locate calculated fields by category in field prompts. “Uncategorized” is the default. You can configure more categories as needed.
Authorized Usage	Allows customers to restrict the areas within Workday where the calculated field will be displayed in prompts. “Default Areas” is the default and should be used unless there is a compelling reason not to. Benefits Eligibility, Calculation Engine (Payroll/Absence), and Compensation Eligibility should, for example, be explicitly added in addition to Default Areas if needed.
Intermediate Calculation	This checkbox drives whether the calculated field will show in main field prompts or not. If checked as Intermediate, it will NOT show in main prompts and shows up in the “Other” category. If not checked as Intermediate, it will show in main field prompts under the “All” or designated Category. Intermediate calculated fields are still searchable and usable. This checkbox only dictates where the field will show in field prompts.
Do Not Use	The Do Not Use checkbox will append the Do Not Use label to your calculated field name to indicate that this field should not be used going forward. Do Not Use fields will also no longer show in the main field prompt (All or By Category) and can, instead, be found under Other > Do Not Use Fields. <u>Note</u>: Calculated fields cannot be deleted when in use. Mark as Do Not Use while in development or if you plan to deprecate use.

Confidential © 2018 Workday, Inc.

ADVANCED OPTIONS

The Advanced section in the Additional Info tab is collapsed by default. You can expand this section to see available options.

Resource	Definition
Options	Select Include as default View By field in drill downs, if appropriate. This option is only used with matrix reports and applies to single instance, text, Boolean, date, and numeric calculated fields. It specifies that the calculated field should be included in the list of default fields from which the user can group data by when drilling down.
Reference ID	This is an identification field that is created by default from the business object name and your calculated field name. You can change the value. This field can be used when building integrations, for operations that need to access this field by its ID.

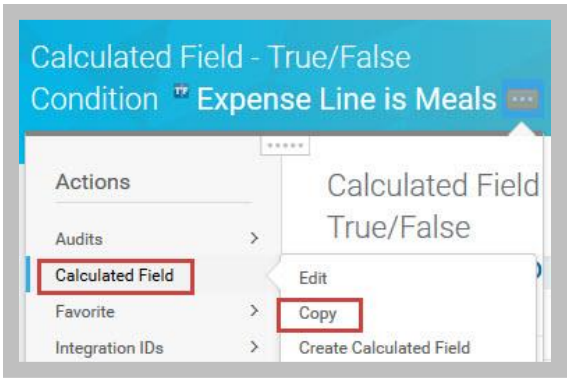


4 - Additional Info tab

Confidential © 2018 Workday, Inc.

COPY CALCULATED FIELD

To copy an existing calculated field, use its Related Actions to select Calculated Field > Copy. When you copy an existing calculated field, the new field must use the same business object and function as the original field.



5 – Using Related Actions to Copy a Calculated Field

NAMING CONVENTIONS

When creating calculated fields in your system, best practice is to adhere to a set naming convention for your organization. You can include information in the name of the calculated field to easily identify details such as organization, calculated field function, report author name, report name, etc.

Example: Company-CF-RPT-Date Difference-MD-Phase1-Months since last pay increase

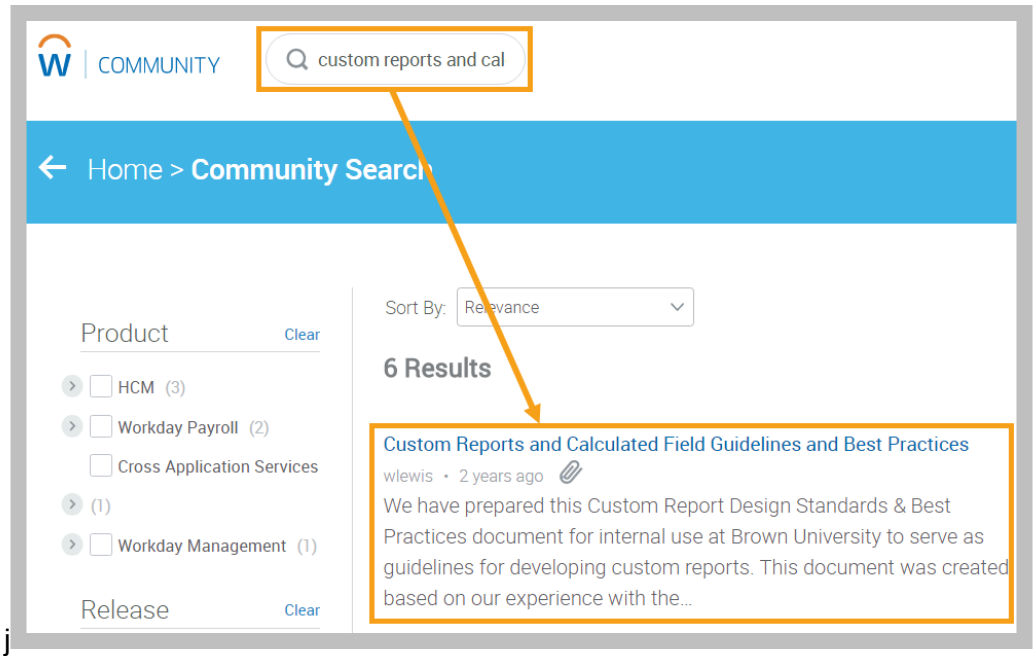
Alternatively, you could name your calculated fields like any other field in the system and, instead, include the details in the Category and Description sections of the Additional Info tab.

Example: Months since last pay increase

In either case, make sure your organization has a set naming convention and method of organizing your calculated fields and reports. Adhere to these conventions to avoid redundancy.

For more information about naming conventions, search for Custom Reports and Calculated Field Guidelines and Best Practices on Workday Community.

Confidential © 2018 Workday, Inc.



j

6 - Screenshot of Workday Community, where you can find a guide on custom reports and calculated fields guidelines and best practices

ACCESS TO CALCULATED FIELDS

WHO CAN CREATE CALCULATED FIELDS?

To create, edit, or delete system-wide calculated fields, you must be assigned to a security group that is authorized for the Custom Field Management domain. To ensure control and consistency, and avoid duplicate field definitions, access to that domain should be limited to key individuals in your organization.

The following domains control who can access and create calculated fields:

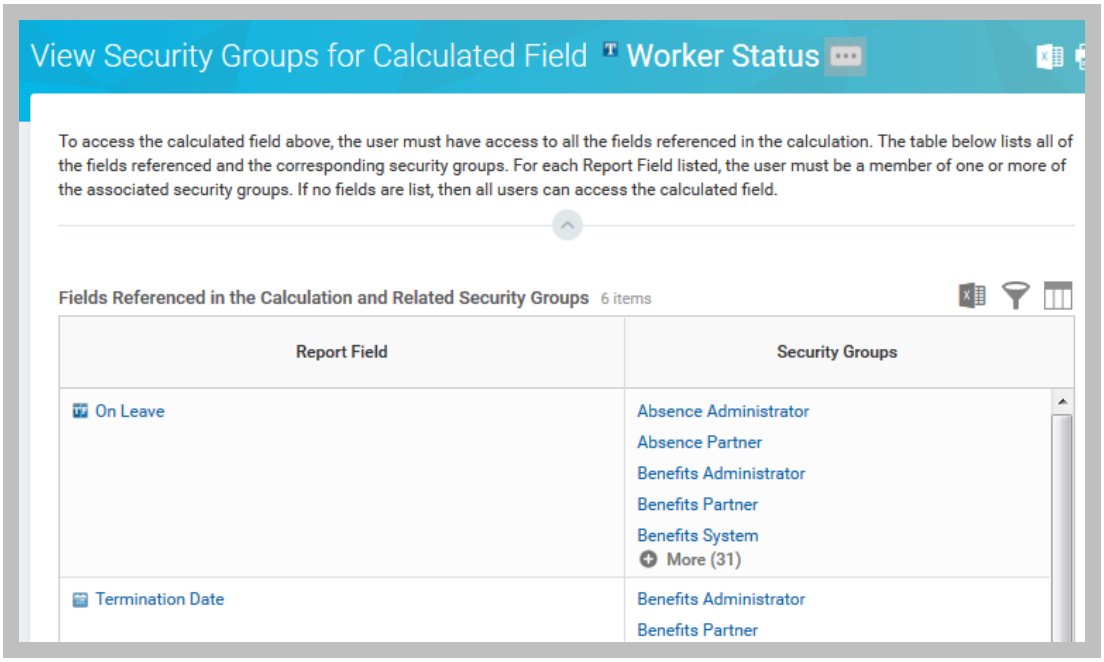
- Custom Field Management (for system-wide calculated fields)
- Private Calculated Fields Management (for report-specific calculated fields)

WHO CAN USE AND SEE VALUES FOR A CALCULATED FIELD?

Once defined, only users with access to the underlying secured fields can access and see the values for calculated fields. Underlying secured fields are Workday-delivered report fields or custom fields, not calculated fields. Workday-delivered report fields and custom fields are secured to domains. Users must have access to the domain(s) for these underlying fields in order to have access to any calculated fields that are based on them. Security access to a calculated field definition is therefore “derived” from its underlying secured fields.

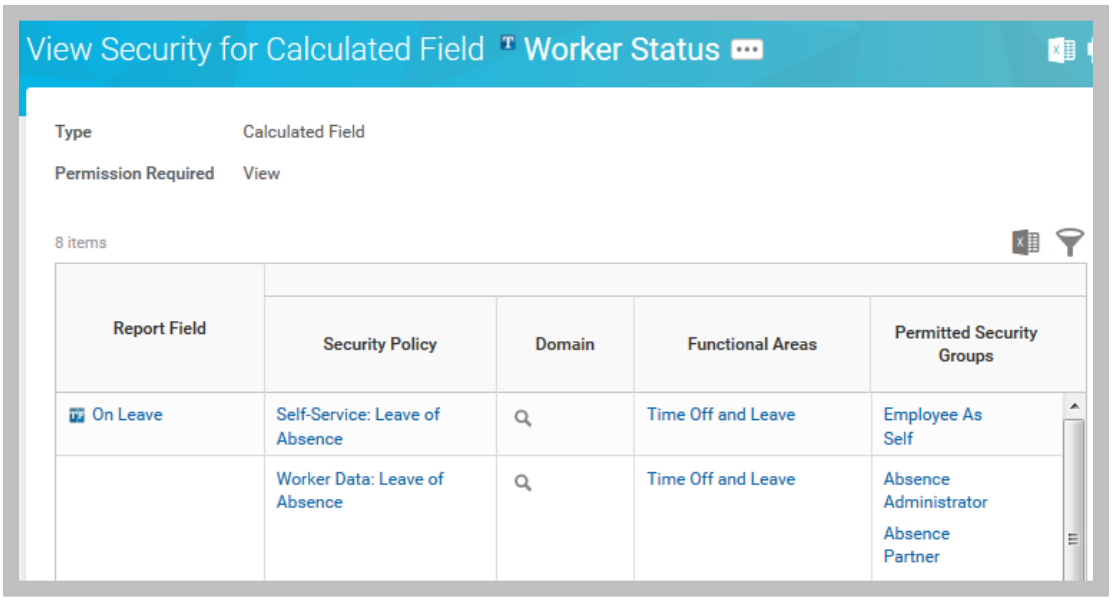
Confidential © 2018 Workday, Inc.

You can view the security for a calculated field to see the underlying secured fields and configured security. Using the field's Related Actions, select Calculated Field > View Security Groups. Here, you can see the underlying secured fields and configured security groups.



7 - View Security Groups for Calculated Field report (Worker Status)

To determine which domains/domain security policies can be configured, use the Calculated Field's Related Actions to select Security > View Security. Here, you can see the underlying domains/domain security policies.



8 - View Security for Calculated Field report (Worker Status)

Confidential © 2018 Workday, Inc.

ACTIVITY 1.1 (WALKTHROUGH) – CREATING AND ACCESSING CALCULATED FIELDS

This walkthrough will show how system-wide calculated field definitions are visible by default and can be edited by any user that has access to create calculated fields, regardless of ownership. It will also show how you can create any calculated field definition using any field, regardless of security. However, when it comes to then using the calculated field in, for example, a report or rule, you can only use and see calculated fields in which you have access.

TASK #1: CREATE A CALCULATED FIELD

1. Sign in as Teresa Serrano (tserrano).
2. Run the **Create Calculated Field** task, and enter the following information:

Field Name	***Entry Value***
Field Name	Test CF
Business Object	Worker
Function	Format Text

3. Click **OK**.
4. In the Calculation tab, enter the following information:

Field Name	***Entry Value***
Source Field	Gender
Options	Upper Case

5. Click **OK**.

TASK #2: USE THE CALCULATED FIELD IN A REPORT

1. Run the **Create Custom Report** task, and enter the following information:

Confidential © 2018 Workday, Inc.

Field Name	*Entry Value*
Report Name	Test Report
Report Type	Advanced
Data Source	Workers for HCM Reporting

2. Click **OK**.
3. Under the Columns tab, try adding the following fields:
   A. Gender (Notice that Teresa only has access to the Gender for Committee Candidate field, but not the Gender field.)
   B. Test CF (Notice that Teresa does not have access to the calculated field she created in Task 1. This is because Teresa does not have access to the underlying secured field: Gender.)

Note: This scenario, in which you can create a calculated field, but cannot test it in a report, is very uncommon. You will typically have access to the underlying fields to then test your calculated field. However, this demo is to show you how you can DEFINE any calculated field definition, even if you do not have access to the underlying fields to then use and test the calculated field in a report to see the values.

4. Click **Cancel** to discard this new report.
5. Sign out.

TASK #3: ADD THE GENDER FIELD

1. Sign in as Logan McNeil (lmcneil).
2. Run the **Create Custom Report** task, and enter the following information:

Field Name	*Entry Value*
Report Name	Test Report 1
Report Type	Advanced
Data Source	Workers for HCM Reporting

3. Click **OK**.

Confidential © 2018 Workday, Inc.

4. Under the columns tab, try adding the Gender field.

   Logan has security access to gender information, so this field is available to add to the report.

5. Click **Cancel** to discard these changes.

TASK #4: EDIT A CALCULATED FIELD

1. Run the **Edit Calculated Field** task.
2. Bring up Teresa's calculated field: **Test CF**.
3. Edit the Options to be **Lower Case**.
4. Click **OK**.

   Notice that Logan was able to edit Teresa's calculated field definition. Any user with access to the Custom Field Management domain can create, edit, view, or delete any system-wide calculated field definition in the tenant.

TASK #5: VIEW AUDIT TRAIL OF CALCULATED FIELD

1. Use the Test CF's **Related Actions** to select **Audits** > **View Audit Trail**.
2. Click **OK**. Notice the changes we made to the definition.

TASK #6: DELETE A CALCULATED FIELD

Since the Test CF calculated field is not being used anywhere, Logan can delete the definition.

1. Using the Test CF's **Related Actions**, select **Calculated Field** > **Delete**.
2. Delete the calculated field definition.

Confidential © 2018 Workday, Inc.

LOCATING EXISTING CALCULATED FIELDS

Use the following resources to help you locate any existing calculated fields in your tenant before you begin building your report. It is likely that there will be a calculated field in your tenant that at least performs similarly to the field you are designing.

Resource	Definition
Maintain Calculated Fields Report	View all the system-wide calculated fields defined in Workday. You can also use as the control center for tasks related to system-wide calculated fields.
All Calculated Fields Report	Returns all calculated fields in the tenant. You can specify to return only calculated fields on a specific BO. Selecting the Include Report Specific Calculated Fields checkbox will ensure that both system-wide and report-specific fields are included in the report output.
Business Object Details Report	Returns all fields available on a specified BO, including both Workday-delivered and calculated fields. You can also see related business objects, data sources, and reports for the business object selected.
Report Fields Report	Reference for fields in tenant including Workday-delivered, calculated, and custom fields
Maintain Calculated Fields for Report Report	View all report-specific calculated fields for the reports in your system. You can also use to create new report-specific calculated fields for a specified report.

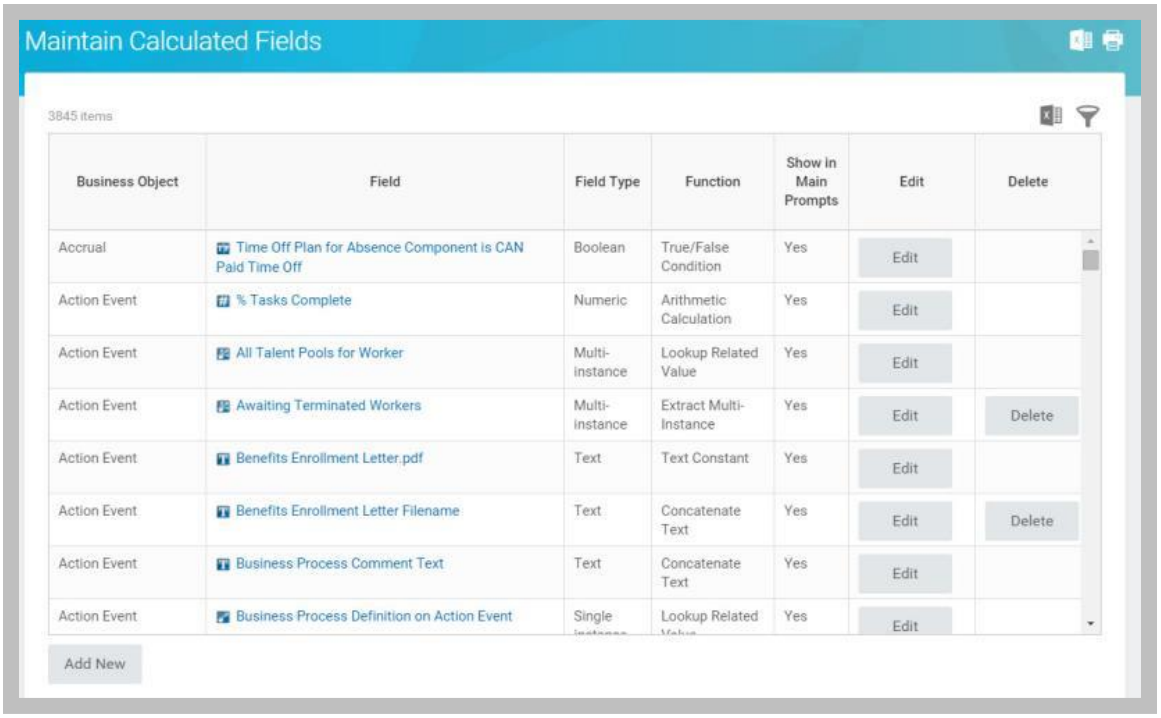
MAINTAIN CALCULATED FIELDS REPORT

You can use the Maintain Calculated Fields report as a control center for tasks related to system-wide calculated fields. With this report you can:

- View all the system-wide calculated fields defined in Workday.
- Create a new calculated field using the Add New button.
- Edit a calculated field using the Edit button or by using a field's Related Actions to select Calculated Field > Edit.
- Delete a calculated field using the Delete button or by using the field's Related Actions to select Calculated Field > Delete.
    - Calculated fields already in use, such as in a custom report, cannot be deleted until all references within Workday have been removed for that calculated field. To determine if a calculated field is being used, view the Where Used tab in the calculated field definition.
- Copy a field using its Related Actions to select Calculated Field > Copy.

Confidential © 2018 Workday, Inc.

- Check all the security groups required to access a field by using its Related Actions to select Calculated Field > View Security Groups.
    - The groups listed are based on the security of all of the Workday-delivered (and/or custom) fields used in the calculation.



Business Object	Field	Field Type	Function	Show in Main Prompts	Edit	Delete
Accrual	Time Off Plan for Absence Component is CAN Paid Time Off	Boolean	True/False Condition	Yes	Edit	
Action Event	% Tasks Complete	Numeric	Arithmetic Calculation	Yes	Edit	
Action Event	All Talent Pools for Worker	Multi-instance	Lookup Related Value	Yes	Edit	
Action Event	Awaiting Terminated Workers	Multi-instance	Extract Multi-Instance	Yes	Edit	Delete
Action Event	Benefits Enrollment Letter.pdf	Text	Text Constant	Yes	Edit	
Action Event	Benefits Enrollment Letter Filename	Text	Concatenate Text	Yes	Edit	Delete
Action Event	Business Process Comment Text	Text	Concatenate Text	Yes	Edit	
Action Event	Business Process Definition on Action Event	Single	Lookup Related	Yes	Edit	

9 - Maintain Calculated Fields report

You can also run the following tasks directly from the search box to edit, create, and delete calculated fields:

- Create Calculated Field
- Edit Calculated Field
- Delete Calculated Field

In addition, you can search using the *cf:* prefix to locate a particular calculated field by name.

Confidential © 2018 Workday, Inc.

DEMO – WHERE CAN YOU FIND CALCULATED FIELDS?

It is important to leverage existing resources to know what fields already exist in the tenant before creating new calculated fields.

TASK #1: RUN THE MAINTAIN CALCULATED FIELDS REPORT

1. Sign in as Logan McNeil (lmcneil).
2. Run the **Maintain Calculated Fields** report.
3. Add a filter on the Business Object column using the following parameters:

Field Name	***Entry Value***
Filter Condition	Begins with
Value	Worker

   Notice all of the existing system-wide calculated fields defined in the tenant for the Worker business object.

4. Add a filter on the Function column using the following parameters:

Field Name	***Entry Value***
Filter Condition	Contains
Value	True/false

   Notice all of the True/False Condition calculated fields for the Worker business object.

5. Click the **45 Years or Older** calculated field to view the field's definition.
   A. Note the Calculation tab and the configured condition.
   B. Click the **Additional Info** tab to see how this calculated field is described and categorized.
   C. Click the **Where Used** tab to see where this calculated field is being used.
6. Return to the Maintain Calculated Fields report, and try filtering the output on a different business object: Journal Line. Do not filter on the Function column.

Confidential © 2018 Workday, Inc.

A. See all the existing system-wide calculated fields defined in the tenant for the Journal Line business object.

B. Scroll down and find the calculated field: Fiscal Period.

C. Click the **Fiscal Period** calculated field to view the definition in the Calculation tab. This calculated field is taking the Accounting Date on the Journal Line and formatting it as a Fiscal Period - Year using the Standard Corporate Schedule.

D. Click the **Additional Information** tab and see how this calculated field is documented.

E. Click the **Where Used** tab to see where this calculated field is being used.

Note: Categorizing and documenting your calculated fields will assist you in tracking what is in Workday and following future impacts of changes made.

TASK #2: EXPLORE MORE RESOURCES TO TRACK EXISTING FIELDS IN TENANT

Besides the Maintain Calculated Fields report, there are other key reports and resources to show you existing fields in the tenant.

1. Run the **All Calculated Fields** report using the following parameters:

Field Name	***Entry Value***
Business Object	Expense Report
Include Report Specific Calculated Fields	(checked)

   Notice that this report returns all system wide and report specific calculated fields for a specific business object. It also shows where each calculated field is being used.

2. Search for and run the **Business Object Details** report.

3. Select the **Expense Report** business object, and click **OK**.

   Under the Fields tab, you can see not only Workday-delivered fields, but also any calculated fields or even any custom fields (if applicable) defined on this business object. Reference the Field Source column to determine if a field is Delivered, Calculated or Custom.

Confidential © 2018 Workday, Inc.

ACTIVITY 1.2 – FIND EXISTING CALCULATED FIELDS

Business Case: Logan McNeil is going to build a custom report on expense reports, so she first wants to see the calculated fields available for the Expense Report business object. She knows there are multiple reports available to find this information, so she will compare the Maintain Calculated Fields, All Calculated Fields, and Business Object Details reports to see what information she can find in each report.

TASK #1: EXPLORE THE MAINTAIN CALCULATED FIELDS REPORT

1. Sign in as Logan McNeil (lmcneil).
2. Search for and run the **Maintain Calculated Fields** report.
3. Use the Business Object column to filter the results to display the fields associated with the **Expense Report** business object. You can also use the Sort Ascending option on this column to separate the fields associated with the Expense Report and Expense Report Line business objects.
4. Notice on this report that you can view each field name, the field type, and the calculated field functions. You can also edit any of these fields directly from this report, or delete one if it is not being used. For example, what kind of field is the **Approved and with Warning Validations** field? What is the calculated field function of this field?

TASK #2: EXPLORE THE ALL CALCULATED FIELDS REPORT

1. Run the **All Calculated Fields** report.
2. Select the **Expense Report** business object and click **OK** to continue. How many results are returned for this business object?
3. Notice that this report contains all of the same calculated fields from the Maintain Calculated Fields report, but does not include the field type or function. This report does include the category and description from the Additional Information tab of each field. It also displays how and where each field is being used in the Area Where Used column. For example, how and where is the **Expense Opportunity Status** field used?

TASK #3: EXPLORE THE BUSINESS OBJECT DETAILS REPORT

1. Run the **Business Object Details** report.

Confidential © 2018 Workday, Inc.

2. Select the **Expense Report** business object and click **OK**.

3. Notice that this report returns both Workday Delivered and Calculated fields for this business object. How many fields exist on the Expense Report business object?

4. Navigate to the **Related Business Objects** tab. Here you find the list of RBOs that the Expense Report object is linked to. How many related business objects is the Expense Report business object linked to?

5. Navigate to the **Data Sources** tab. Here you see the different data sources existing on this business object, as well as a description of each.

6. Navigate to the **Reports** tab. Here you can find a list of all the standard and custom reports that use the Expense Report business object. If you want to create a report on a specific business object, this is a good place to identify any existing reports that may perform a similar function that you can copy or edit.

Activity Complete

Confidential © 2018 Workday, Inc.

PERFORMANCE CONSIDERATIONS

When you begin designing your report and want to use calculated fields, consider the following guidelines to ensure your report performs optimally.

- Consider other options first
  - Make sure there are not delivered fields that you can use; try rewording searches to make sure you aren't missing a field that is already available.
  - Utilize sub-filters and related objects to avoid building calculated fields, if possible.
- Number of calculated fields in report
  - The number of calculated fields on a single report affects performance, so be mindful of the total number of calculated fields on your reports.
- Complexity of calculated fields
  - Increased calculations performed on larger quantities of data affect result speed

Confidential © 2018 Workday, Inc.

CHAPTER 1 KNOWLEDGE CHECK

1. Where can calculated fields **not** be used?
    A. Reports
    B. Business Process Condition Rules
    C. Integrations
    D. Security Configurations
2. What can you use the Maintain Calculated Fields report to do?
    A. Create or edit a calculated field
    B. Share a calculated field with another worker
    C. View standard fields in your system
    D. View who created a calculated field
3. Being authorized for the Custom Field Management domain allows you to edit, create, and delete which kinds of calculated fields?
    A. System Wide
    B. Report Specific

Confidential © 2018 Workday, Inc.

CHAPTER 2 – WORKING WITH DATES AND TEXT STRINGS

OVERVIEW

In this chapter, we will begin to explore some of the different calculated field functions. We will begin with those that capture and manipulate date and text data, specifically the Date Difference, Increment or Decrement Date, Substring Text, and Convert Text to Number functions. For a complete list of all date and text functions, please refer to Appendix D of your course manual.

OBJECTIVES

By the end of this chapter, you will be able create a calculated field to:

- Compute the number of days, months, or years between two dates using the Date Difference function.
- Compute a date that is a specified number of days, months, or years before or after a date field using the Increment or Decrement Date function.
- Extract part of a text string using the Substring function.
- Convert a text string to a number using the Convert Text to Number function.

Confidential © 2018 Workday, Inc.

SCENARIO

Logan McNeil needs to create a report showing how quickly approved expense reports are paid out, and if they are being paid out by the expected deadline of 30 days after approval.

These are the fields she needs to display in the report:

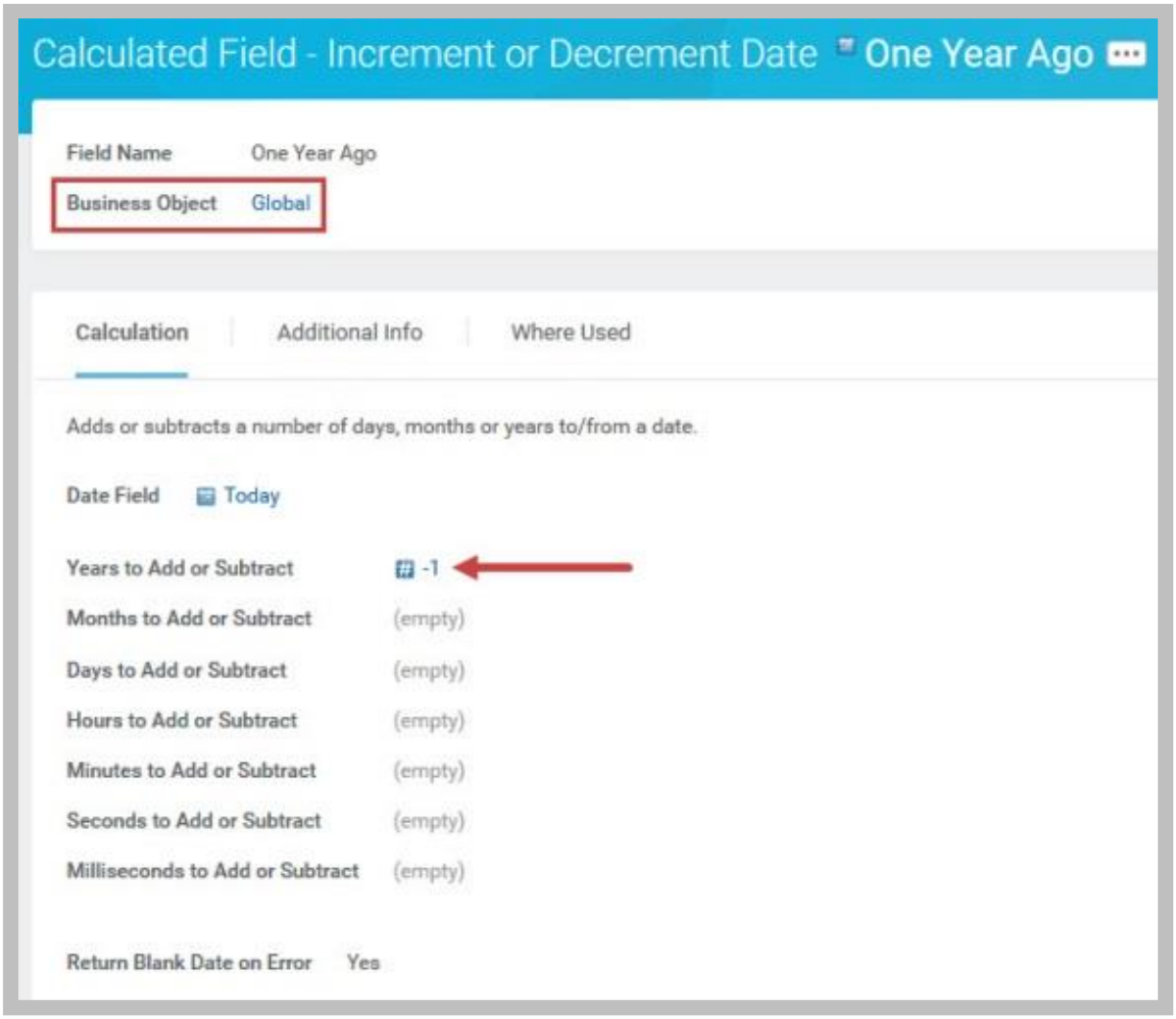
Expense Report	Expense Report Submit Date	Approval Date	Expected Paid Date	Actual Paid Date	# of Days After Approval Before Payment
EXP-00003301	4/22/2008	4/22/2008	5/22/2008	2/16/2009	300
EXP-00003305	4/24/2008	4/24/2008	5/24/2008	6/09/2010	776
EXP-00003305	1/30/2014	1/30/2014	3/01/2014	3/24/2014	53

GLOBAL CALCULATED FIELDS

Global calculated fields are associated with the Global business object. The Global business object contains the fields that are global in nature, which can be both Workday-delivered fields and calculated fields you define. Fields associated with the Global business object are available for use with any business object and are visible to all users. They can represent constants such as '1', '23', 'single space', 'is true', and 'USD.' They can also represent data that varies over time such as 'today', 'last day of this month', and 'current user.' You can create additional global fields by selecting “Global” as the business object when you create a calculated field. Global fields are displayed in their own Global field prompt category.

Confidential © 2018 Workday, Inc.

Example: Global calculated field that returns a date field value of one year before the variable value of Today:



10 - Example of a Global calculated field

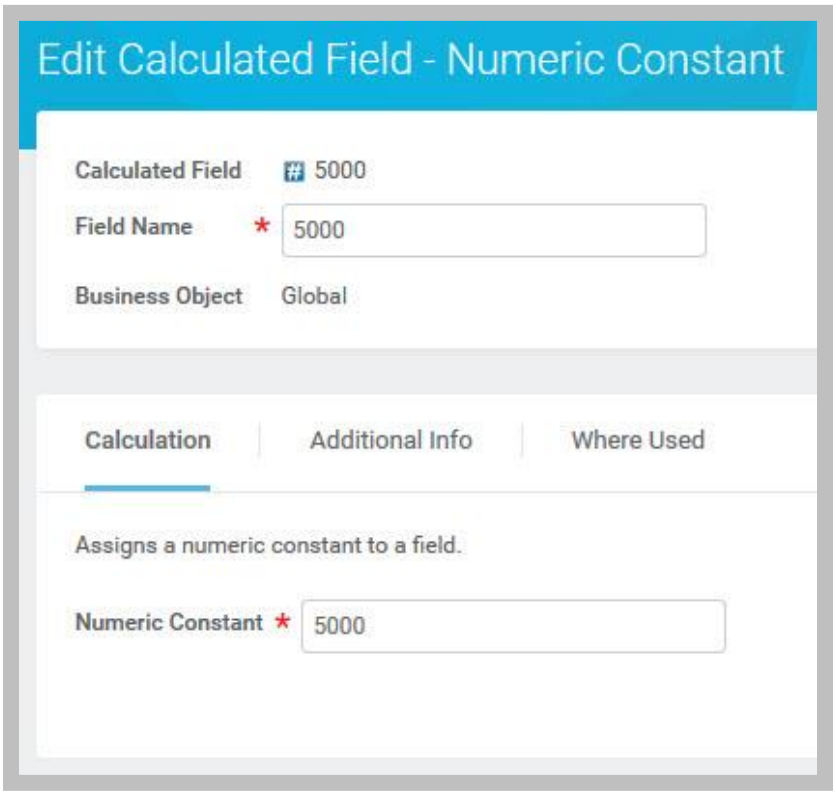
NUMERIC CONSTANT

Before getting into date-related functions, it is important to understand the role that numeric constants play in reporting and calculated fields.

The Numeric Constant function is used to add any positive or negative integer or real number. The most common numeric constants are Workday-delivered fields, but you can create your own using calculated fields. Since most numeric constants are global, you typically use the Global business object when creating numeric constants. Some examples of Numeric Constants include:

Confidential © 2018 Workday, Inc.

- 1
- -1
- 30
- -400
- .5



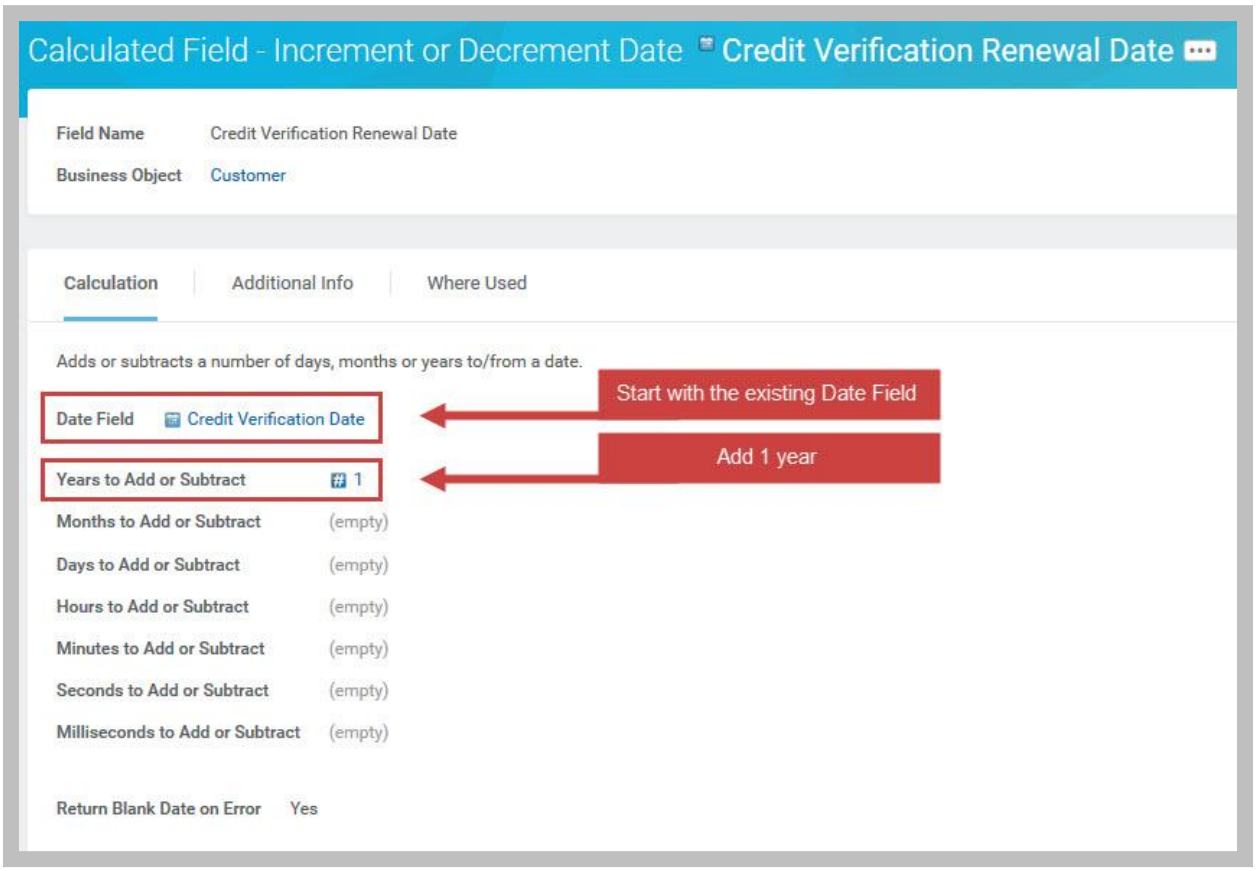
11 - Example of a Numeric Constant calculated field

For this class, we will use Workday-delivered numeric constants. However, it is important to understand the purpose of the Numeric Constant function. You may come across situations, particularly when creating fields that deal with dates or arithmetic calculations, where you need to create your own numeric constants.

Confidential © 2018 Workday, Inc.

INCREMENT OR DECREMENT DATE

The Increment or Decrement Date function calculates a date that is a specified number of years, months, days, hours, minutes, seconds, and/or milliseconds before or after the value of a date field. This function returns a Date field type. In the example below, we derive a credit verification renewal date by adding one year to the Credit Verification Date.



12 - Example of an Increment or Decrement Date field

The Increment or Decrement Date calculated field function is commonly used on variable Global date fields (e.g., Today, Report Effective Date). It is also useful for change detection, allowing you to derive a date/time field to compare the value of a field as of, for example, Today vs. 2 years ago (Today – 2 years).

Note: If the date field you are using is blank for an instance, a runtime error will occur. However, if Return Blank Date on Error is checked, the error will be suppressed, and a blank date will be returned. Best practice is to make sure this box is checked every time you create an Increment or Decrement Date field.

Confidential © 2018 Workday, Inc.

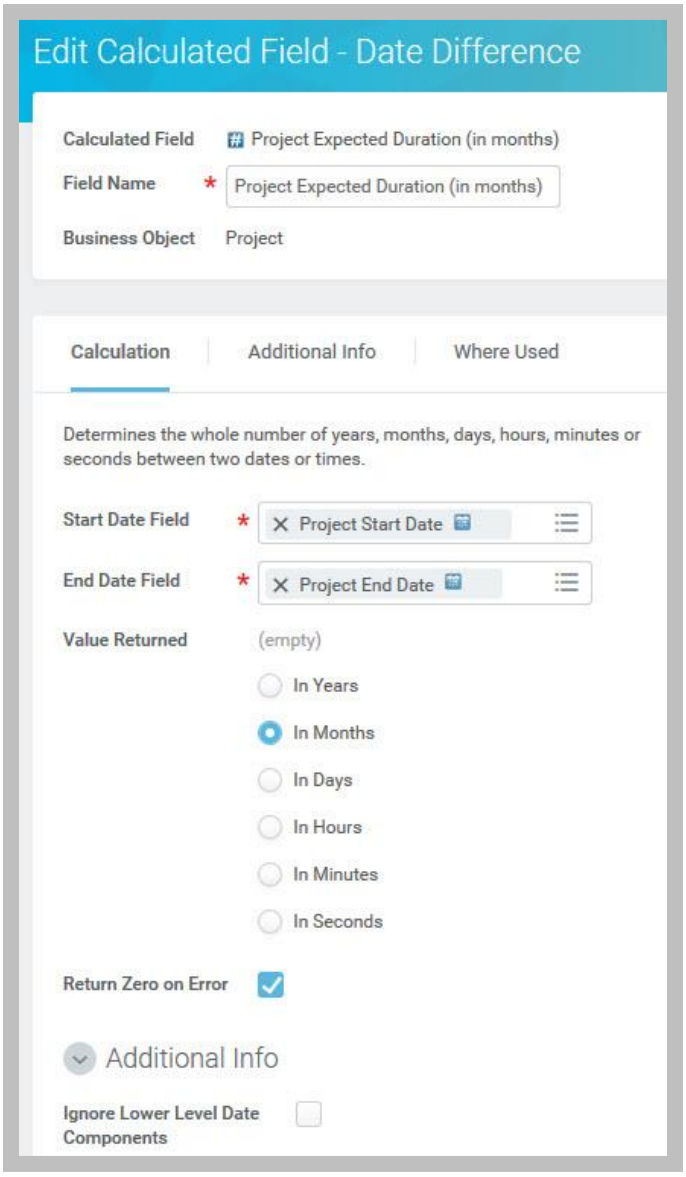
The following are other examples of incrementing and decrementing dates using calculated fields.

- Calculate two months from now for use in a report filter to select the employee certifications that expire in the next two months.
- Dynamically calculate the “First day of the month, three months ago” for use as a parameter for scheduling a recurring report.
- Subtract one millisecond from the date/time that a business process event was completed, so you can look up the prior value of a field one millisecond before the change to the business process was applied.
- Create a report that shows you all of the overdue customer credit verifications by using a pair of calculated fields that return all customers whose credit verifications have not taken place within a year.

Confidential © 2018 Workday, Inc.

DATE DIFFERENCE

The Date Difference function computes the number of years, months, days, hours, minutes, or seconds between two dates. The start date is subtracted from the end date. If the calculation requires a date constant, it must exist prior to creating the calculated field. The results are rounded down to the nearest whole number depending on the calculation type selected. This function returns a numeric field type.



13 - Example of a Date Difference field

By default, the year difference calculation (In Years) takes into account the month and day in computing the number of years. Similarly, by default, the month difference calculation (In Months) takes into account the day.

Confidential © 2018 Workday, Inc.

Select the Ignore Lower Level Date Components checkbox if you want the lower-level components to not be taken into account in the date difference calculation. For example, the year difference between April 1, 2006 and Feb 1, 2008 would result in 1 year if the Ignore Lower Level Date Components checkbox is not selected (the default) and 2 years, if it is selected. Similarly, the difference in months between May 15, 2007 and Sep 14, 2007 would result in 3 months if the Ignore Lower Level Date Components checkbox is not selected (the default) and 4 months if it is selected.

The following are examples of calculating the difference between two dates:

- Days remaining before an employee returns from leave
- Number of months that a position has been unfilled
- Number of months an expense report has been back-dated or forward-dated from the current month

Confidential © 2018 Workday, Inc.

ACTIVITY 2.1 – DATE FUNCTIONS

Business Case: Logan McNeil needs to create a report showing how quickly approved expense reports are paid out and if they are being paid out by the expected deadline of 30 days after approval.

TASK #1: CHECK FOR PRE-EXISTING CALCULATED FIELDS

Reminder: Before you begin to build any calculated fields, you should always check to make sure there are not already existing fields that you can use or copy.

1. Sign in as Logan McNeil (lmcneil).
2. Search for and run the **Maintain Calculated Fields** report.
3. Filter the results to display the fields associated with the **Expense Report** business object. Verify that there are no Date Difference or Increment or Decrement Date fields existing on this business object.

TASK #2: CREATE A CUSTOM REPORT

1. Run the **Create Custom Report** task.
2. Enter the following information:

Field Name	***Entry Value***
Report Name	WICT CF Expense Report Payment Dates
Report Type	Advanced
Data Source	Expense Reports for Company

3. Click **OK**, and enter *Expense Reports Filter* as the Data Source Filter.
4. Add the following fields to the report:
   A. Expense Report
   B. Expense Report Date

Confidential © 2018 Workday, Inc.

C. Approval Date

5. Click **OK**, and **Run** the report using **Global Modern Services, Inc. (USA)** as the Company.

TASK #3: CREATE AN INCREMENT/DECREMENT DATE FIELD

1. Run the **Create Calculated Field** task, and enter the following information

Field Name	***Entry Value***
Field Name	WICT CF Expected Paid Date
Business Object	Expense Report
Function	Increment or Decrement Date

2. Click **OK**.

3. Enter the following information:

Field Name	***Entry Value***
Date Field	Approval Date
Days to Add or Subtract	30
Return Blank Date on Error	(checked)

Note: In order to search for a Numeric Constant, you must enter at least two characters in the field to perform a search. An easy way to locate numeric constants, particularly single digit constants, is by entering "#" before the number you are searching for (e.g., "#1").

4. In the **Additional Info** tab, enter the following information:

Field Name	***Entry Value***
Description	Calculates the expected payment date for approved Expense Reports

Confidential © 2018 Workday, Inc.

Category	Customer Defined Expense Report

5. Click **OK** to save.

TASK #4: EDIT CUSTOM REPORT

1. Now let's add the payment information to the report. Navigate to the **Edit Custom Report** task, and select the **WICT CF Expense Report Payment Dates** report you created earlier.

2. Add the following fields to the report definition after the Approval Date field:

   A. WICT CF Expected Paid Date

   B. Paid Date

3. Click **OK** to save the report.

4. Run the WICT CF Expense Report Payment Dates report for **Global Modern Services, Inc. (USA)**.

   Now you can see the expected date for each expense report, as well as the actual date they were paid

TASK #5: CREATE A DATE DIFFERENCE FIELD

1. Next, you need to determine how many days it is taking for each of these expense reports to be paid out. Since you already know the Approval Date and Paid Date, you can use a Date Difference calculated field to return how many days pass between those two dates. Run the **Create Calculated Field** task, and enter the following information

Field Name	***Entry Value***
Field Name	WICT CF Days Before Payment
Business Object	Expense Report
Function	Date Difference

2. Enter the following information:

Confidential © 2018 Workday, Inc.

Field Name	*Entry Value*
Start Date Field	Approval Date
End Date Field	Paid Date
Value Returned	In Days
Return Zero on Error	(checked)

3. In the **Additional Info** tab, enter the following information:

Field Name	*Entry Value*
Description	Returns the number of days it takes for an approved expense report to be paid out
Category	Customer Defined Expense Report

4. Click **OK**.

TASK #6: EDIT CUSTOM REPORT

1. Navigate to the **Edit Custom Report** task, and select the **WICT CF Expense Report Payment Dates** report.

2. After the Paid Date field, add the **WICT CF Days Before Payment** field to the report.

3. In the Column Heading Override column, enter the following information:

Field	*Column Heading Override*
WICT CF Expected Paid Date	Expected Paid Date
Paid Date	Actual Paid Date
WICT CF Days Before Payment	# of Days Before Payment

4. Click **OK** and run the report for **Global Modern Services, Inc. (USA).** How could you build a calculated field to determine how many days overdue an expense report payment was before it was paid?

Confidential © 2018 Workday, Inc.

SCENARIO

Logan McNeil needs to replicate the WDINST CF Employee Details Report, but only return employees who have five or more years of service.

These are the fields she needs to display in the report:

Employee	Hire Date	Length of Service	Years of Service	Supervisory Org	Mgmt. Level	Total Base Pay Annualized - Amount	Last Base Pay Increase - Date
Adam Carlton	06/14/2010	5 year(s), 8 month(s), 10 day (s)	5	Payroll Department	8 Individual Contributor	$52,508.20	04/10/2015
Aiden Mitzner	01/01/2000	16 year(s), 1 month(s), 23 day(s)	16	Finance & Administration	8 Individual Contributor	$92,283.72	04/01/2015

SUBSTRING TEXT

The Substring Text function extracts the specified portion of text within a field. You can use the Substring Text function to extract a substring from a text or single instance field. Substrings can be based on fixed positions or delimiters. You can also designate whether to search a string forward or backwards.

For example, let's say you are using a report for an integration to another system, and you need to extract only the Cost Center Name from a field that contains both Cost Center Number and Name. In this scenario, the Cost Center Number is always 5 characters long followed by the Cost Center Name: 12345CostCenterName.

You can use a fixed position substring type to extract just the name from the field by starting at position 6 in the field and going forward, left to right, to the end of the field:

12345**CostCenterName** **= CostCenterName**

Confidential © 2018 Workday, Inc.

You can also use a delimiter substring type to convert text that contains a special character, such as a dash, forward slash, or even a blank space. Additionally, you have the option to step out leading or trailing spaces from the text string. The following are examples of the different delimiter substring types:

Before Delimiter Examples (Forward)		
Before Delimiter	Original String	Returned Substring
-	ABC-XYZ	ABC
BC	ABC-XYZ	A
/	07/04	07
After Delimiter Examples (Forward)		
After Delimiter	Original String	Returned Substring
BC	ABC-XYZ	-XYZ
W	ABC-XYZ	
/	07/04	04
After Delimiter Examples (Backward)		
After Delimiter	Original String	Returned Substring
-	802-555-1212	1212
" " (blank space)	Senior Clerk (Pleasanton)	(Pleasanton)
" " (blank space)	Sales and Marketing 7283	7283

Between Two Delimiters Examples			
Start Delimiter	End Delimiter	Original String	Returned Substring
[	]	ABC-[XYZ]	XYZ
(	)	2010 Actuals (Global Modern Services (USA))	Global Modern Services (USA

Confidential © 2018 Workday, Inc.

CONVERT TEXT TO NUMBER

Convert Text to Number enables you to extract a number that currently exists as a text field and convert it to a numeric data type. For example, using Convert Text to Number, you can convert the text "2006" to the number 2006. Once you convert a field to a numeric data type, you can use it in arithmetic operations. Convert Text to Number also includes an option to return zero if the result is not valid, instead of displaying a runtime error message.

Confidential © 2018 Workday, Inc.

ACTIVITY 2.2 – TEXT FUNCTIONS

Business Case: Logan McNeil has been asked to replicate the WDINST CF Employee Details Report, but only return employees who have five or more years of service.

TASK #1: COPY A DELIVERED REPORT

1. Sign in as Logan McNeil (lmcneil).
2. Search for and run the **WDINST CF Employee Details Report** report.
3. Use the report's **Related Actions** to select **Custom Report** > **Copy**.
4. Name your new report *WICT CF Employee Details Report*, and click **OK** to save it.
5. From the Edit Custom Report page, add the **Length of Service - Worker** field to this report after the Hire Date field.
6. Click **OK**, and then run the report.

   a. Notice that there are some employees listed with less than five years of service.

   b. Notice, also, that the Length of Service - Worker field returns a text string. You will need to build calculated fields to extract the number of years from this text string and convert it to a numeric value to use as a filter.

Note: You could use the delivered field, Length of Service in Years Including Partial Year - Worker, to filter this report without building any calculated fields. However, this activity will provide you with a good chance to practice building Substring Text and Convert Text to Number calculated fields.

TASK #2: CREATE A SUBSTRING TEXT CALCULATED FIELD

1. Run the **Create Calculated Field** task.
2. Enter the following information:

Confidential © 2018 Workday, Inc.

Field Name	*Entry Value*
Field Name	WICT CF Extract Years from Length of Service
Business Object	Worker
Function	Substring Text

3. Click **OK**, and enter the following information:

Field Name	*Entry Value*
Text Field	Length of Service - Worker
Substring Type	Before a Delimiter
Delimiter	Global Fields > Text > Single Space
Direction	Forward
Remove Leading and Trailing Spaces	(checked)

Note: As a default, Workday selects the Remove Leading and Trailing Spaces check box and grays out this option so it cannot be changed. We automatically remove any leading or trailing spaces from the resulting text field.

4. In the **Additional Info** tab, enter the following information:

Field Name	*Entry Value*
Description	Extracts the number of years from the Length of Service field
Category	Customer Defined Employment

5. Click **OK** to save this field.

TASK #3: CREATE CONVERT TEXT TO NUMBER CALCULATED FIELD

1. Run the **Create Calculated Field** task, and enter the following information:

Confidential © 2018 Workday, Inc.

Field Name	*Entry Value*
Field Name	WICT CF Length of Service in Years
Business Object	Worker
Function	Convert Text to Number

2. Click **OK**, and enter the following information:

Field Name	*Entry Value*
Text Field	WICT CF Extract Years from Length of Service
Decimal Separator	Based on a user's locale (Default Value)
Return Zero on Error	(checked)

3. In the **Additional Info** tab, enter the following information:

Field Name	*Entry Value*
Description	Converts the length of service in years field from text to a numeric value
Category	Customer Defined Employment

4. Click **OK** to save.

TASK #4: ADD CALCULATED FIELDS TO CUSTOM REPORT

1. Run the **Edit Custom Report** task, and select the **WICT CF Employee Details Report**.
2. In the Columns tab, add the **WICT CF Extract Years from Length of Service** field before the Supervisory Organization field.
3. In the **Filter** tab, add a row, and enter the following information:

Confidential © 2018 Workday, Inc.

Field Name	***Entry Value***
Field	WICT CF Length of Service in Years
Operator	Greater than or equal to
Comparison Type	Value specified in filter
Comparison Value	5

4. Save and run the report. Notice that only employees with five or more years of service have been included in the report output.

Confidential © 2018 Workday, Inc.

TEXT LENGTH

Text Length returns the length of either a text field or a single instance field. It typically is used as filter criteria in a custom report to list any employees whose data will be truncated during an integration.

For example, assume the third party you are integrating with only allows a 15-character City field. A calculated field can be created that determines the length of each employee's City field in Workday, and that calculated field can then be used in a report filter for a custom audit report that lists any employees whose City field will be truncated during the integration. The result is returned as a numeric field.

The following table shows some example return values when using Text Length. Note that spaces are counted in the returned text length.

Field Name	Field Type	Field Value	Return Value
Primary Address – Line 1	Text	10 Pine Street	14
Primary Address – Line 1	Text	2563 Fourth Avenue	18
Country of Birth	Singe Instance	India	5
Country of Birth	Singe Instance	Singapore	9

Another common example is extracting the five digit zip code from a zip code with 9 characters. For example, an employee's zip code might be listed as 94555-3132, but the new system will only accept five digit zip codes. You can use the Text Length field to identify which of your workers' zip codes are in the wrong format and then use a substring text field to extract the relevant five digits from each listed code.

Confidential © 2018 Workday, Inc.

CHAPTER 2 KNOWLEDGE CHECK

1. Which calculated field function computes a date that is a specified number of days, months, or years before or after a date field?

    A. Format Date

    B. Increment or Decrement Date

    C. Date Difference

2. What field type does a Date Difference calculated field return?

    A. Numeric

    B. Date

3. Which calculated field function would allow you to create a field that captures the last four digits of an employee's social security number?

    A. Format Date

    B. Substring Text

    C. Format Text

    D. Extract Single Instance

Confidential © 2018 Workday, Inc.

CHAPTER 3 – EVALUATING CONDITIONS

OVERVIEW

In this chapter, we move on to some more versatile calculated field functions: Evaluate Expression and Lookup Range Band. These functions allow you to conditionally derive the value of a field by evaluating data against configured conditions and returning values based on a condition being true. In order to configure such functions, in addition to creating the conditions, you may also need to create return values needed for the evaluation. For example, if your condition is met the value True can be returned. You can do this with the True/False Condition calculated field function. If you want to return values other than True or False, you can create Global constants for the needed return values. We will also discuss these in this chapter.

Both the Lookup Range Band and Evaluate Expression functions allow for categorization and encapsulation of existing data to meet your requirements. We will see how these functions typically involve pre-requisites, and the importance of understanding how to design, troubleshoot, and view the calculation hierarchy of your calculated fields.

OBJECTIVES

By the end of this chapter, you will be able to:

- Create a global Text Constant calculated field that can be used in other calculated fields.
- Create True/False Condition fields that can be used for evaluations.
- Create an Evaluate Expression calculated field to use a set of conditions to evaluate the values in a given field.
- Create a Lookup Range Band calculated field to evaluate a numeric or currency field value against defined ranges.
- Compare and Contrast the Evaluate Expression and Lookup Range Band functions.
- View the hierarchy of all fields used in a calculation using the View Calculation Hierarchy related action.
- Describe the performance considerations when creating a calculated field that evaluates conditions.

Confidential © 2018 Workday, Inc.

SCENARIO

Logan McNeil has been asked to modify the WICT CF Employee Details Report by categorizing employee Total Base Pay into a Low, Medium, or High value. The word “High” is used if the employee makes over $100,000. “Low” is used if the employee makes less than $50,000, and “Medium” is used for anything in between those two categories.

These are the fields she needs to display in the report:

Employee	Hire Date	Supervisory Organization	Management Level	Total Base Pay Amount	Compensation Level
Adam Carlton	06/14/2010	Payroll Department	8 Individual Contributor	$52,508.20	Medium
Aiden Mitzner	01/01/2000	Finance & Administration	8 Individual Contributor	$92,283.72	Medium

In order to construct this report, you will need to use three different calculated field functions:

- **Text Constants** to use as values to display in the report
- **True/False Conditions** to asses into which category an employee falls
- An **Evaluate Expression** to tie the True/False conditions to the Text Constant values

Confidential © 2018 Workday, Inc.

CONSTANT FIELDS

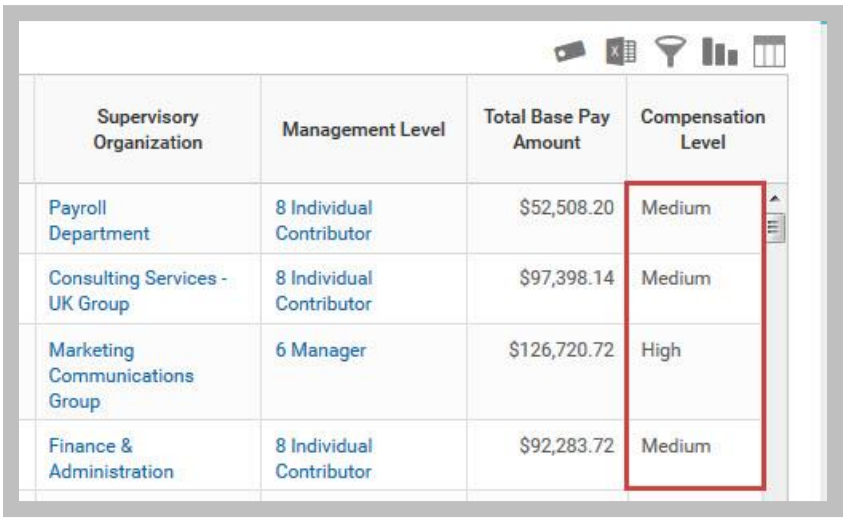
We have already discussed the Numeric Constant calculated field in the previous chapter, but let's take a moment to examine all of the constant fields used in Workday Reporting. There are three different types of constant fields: Numeric, Date, and Text. Each of these types of fields represent a static value that can be used in reporting and calculations.

Like the Numeric Constant, Text and Date Constants are also typically created on the Global business object, meaning they can be accessed and used anywhere a Global field can be used, including reports and calculated fields. Constant fields can be particularly useful in Evaluate Expression calculated fields, which you will use later in this chapter to build your required report. Let's take a closer look at these functions.

TEXT CONSTANT

The Text Constant is a field value that can be used where a constant text value is needed for reference, such as in capturing measurements.

For example, in the current scenario, you are generating a report that evaluates and categorizes employee salaries as being Low, Medium, or High. Workday does not deliver these category markers, but you can build each of these text strings as Text Constants in the system. You can then use these text constants with other report data to assign values to these terms.



Supervisory Organization	Management Level	Total Base Pay Amount	Compensation Level
Payroll Department	8 Individual Contributor	$52,508.20	Medium
Consulting Services - UK Group	8 Individual Contributor	$97,398.14	Medium
Marketing Communications Group	6 Manager	$126,720.72	High
Finance & Administration	8 Individual Contributor	$92,283.72	Medium

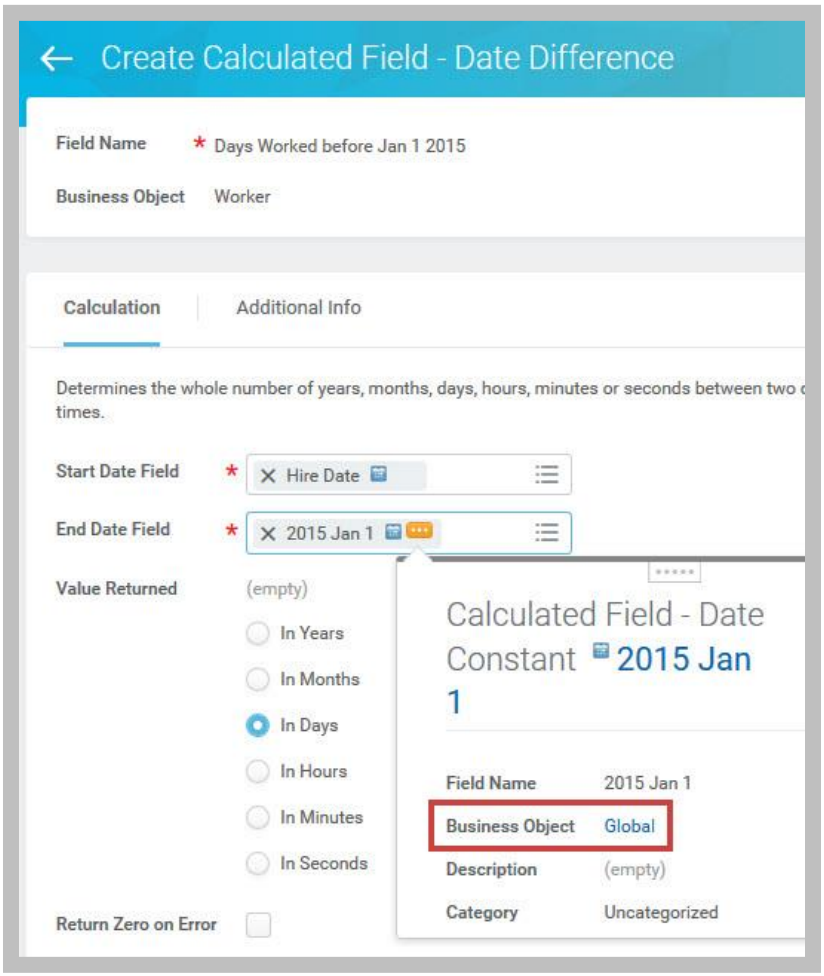
14 - Screenshot of a Text Constant used as a return value

DATE CONSTANT

The Date Constant is a field that can be used where a constant date value is needed for reference. This is particularly useful when you need a specific date to measure other dates against.

Confidential © 2018 Workday, Inc.

For example, if you are creating a field that measures how many days a worker has worked before a company-wide review date of January 1, 2015, you would require that date constant value to exist in the system. Notice in the example below that the date constant exists on the Global business object.



15 - Date Constant being used in a Date Difference field

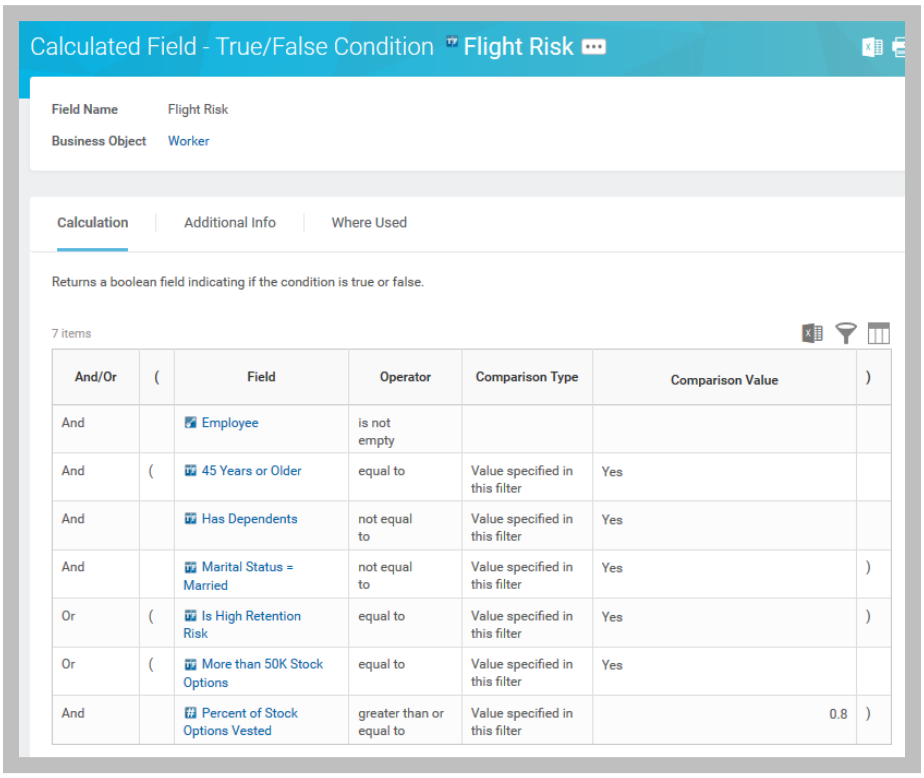
NUMERIC CONSTANT

We covered Numeric Constants in the previous chapter, but as a reminder, the Numeric Constant is a field value to be used wherever a constant numerical value is needed for reference, such as in a mathematical equation. A wide variety of these numeric values are Workday-delivered fields, but you can create additional numeric constants as required.

Confidential © 2018 Workday, Inc.

TRUE/FALSE CONDITION

The True/False (T/F) Condition function determines if a condition is true or not. The return value is a Boolean type field, whose value is either true or false. It can be used in custom reporting, condition rules, and as a condition for other calculated fields. You can use parentheses, when necessary, to group the conditions for evaluation.



And/Or	(	Field	Operator	Comparison Type	Comparison Value	)
And		Employee	is not empty			
And	(	45 Years or Older	equal to	Value specified in this filter	Yes	
And		Has Dependents	not equal to	Value specified in this filter	Yes	
And		Marital Status = Married	not equal to	Value specified in this filter	Yes	)
Or	(	Is High Retention Risk	equal to	Value specified in this filter	Yes	)
Or	(	More than 50K Stock Options	equal to	Value specified in this filter	Yes	
And		Percent of Stock Options Vested	greater than or equal to	Value specified in this filter	0.8	)

16 Example of a True/False Condition function with multiple conditions

The following are examples of true/false condition calculated fields:

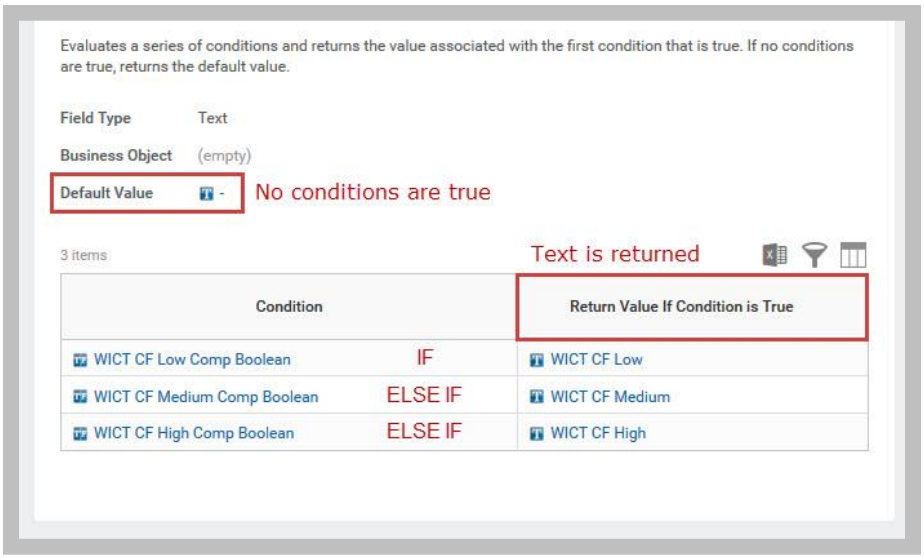
- Create a field to indicate whether the employee is highly compensated.
- Create a field to indicate whether an employee is currently enrolled in an HSA.
- Create a field that determines whether the employee has one year of service or less.
- Group expenditures and revenue into various categories (used with Evaluate Expression).
- Group expense reports by approval status and date (used with Evaluate Expression).

<u>Reminder</u>: Where possible, remember to use filters/subfilters in your report instead of calculated fields for optimal report performance. When using T/F fields, put conditions that exclude the greatest number of instances first.

Confidential © 2018 Workday, Inc.

EVALUATE EXPRESSION

The Evaluate Expression function groups and transforms data. It evaluates a series of conditions and returns the value associated with the first condition that is true. At runtime the function applies the default value and then starts testing conditions starting with the first condition defined. If a condition is true, Workday sets the corresponding return value and does not test any subsequent conditions. Otherwise, Workday tests the second condition, and if true, sets the corresponding return value, and so on.



17 Evaluate Expression condition evaluation process

The conditions that are evaluated must be Boolean fields that return either true or false at runtime. The evaluated conditions, default value, and return values must already exist for the business object or on the global business object prior to entering the Evaluate Expression calculated field.

Using Evaluate Expression, you can capture information by evaluating existing data across different fields and returning values in one calculated field.

The following are examples of grouping data:

- Evaluate employees and group by employment status (for example, Active, Leave, Terminated, Contractor).
- Evaluate employees and return a management status (for example, Management or Staff).
- Evaluate a list of expenditures and group them into categories (used with True/False Conditions).
- Evaluate journal data to categorize spend (for example, Employee Burden, Contingent Labor, Travel and Expense, Goods and Services, Other.).

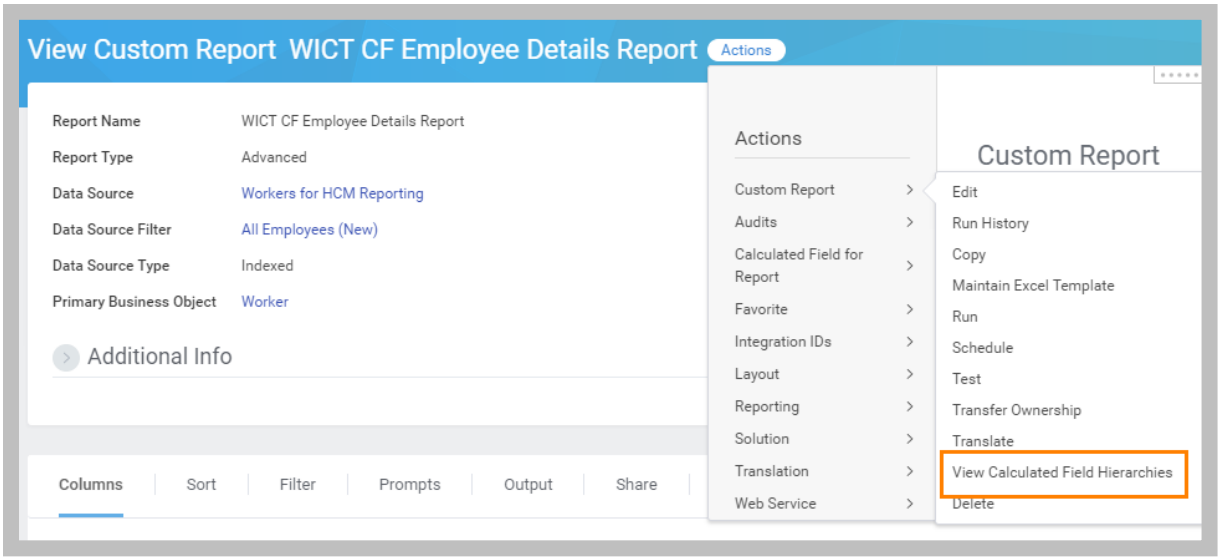
Confidential © 2018 Workday, Inc.

Reminder: As is the case with True/False Conditions, when using an Evaluate Expression function, put the most likely conditions first to enhance report performance.

CALCULATION HIERARCHY

VIEW CALCULATION HIERARCHY

A common question report authors have is how to get a good top-down view of a given calculated field and all of its underlying fields. The following demonstration will introduce the View Calculation Hierarchy feature, which allows you to see all underlying fields used in a calculated field. You can also access the Related Action of a report definition to View Calculated Fields Hierarchies. This shows you the top-down view of all calculations referenced in the custom report.

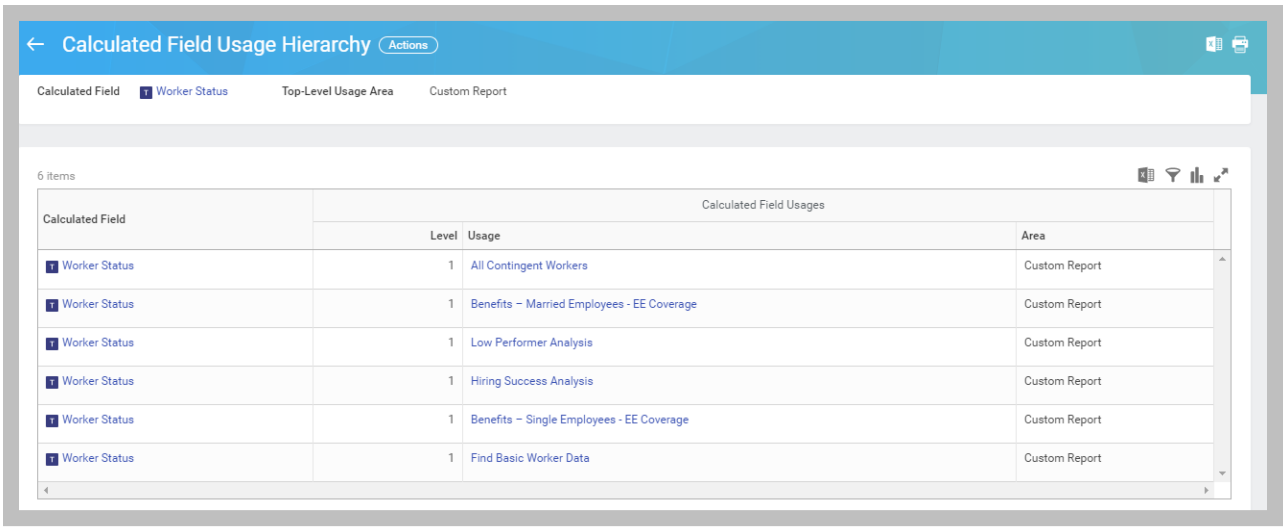


18 - Screenshot of View Calculated Field Hierarchies off of the WICT CF Employee Details Report report

Confidential © 2018 Workday, Inc.

CALCULATION FIELD USAGE HIERARCHY

The Calculation Field Usage Hierarchy is a Workday delivered report that assess the impacts of changes to a calculated field used in reports. You can see the number of instances in which the field was used across the system, the nested level in which the field defined, and usage details such as the area in which it is referenced.



19 - Screenshot of Worker Status in the Calculated Field Usage Hierarchy report

Confidential © 2018 Workday, Inc.

DEMO – EVALUATE EXPRESSION AND VIEW CALCULATION HIERARCHY

This demonstration will show how an Evaluate Expression field is constructed using separate conditions and return values.

TASK #1: VIEW AN EVALUATE EXPRESSION

1. Sign in as Logan McNeil (lmcneil).
2. In the search box, enter *cf: worker status,* and press Enter.
3. Click the **Worker Status** field to view it.
4. Notice the field's Field Type, Default Value, Conditions, and Return Values.
5. Open the **Related Actions** for the *On Leave* condition.

   Notice that the Field Source is a Workday-delivered field.
6. View the **Worker Retired** field in a new tab.

   Review the values in this True/False Condition. Note that the first condition of Currently Active would apply to the largest population of the results.
7. Return to the Worker Status field definition, and open the **Retired** field from the Return Value column in a new tab.

   Notice that this is a Text Constant assigned to the Global business object. This value had to exist in the system before the Worker Status Evaluate Expression field was created.

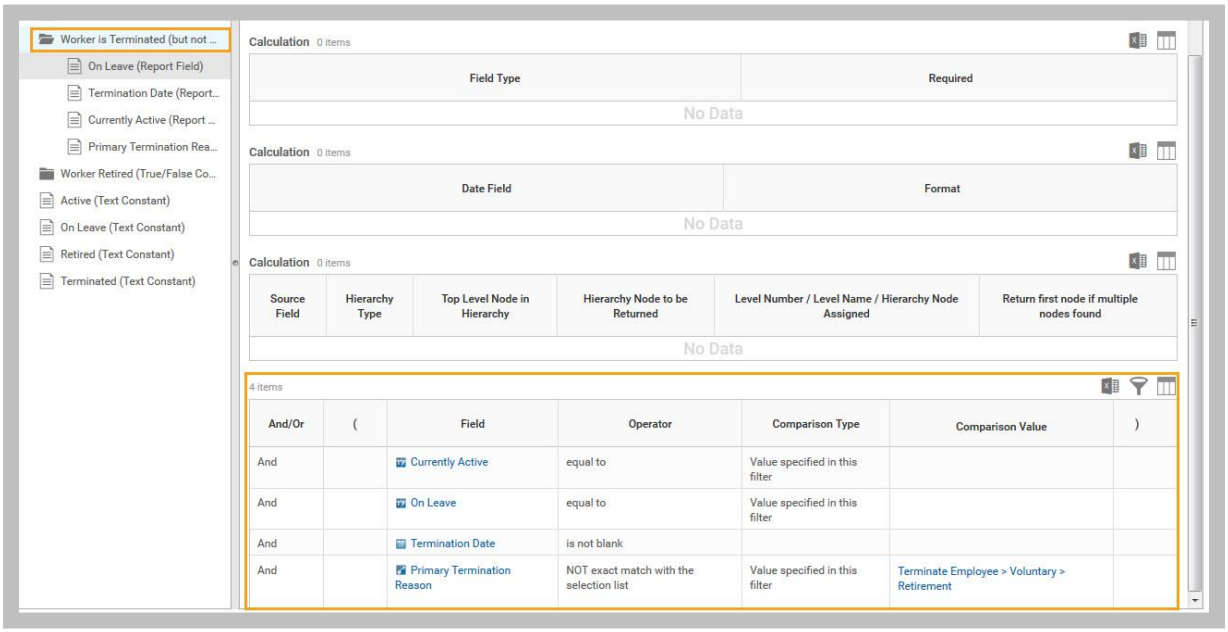
TASK #2: VIEW CALCULATION HIERARCHY

1. Click the Worker Status field's **Related Actions**, and select **Calculated Field** > **View Calculation Hierarchy**. Here, you can see all the underlying fields in the left frame.
2. Click the **Worker is Terminated (but not Retired)** True/False Condition field in this frame.

   A. Notice that there are four fields included in this field's calculation: On Leave, Termination Date, Currently Active, and Primary Termination Reason.

Confidential © 2018 Workday, Inc.

B. In the Summary section to the right, scroll down to see the calculation definition for the Worker is Terminated (but not Retired) field.



20 - Screenshot of Worker is Terminated definition in the View Calculation Hierarchy screen

TASK #3: RUN CALCULATION FIELD USAGE HIERARCHY

1. Run the **Calculated Field Usage Hierarchy** report using the following parameters:

Field Name	***Entry Value***
Calculated Field	Worker Status
Top-Level Usage Area	Custom Report

2. Notice how many time this fields is used in the system. Any changes to this calculation will impact 6 different custom reports.

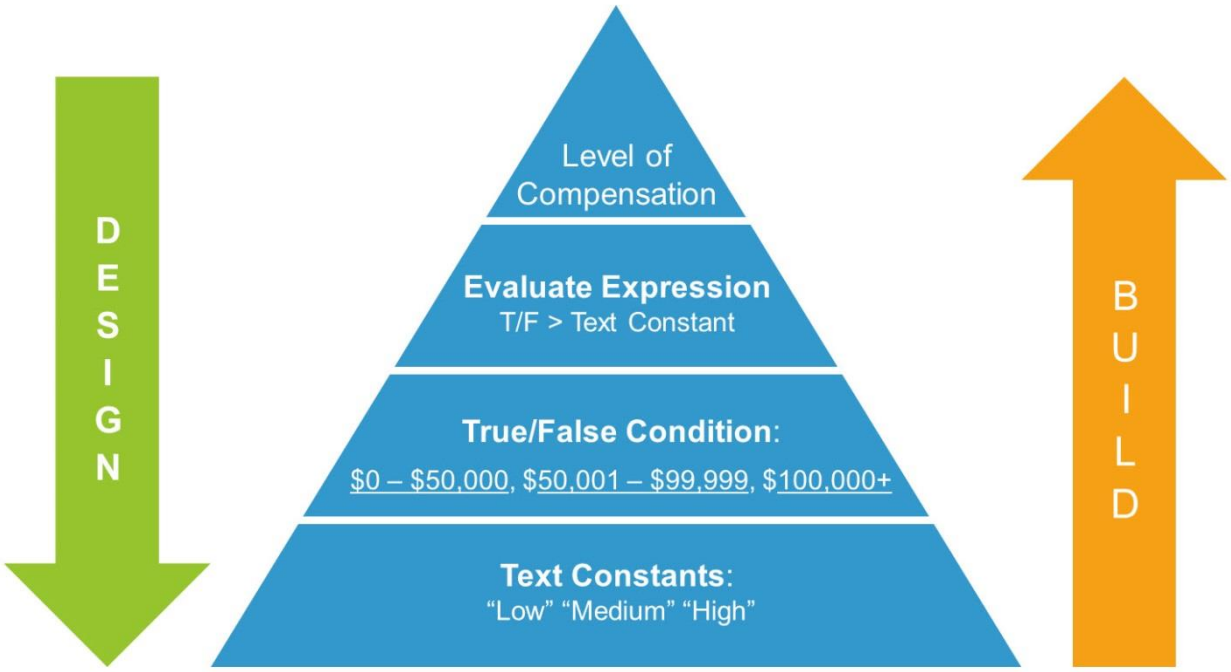
3. Now, try using Calculated Field Usage Hierarchy on another calculated field.

Confidential © 2018 Workday, Inc.

PLANNING YOUR CALCULATED FIELDS

When designing complex calculated fields that require multiple additional fields or calculated fields, best practice is to design from the "top down" and build from the "bottom up." This means that you start with the result or the specific data you want to return in your report, and then decide the best methodology to achieve that result. After planning your design, you then build or configure the necessary calculated fields to reach that result.

In the current scenario, you are tasked with categorizing employee compensation into levels of Low, Medium, and High. The following graphic represents the design process for this scenario:



21 - Graphical representation of the design process: design from the top down and build from the bottom up

You can see that there a number of steps that need to be completed to achieve the desired result of returning a compensation level for each employee. You will need to:

- Create Text Constant values to return in the report output.
- Create True/False Conditions to group compensation amounts into individual categories.
- Create an Evaluate Expression to evaluate an employee's compensation against the True/False Condition categories and return the previously created Text Constants.

Confidential © 2018 Workday, Inc.

ACTIVITY 3.1 – TRUE/FALSE CONDITION AND EVALUATE EXPRESSION

Business Case: Logan McNeil has been asked to modify the WICT CF Employee Details Report to categorize employee Total Base Pay into a Low, Medium, or High value. The word “High” is used if the employee makes over $100,000 and the word “Low” is used if the employee makes less than $50,000.

TASK #1: COPY CUSTOM REPORT

1. Sign in as Logan McNeil (lmcneil).
2. Search for and run the **WICT CF Employee Details Report** you made in the previous activity.
3. Use the report’s **Related Actions** to select **Custom Report** > **Copy**.
4. Name the new report *WICT CF Employee Comp Levels*.
5. In the **Columns** tab, remove the following fields:
    A. Length of Service - Worker
    B. WICT CF Extract Years from Length of Service
    C. Last Base Pay Increase - Date
6. In the **Filter** tab, remove the **WICT CF Length of Service in Years** filter.
7. Save and run the report. How many results are returned?

TASK #2: CREATE TEXT CONSTANTS

1. Run the **Create Calculated Field** task.
2. Enter the following information:

Confidential © 2018 Workday, Inc.

Field Name	***Entry Value***
Field Name	WICT CF Low
Business Object	Global
Function	Text Constant

3. Click **OK**, and in the Text Constant field, enter *Low*.
4. Fill out the Additional Info tab, as necessary, and then click **OK** to save this field.
5. Use the new field's **Related Actions** to select **Calculated Field > Copy**.

Reminder: Copying this field will retain the same Business Object and Function on the new field. This is can be a valuable time-saving shortcut when creating multiple calculated fields using the same function and Business Object.

6. Enter the following information:

Field Name	***Entry Value***
Field Name	WICT CF Medium
Text Constant	Medium

7. Fill out the Additional Info tab as necessary, and then click **OK** to save this field.
8. Copy this new field, and then enter the following information:

Field Name	***Entry Value***
Field Name	WICT CF High
Text Constant	High

9. Fill out the Additional Info tab as necessary, and then click **OK** to save this field.

TASK #3: CREATE TRUE/FALSE CONDITIONS

1. Click the **Create Another Calculation** button, or run the **Create Calculated Field** task.
2. Enter the following information:

Confidential © 2018 Workday, Inc.

Field Name	***Entry Value***
Field Name	WICT CF Low Comp Boolean
Business Object	Worker
Function	True/False Condition

3. Enter the following information:

Field Name	***Entry Value***
Field	Total Base Pay Annualized in Reporting Currency - Amount
Operator	Less than or equal to
Comparison Type	Value specified in this filter (default value)
Comparison Value	50000

4. Fill out the Additional Info tab as necessary and then click **OK** to save this field.

5. Use the new field's **Related Actions** to copy it, and enter the following information:

Field Name	***Entry Value***
Field Name	WICT CF Medium Comp Boolean
Field	Total Base Pay Annualized in Reporting Currency – Amount (defaults in from copied field)
Operator	Greater than
Comparison Type	Value specified in this filter (default value)
Comparison Value	50000 (defaults in from copied field)

6. Add a new row in the Calculation tab and enter the following information:

Confidential © 2018 Workday, Inc.

Field Name	***Entry Value***
Field	Total Base Pay Annualized in Reporting Currency – Amount
Operator	Less than
Comparison Type	Value specified in this filter
Comparison Value	100000

7. Fill out the Additional Info tab as necessary and then click **OK** to save this field.

8. Use the new field's **Related Actions** to copy it, and enter the following information:

Field Name	***Entry Value***
Field Name	WICT CF High Comp Boolean
Field	Total Base Pay Annualized in Reporting Currency – Amount
Operator	Greater than or equal to
Comparison Type	Value specified in this filter (default)
Comparison Value	100000

9. Delete the second condition row and fill out the Additional Info tab as necessary and then click **OK** to save this field.

TASK #4: CREATE AN EVALUATE EXPRESSION

1. Now you need to create an evaluate expression to associate the True/False Conditions with the text constants you created earlier. Click the **Create Another Calculation** button, or run the **Create Calculated Field** task.

2. Enter the following information:

Confidential © 2018 Workday, Inc.

Field Name	*Entry Value*
Field Name	WICT CF Eval Comp Level
Business Object	Worker
Function	Evaluate Expression

3. Click **OK** and then enter the following information:

Field Name	*Entry Value*
Field Type	Text
Default Value	Global Fields > Text > -

4. Use the Add Row icon to add two additional rows in the calculation section, for a total of three rows.

5. Enter the following information:

Condition	*Return Value If Condition is True*
WICT CF Medium Comp Boolean	WICT CF Medium
WICT CF High Comp Boolean	WICT CF High
WICT CF Low Comp Boolean	WICT CF Low

Note: Consider performance when configuring this type of calculated field. Put the condition that impacts the largest population first in the list in order to make your calculation run as quickly and efficiently as possible.

6. Configure the Additional Info tab as necessary and then click **OK** to save.

TASK #5: EDIT REPORT - ADD EVALUATE EXPRESSION

1. Now you can finalize your report. Run the **Edit Custom Report** task, and select the **WICT CF Employee Comp Levels** report.

2. Add a row to the bottom of the columns list and enter the following information:

Confidential © 2018 Workday, Inc.

Field Name	***Entry Value***
Field	WICT CF Eval Comp Level
Column Heading Override	Compensation Level

3. Click **OK** and then run the report.

4. Now each employee listed has a Compensation Level listed in accordance with their Total Base Pay Amount. Try filtering the results by Compensation Level.

   A. How many employees are in the Low compensation level?

   B. How many employees are in the Medium compensation level?

TASK #6: OPTIONAL – VIEW A FINANCIALS EXAMPLE

1. From the search box, search for another Evaluate Expression example: *cf: Talent Source.* This calculated field is created on the Journal Line business object and is checking a series of conditions that, if true, will return a configured talent source text constant. Check out how each condition is defined.

2. Navigate to the **Where Used** tab.

   A. This tab lists where this field is being used in the system. Click the **Talent Acquisition Cost** custom report.

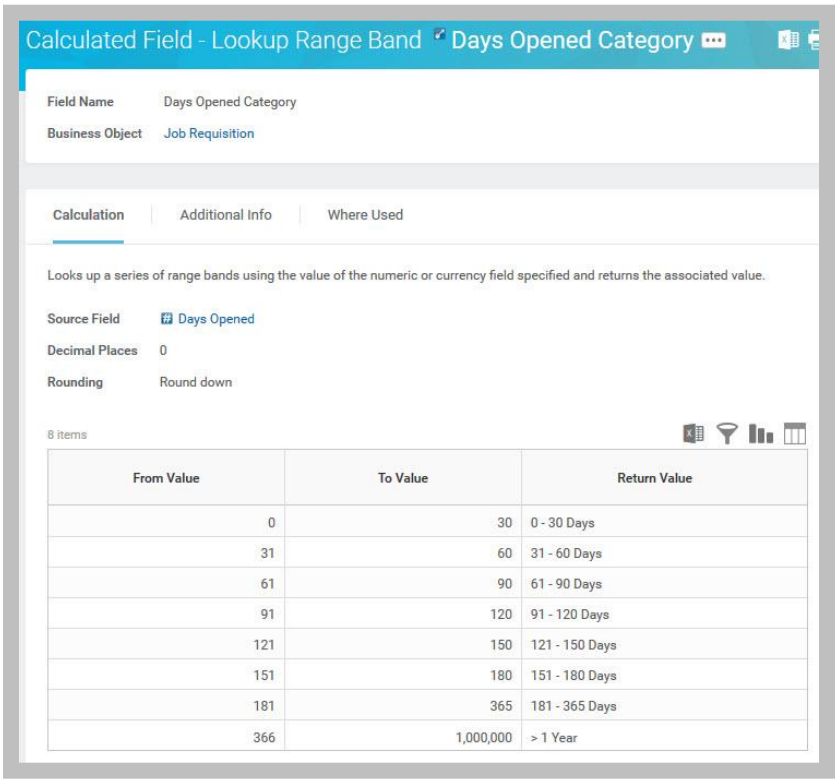
   B. This is a matrix report grouping journal lines by the Talent Source calculated field to show Acquisition Costs by Talent Source. Review the report's definition, and run the report to see how results are grouped.

Confidential © 2018 Workday, Inc.

LOOKUP RANGE BAND

The Lookup Range Band function looks up a specific value and determines where it falls in relation to a set of defined ranges. This function is similar to the Evaluate Expression function, but there are some key considerations for Lookup Range Band:

- Only numeric or currency fields can be evaluated.
- This function returns a single instance field type that corresponds to the range band (the range of values) in which the source field falls.
- If the value of the field does not meet a defined band, the calculated field will return a blank instance.



From Value	To Value	Return Value
0	30	0 - 30 Days
31	60	31 - 60 Days
61	90	61 - 90 Days
91	120	91 - 120 Days
121	150	121 - 150 Days
151	180	151 - 180 Days
181	365	181 - 365 Days
366	1,000,000	> 1 Year

22 – Lookup Range Band calculated field definition

Examples of where looking up a range band could be used include:

- Salary increase percentage.
- Length of service.
- Days overdue.
- Aging of customer and supplier invoices.

Confidential © 2018 Workday, Inc.

DEMO – LOOKUP RANGE BAND

This demonstration will show how a Lookup Range Band field can be used in a report. Teresa Serrano needs to modify an existing report that shows aging customer invoices. She needs to display aging buckets in which the outstanding invoices have been sorted so they can be appropriately actioned.

TASK #1: PROXY AS TERESA SERRANO

1. Sign in as Logan McNeil (lmcneil).
2. Before we get started, let's take a quick look at the Proxy feature, which lets you temporarily act on the behalf of other employees in the system. First, use the search bar to locate and run the **Start Proxy** task.

   Teresa Serrano is the CFO and does most of the financials reporting. For this demo, we will act on behalf of Teresa.
3. Enter *Teresa Serrano* in the **Act As** field.
4. Click **OK**. You are now temporarily logged in as Teresa Serrano and can perform tasks on her behalf.

TASK #2: COPY CUSTOM REPORT

1. Search for and run the **Copy Custom Report** task.
2. Select the **WDINST CF Invoice Details and Aging Report**, and click **OK**.
3. Name the new report *WICT CF Customer Invoice Aging Report*, and click **OK** to save it.

   Notice that the Data Source Filter listed is Customer Invoices for Billable Project Filter. Because the Customer Invoices data source is indexed and has filters, the data source filter is required and has been selected to show all customer invoices by billable project. You can, therefore, expect a prompt for billable projects when running the report.
4. Save and run the report using the following information:

Confidential © 2018 Workday, Inc.

Field Name	*Entry Value*
Reporting Date	12/01/2010

5. View the report output. Next, you need to create a calculated field to categorize the invoices into “range bands” according to their aging days.

TASK #3: CREATE LOOKUP RANGE BAND FIELD

1. Run the **Create Calculated Field** task.
2. Enter the following information:

Field Name	*Entry Value*
Field Name	WICT CF Lookup Invoice Aging Range Band
Business Object	Customer Invoice Document
Function	Lookup Range Band

3. Click **OK** and enter the following information:

Field Name	*Entry Value*
Source Field	Aging Days as of Reporting Date
Decimal Places	0
Rounding	Round down

4. Use the Add Row icon to add 5 rows. Enter the following information:

From Value	*To Value*	*Return Value*
-999	0	0 - Current
1	30	1 – 30 Days
31	60	31 – 60 Days
61	90	61 – 90 Days
91	10000	91+ Days

Confidential © 2018 Workday, Inc.

Note: Notice that after entering the To Value, the next row's From Value will automatically populate.

5. Fill out the Additional Info tab, as necessary, and click **OK** to save this field.

TASK #4: EDIT CUSTOM REPORT

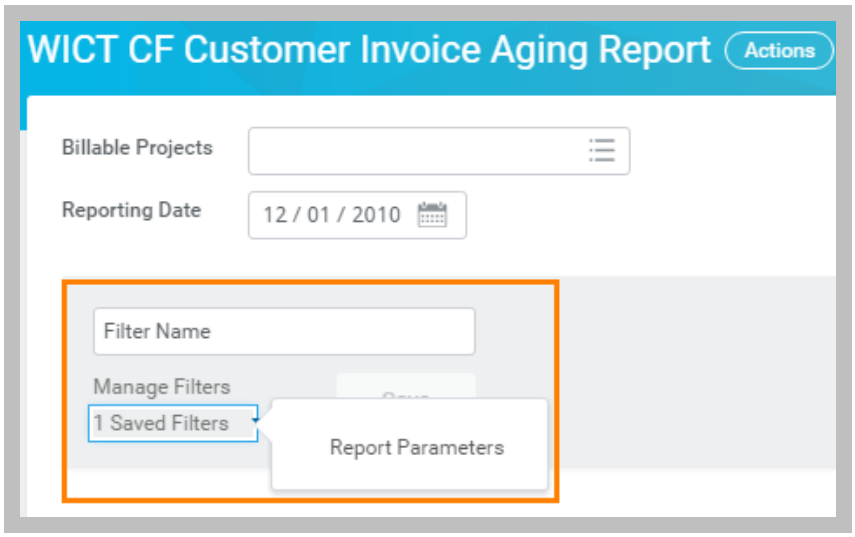
1. Edit the **WICT CF Customer Invoice Aging Report**.
2. Add the *WICT CF Lookup Invoice Aging Range Band* to the report.
3. Override the column heading to read: *Invoice Age Range*.
4. Before finishing the report, let's enable saving parameters so that we will not have to enter the same parameters every time we run the report. Navigate to the **Advanced** tab and select the **Enable Save Parameters** checkbox.
5. Now save and run the report.
6. Enter the same parameters as before:

Field Name	***Entry Value***
Reporting Date	12/01/2010

7. Before you click OK, type in *Report Parameters* into the Untitled Filter box.
8. Click the **Save** button.

   Notice that there is now one saved filter listed. Anytime you run the report, you can select the Report Parameters filter to populate the prompts with these values.

Confidential © 2018 Workday, Inc.



23 - Enable Save Parameters to save prompt parameters for a report

9. Now click **OK** to run the report. Each invoice has been assigned to one of the configured ranges.

10. Click the **Aging Days as of Reporting Date** column to sort results in ascending order. Alternatively, add a filter to see the invoices by the range bands you defined.

    A. As of 12/01/2010, how many invoices were over 91 Days old?

    B. As of 12/01/2010, how many invoices were between 1 and 30 days old?

11. Before we finish, we need to remember to stop our proxy login. Remember, we are actually Logan working on behalf of Teresa Serrano. Use the search bar to locate and run the **Stop Proxy** task.

12. Click **OK**. We are now logged back in as Logan McNeil.

Confidential © 2018 Workday, Inc.

EVALUATE EXPRESSION VS. LOOKUP RANGE BAND

You may have noticed that the Evaluate Expression and Lookup Range Band functions can be used to return similar report outputs. While these two types of calculated fields do perform similar functions, there are some key differences that make one more appropriate than the other in specific scenarios.

Evaluate Expression	Lookup Range Band
• Evaluates a field against a series of conditions and returns a value associated with the first true condition • Conditions must exist in the system • Return values must exist in the system • Can return any field type • Default value must be configured for when no conditions are met	• Evaluates a numeric or currency field against defined ranges and returns a range band • From/To ranges are entered manually • Range bands are defined when creating field • Returns a Single Instance field • If a value doesn't match any range, a blank instance is returned

24 - Comparing the Evaluate Expression function and the Lookup Range Band function

When evaluating and categorizing Numeric or Currency fields and without the need to change the return value field type, the Lookup Range Band function is most appropriate. On the other hand, when you want to be able to transform the return value field type, or categorize field types other than numeric or currency, use an Evaluate Expression.

Confidential © 2018 Workday, Inc.

PERFORMANCE CONSIDERATIONS

We briefly touched on report performance in Chapter 1, but now let's review a few more performance considerations that apply specifically to calculated field functions that evaluate conditions, like Evaluate Expression or Lookup Range Band. When using these types of calculated fields, it is especially important to consider how that field will perform in a report. If your calculated fields are not configured to optimize performance, your reports will load slowly.

Here are a few considerations you should keep in mind when creating these types of calculated fields:

- Order of Evaluation (True/False Condition, Evaluate Expression, Lookup Range Band)
    - For calculated field functions that evaluate a set of conditions, put conditions that are most likely to be true first. In this way, you exclude the greatest number of instances at the top of an evaluating configuration. This will improve performance when evaluating a large number of instances.
- Fields when used to build Calculated Fields
    - Use the source field most specific to the data you are trying to access. The fewer instances that need to be evaluated, the more efficiently the report will perform.

Confidential © 2018 Workday, Inc.

CHAPTER 3 KNOWLEDGE CHECK

1. Which calculated field function would you use to evaluate and categorize the number of days off that an employee has taken over the past year?

    A. Evaluate Expression

    B. True/False Condition

    C. Lookup Range Band

    D. Lookup Related Value

2. When creating a calculated field that evaluates multiple conditions, which condition should you list first?

    A. The one that eliminates the greatest number of instances

    B. The one that eliminates the most specific fields

3. Which calculated field function would allow you to create a field that categorizes employees by their employment status?

    A. Evaluate Expression

    B. True/False Condition

    C. Lookup Range Band

    D. Lookup Related Value

4. What field type does a True/False Condition calculated field return?

    A. Depends on configuration

    B. Numeric

    C. Boolean

    D. Text

Confidential © 2018 Workday, Inc.

CHAPTER 4 – PERFORMING MATHEMATICAL CALCULATIONS

OVERVIEW

In this chapter, we will discuss how you can use calculated fields to manipulate your data using mathematical functions. There are times when the data you want to report on simply does not exist in the system. In cases like these, specifically when you are dealing with numeric or currency data, you can use fields like Count Related Instance, Sum Related Instance, Arithmetic Calculation, and Convert Currency to manipulate and transform existing data into information that you need using simple mathematical functions.

OBJECTIVES

By the end of this chapter, you will be able to:

- Create a calculated field that counts the number of instances for a related business object using the Count Related Instances function.
- Create a calculated field that sums the value of a field in instances of a related business object using the Sum Related Instances function.
- Create a calculated field that performs simple mathematical operations on a numeric or currency field using the Arithmetic Calculation function.
- Create a calculated field to convert to a common currency using the Convert Currency function.

Confidential © 2018 Workday, Inc.

SCENARIO

Teresa Serrano needs to modify an existing report that shows expense report information. She needs to display the number of expense report lines that are meals, the sum of the meal expense lines, and the average amount of the meal lines on each expense report.

These are the fields she needs to display on the report:

Expense Report	Expense Report Lines	Count of Meal Lines	Sum of Meal Lines	Currency	Average Meal Amount	Expense Reports – All Statuses			
						Expense Item as Worktag	Expense Item for Billable Transaction	Extended Amount in Company Base Currency	Expense Line Extended Amount
Expense Report: EXP-00003395	Expense Report: EXP-00003395 - Entertainment Expense Report: EXP-00003395 - Meals	1	$302.00	CAD	$302.00	Entertainment	Entertainment	$420.00	$420.00
						Meals	Meals	$302.00	$302.00

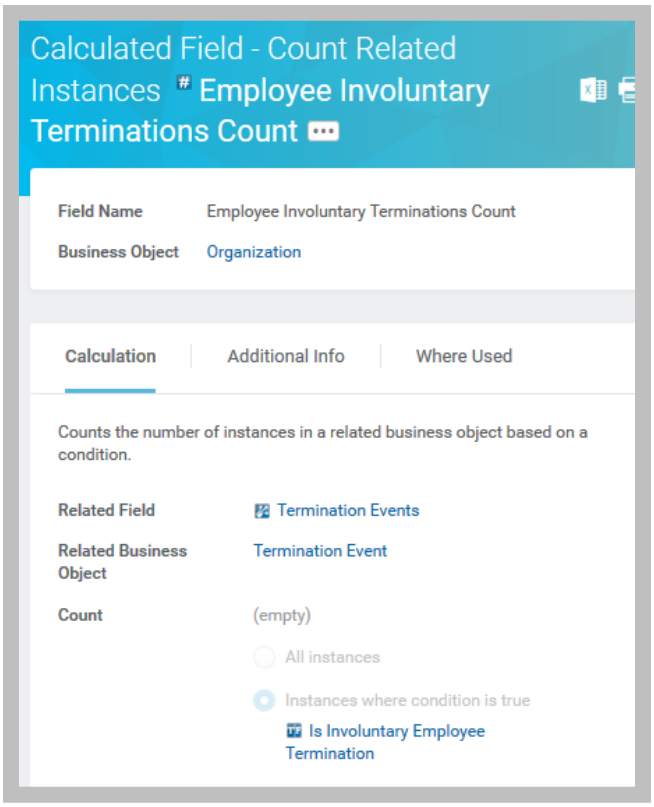
In order to construct this report, you will need to use three different calculated field functions:

- **Count Related Instances** to count the number of meal lines on an expense report
- **Sum Related Instances** to sum the amounts from all of the meal lines on an expense report
- **Arithmetic Calculation** to derive the average amount of the meal lines for each expense report

Confidential © 2018 Workday, Inc.

COUNT RELATED INSTANCES

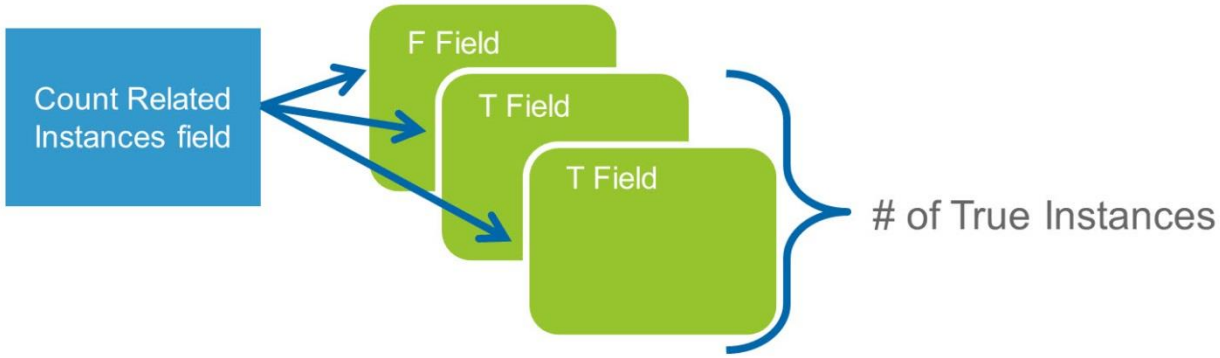
The Count Related Instances function dynamically counts related instances on a related business object. The instances counted can all be instances for a certain field or only instances of a field that meet a condition. If a condition is needed, the condition must be defined on the related business object. If a condition is not preexisting in the tenant, you can use the True/False Condition calculated field to create the condition. This function counts only instances you have security access to view.



25 - Example of a Count Related Instances field

The following diagram outlines how the Count Related Instances function works:

Confidential © 2018 Workday, Inc.



26 - Graphical representation of the Count Related Instances function

The following are examples of counting-related instances:

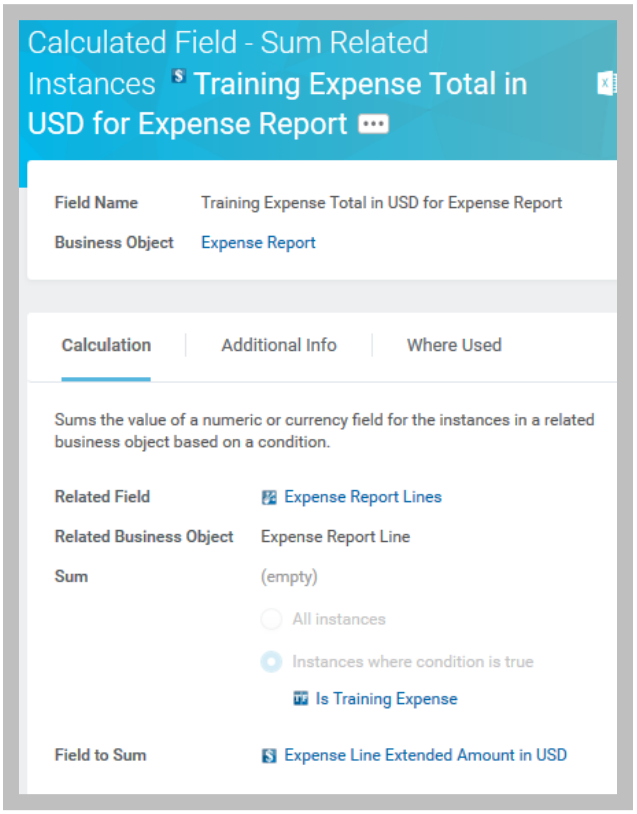
- Count the number of sick days that occurred Monday or Friday during the last year for each employee
- Count the number of employees hired during the last year by location
- Count the number of open positions in an organization
- Count the number of expense lines per employee
- Count the number of training-related expense reports
- Count the number of completed amortization line installments as of a prompted date
- Count the number of expense reports approved for any given worker

Confidential © 2018 Workday, Inc.

SUM RELATED INSTANCES

The Sum Related Instances function dynamically sums related instances on a related business object. This function works with numeric and currency fields. When summing currency fields, all of the instances being summed must have the same currency code.

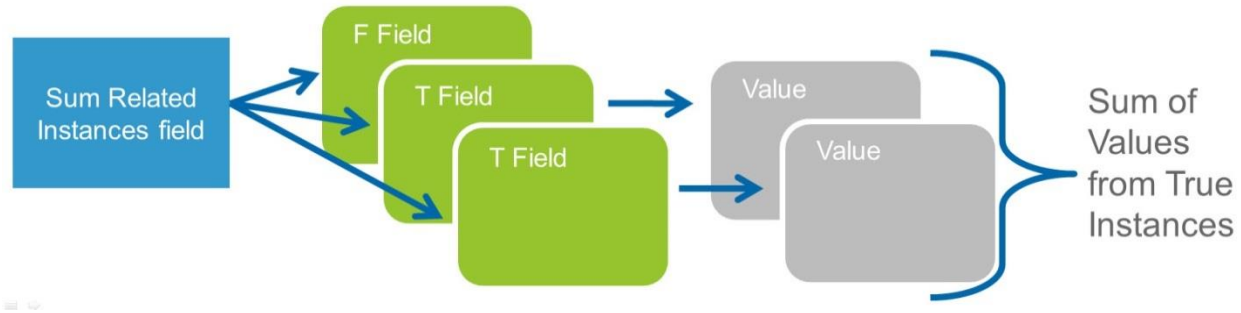
The summed instances can all be instances for a certain field or only instances of a field that meet a condition. If a condition is needed, the condition must be defined for the related business object. If a condition does not preexist in the tenant, you can use the True False Calculated field to create the condition. This function counts only instances you have security access to view.



27 - Example of a Sum Related Instances field

The following diagram outlines how the Count Related Instances function works:

Confidential © 2018 Workday, Inc.



28 - Graphical representation of the Sum Related Instances function

The following are examples of summing related instances:

- Sum the performance review ratings for each organization for use in a calculation to find the average.
- Sum the expense line items for meals in an expense report so the sum can be compared against an approval limit.
- Calculate the VAT amount for each supplier invoice by summing the taxable invoice lines.

Confidential © 2018 Workday, Inc.

ACTIVITY 4.1 – COUNT AND SUM RELATED INSTANCES

Business Case: Teresa Serrano needs to modify an existing report that shows expense report information. She needs to display the number of expense report lines that are meals, the sum of the meal expense lines, and the average meal amount per expense report. First, you will build the report and the Count Related Instances and Sum Related Instances calculated fields necessary to return the number of meals and the sum of the meal expense lines.

TASK #1: COPY CUSTOM REPORT

1. Sign in as Teresa Serrano (tserrano).
2. Search for and copy the *WDINST Expense Report Related Instances* report.
3. Name the new report *WICT CF Expense Report Related Instances*.
4. Save and run the report using **Global Modern Services, Ltd (Canada)** as the Company.
5. View the report data returned. Notice that there are a number of separate expense lines for meals.

   Notice the Expense Line is Meals column. You can use that field later to identify which expense lines to include in your calculations.

TASK #2: CREATE A COUNT RELATED INSTANCES FIELD

1. Next, you will create a calculated field that will count these instances. Edit the **WICT CF Expense Report Related Instances** report.
2. In the Columns tab, add a row after the Expense Report Lines field.
3. Open the Field prompt in this row and click **Create Calculated Field for Report**.

Confidential © 2018 Workday, Inc.

Reminder: Creating a report-specific calculated field means it will only be available for use on this specific report. Report-specific calculated fields can subsequently be converted for system-wide use as well, which we will see later on in this chapter.

4. Enter the following information:

Field Name	***Entry Value***
Field Name	WICT CF Count Meal Lines
Business Object	Expense Report (default value)
Function	Count Related Instances

5. Click **OK** to continue, and then enter the following information:

Field Name	***Entry Value***
Related Field	Expense Report Lines
Count	Instances where condition is true
Condition	Expense Line is Meals

Note: If the Expense Line is Meals true/false condition did not exist, you would create that condition on the Expense Report Line business object before creating this field.

6. Navigate to the **Additional Info** tab. Notice that there is less information to input here than in a system-wide field.

7. Click **OK** to save this field.

8. Save the report and run it again for Global Modern Services, Ltd (Canada) to see the report output. Notice that there is now an accurate count of the number of meal expense lines for each expense report.

TASK #3: CREATE A SUM RELATED INSTANCES FIELD

You have seen how to create a report-specific calculated field while editing the report definition, but there is one additional method of creation that you can use as well.

Confidential © 2018 Workday, Inc.

1. Use the WICT CF Expense Report Related Instances report's **Related Actions** to select **Calculated Field for Report** > **Create Calculated Field**.

2. Enter the following information:

Field Name	***Entry Value***
Field Name	WICT CF Sum Meal Lines
Business Object	Expense Report (default value)
Function	Sum Related Instances

3. Click **OK**, and then enter the following information:

Field Name	***Entry Value***
Related Field	Expense Report Lines
Sum	Instances where condition is true
Condition	Expense Line is Meals
Field to Sum	Extended Amount in Company Base Currency

Important: Remember that if you are summing a currency field across related instances, the field must be in the same currency code. The calculated field will display an error at runtime when encountering different currencies.

4. Click **OK** to save this field.

TASK #4: ADD FIELD TO REPORT

1. Locate and edit the WICT CF Expense Report Related Instances report.

   Notice the warning that there is a report-specific field that has not been included in this report definition.

Confidential © 2018 Workday, Inc.

2. Add the **WICT CF Sum Meal Lines** field under the Count Meal Lines field you added earlier.

3. Add a row under the Expense Item for Billable Transaction field.

4. Select the **Extended Amount in Company Base Currency** in the Field prompt.

5. In the Options column, select to **Show Currency Symbol** for all of the currency fields in the report.

6. For the WICT CF Sum Meal Lines, select to **Show Currency Code Column** as well.

7. Save the report and run it for **Global Modern Services, Ltd (Canada)**. Now all expense items have an amount listed, and the meals have been counted and summed. In the next activity, you will create an arithmetic calculation to determine the average cost of the meal expense items on each expense report.

Activity Complete

Confidential © 2018 Workday, Inc.

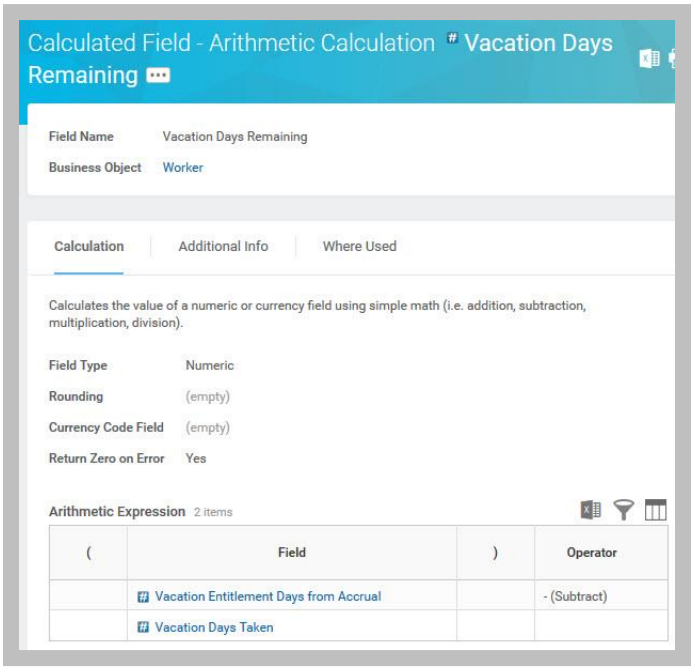
ARITHMETIC CALCULATION

Now that we have counted and summed the meal lines, let's discuss how we can use the Arithmetic Calculation calculated field function to derive the average meal expense amount. The Arithmetic Calculation function uses numeric and currency field types and performs simple arithmetic; it is capable of performing:

- Addition (+),
- Subtraction (-),
- Multiplication (*),
- and Division (/).

If the arithmetic calculation requires numeric constants, they must already exist. You can use parentheses, when necessary, to specify the order the calculations should be evaluated. If you are using a currency field, all of the values being used must have the same currency type.

If division by zero is attempted, a runtime error will be returned. If Return Zero on Error is checked and division by zero is attempted, the error will be suppressed and a zero amount will be returned.



29 - Example of an Arithmetic Calculation field

Note: This field uses the standard order of operations in its calculations: Parentheses, Exponents, Multiplication, Division, Addition, Subtraction (PEMDAS). Be sure to keep this in mind and utilize parentheses in order to make your calculation run accurately.

Confidential © 2018 Workday, Inc.

The following are examples of using an Arithmetic Calculation:

- Calculate an employee's hourly, daily, weekly, or monthly rate.
- Calculate 20% of an employee's salary so that it can be compared against the employee's bonus amount.
- Calculate an employee's salary difference from this year compared to last year.
- Determine revenue per headcount in a given year/quarter/month.
- Find the average cost of meal per attendee on an expense report.
- Calculate total projected salary through the end of the year/quarter/month.
- Identify revenue recognition for projects by percentage complete.
- Calculate the average daily ending balance of a journal.
- Calculate the number of days in a fiscal period plus one.

In the current scenario, you can use the Arithmetic Calculation function to take the Sum of the meal lines and divide it by the Count of the meal lines to return an average amount.

Confidential © 2018 Workday, Inc.

ACTIVITY 4.2 – ARITHMETIC CALCULATION

Business Case: Teresa Serrano needs to modify an existing report that shows expense report information. She needs to display the number of expense report lines that are meals, the sum of the meal expense lines, and the average meal amount per expense report. You have returned the number and sum of the meal expense lines already. Now you will create an Arithmetic Calculation calculated field to determine the average cost of the meal expense items on each report.

TASK #1: CREATE AN ARITHMETIC CALCULATION FIELD

1. Sign in as Teresa Serrano (tserrano).

2. First, you will make a system-wide Arithmetic Calculation calculated field. Run the **Create Calculated Field** task.

3. Enter the following information:

Field Name	***Entry Value***
Field Name	WICT CF Average Meal Amount
Business Object	Expense Report
Function	Arithmetic Calculation

4. Click **OK**, and then enter the following information:

Field Name	***Entry Value***
Field Type	Currency
Rounding	Round down to nearest 0.01
Currency Code Field	Reimbursement Currency
Return Zero on Error	(checked)

5. In the Arithmetic Expression section, add the **WICT CF Sum Meal Lines** field.

   Note that you cannot access this field in this calculation. This is because the field is report-specific and is not available for use outside of the report for which it was created.

6. Before you can calculate using the Sum Meal Lines field, you will need to convert it from report-specific to system-wide. For now, click **Cancel**, and discard these changes.

Confidential © 2018 Workday, Inc.

TASK #2: CONVERT THE REPORT-SPECIFIC FIELD TO SYSTEM-WIDE

1. Search for and run the **Maintain Calculated Fields for Report** report.
2. Select the **WICT CF Expense Report Related Instances** report, and click **OK** to continue. Here, you can see the two report-specific fields you created for this report.
3. Search for and run the **Convert Calculated Field for Report** task.
4. Enter the following information:

Field Name	***Entry Value***
Report Name	WICT CF Expense Report Related Instances
Business Object	Expense Report
Field Name	WICT CF Sum Meal Lines WICT CF Count Meal Lines

Note: You must select the business object before the fields for this report will appear in the Field Name prompt.

5. Click **OK** to save this change.

TASK #3: CREATE AN ARITHMETIC CALCULATION FIELD

1. Now that your calculated fields have been converted, you are ready to build your arithmetic calculation. Once more, run the **Create Calculated Field** task.
2. Enter the following information:

Field Name	***Entry Value***
Field Name	WICT CF Average Meal Amount

Confidential © 2018 Workday, Inc.

Business Object	Expense Report
Function	Arithmetic Calculation

3. Click **OK**, and then enter the following information:

Field Name	***Entry Value***
Field Type	Currency
Rounding	Round down to nearest 0.01
Currency Code Field	Reimbursement Currency
Return Zero on Error	(checked)

4. In the Arithmetic Expression section, enter the following two calculations:

Field	***Operator***
WICT CF Sum Meal Lines	/ (Divide)
WICT CF Count Meal Lines	(none)

5. Click **OK** to save this field.

6. Edit the **WICT CF Expense Report Related Instances** report, and add the **WICT CF Average Meal Amount** field below the WICT CF Sum Meal Lines field.

   A. When adding this field, remember that the business object in that row should be set to **Expense Report**.

   B. Include the **Show Currency Symbol** option for this field.

7. Save and run the report for **Global Modern Services, Ltd (Canada)**.

8. Run the report for **Global Modern Services, PLC (U.K).**

   A. How many items are returned?

   B. In what currency are the results returned?

   C. By filtering on the Expense Report column, you may notice that some of the reports included in the results are canceled. How can you alter the report definition to return only expense reports that have not been canceled?

Activity Complete

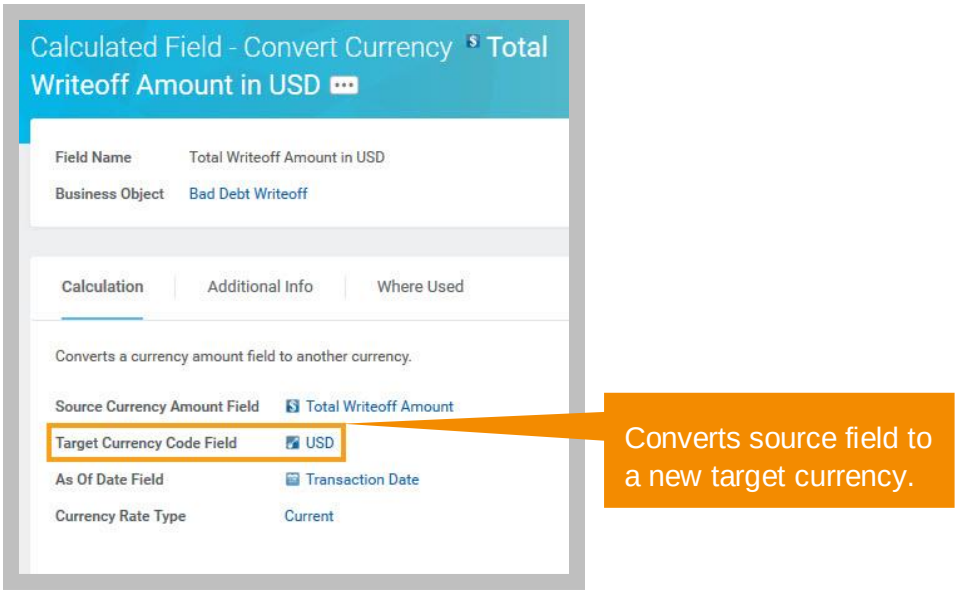
Confidential © 2018 Workday, Inc.

CONVERT CURRENCY

As noted earlier in this chapter, in order to perform an arithmetic calculation on currency fields, you must make sure all fields included in the calculation are in the same currency. Workday delivers many fields that will return amounts in a specific currency, like USD, or in the base currency for a specified company. For currency fields without a Workday-delivered conversion, you can use the Convert Currency function to determine the equivalent value of field in a different currency.

In Workday, all monetary fields have an associated currency code. In addition to converting a source currency amount field to a specific currency, you can also convert the source currency to the user's preferred currency by entering the global variable Users Preferred Currency in the Target Currency Code Field prompt. This value can vary from user to user; each user can change their preferred currency using the Change Preferences task.

To convert currencies, ensure you have set up conversion rates for all the valid Source Currency/Target Currency/Currency Rate Type combinations prior to using this calculation function. To do this, use the Maintain Currency Conversion Rates task. If no conversion rate is found at runtime for the Source Currency/Target Currency/Currency Rate Type combination, this function returns an error.



30 - Example of a Convert Currency field

When the report or condition that uses this calculated field runs, the Currency Rate Type and As of date are evaluated and the appropriate exchange rate is calculated and returned. If the As of Date Field has a blank value at runtime, the resulting value will be zero and a runtime error will be returned. If no data is found for the combination of Source Currency Amount Field, Target Currency Code Field, and Currency Rate Type, the resulting field will be zero and a runtime error will be returned.

Confidential © 2018 Workday, Inc.

The following are examples of converting currencies:

- Display an employee's annual salary in Euros, regardless of how it is entered or stored in the system.
- Determine all employee bonuses in US dollars, using the exchange rate that was in effect at the end of last year.
- Convert an expense report total to a common currency (such as USD) for business process approval rules that are based on an amount.
- Convert Canadian employee benefit contributions into USD for consolidated reporting with US benefit data.
- Convert On Account payments to USD.
- Convert supplier payments to a specified bank account’s default currency.

Confidential © 2018 Workday, Inc.

CHAPTER 4 KNOWLEDGE CHECK

1. Which of the following mathematical operations are **not** supported by the Arithmetic Calculation function?

    A. Addition

    B. Multiplication

    C. Exponents

    D. Subtraction

2. Which calculated field function would you use to calculate the number of employees who have quit over the past year, given that this information is available on the Organization business object?

    A. Sum Related Instances

    B. Count Related Instances

    C. Lookup Related Value

    D. Extract Single Instance

3. What calculated field function would allow you to represent relocation payments in the same currency for use in an arithmetic calculation to find the average amount?

    A. Format Text

    B. Format Number

    C. Numeric Constant

    D. Convert Currency

Confidential © 2018 Workday, Inc.

CHAPTER 5 – RETRIEVING DATA FROM RELATED OBJECTS

OVERVIEW

In this chapter, we will dive deeper into the capabilities of calculated fields. So far, we have seen how calculated field functions can transform data from a single business object. But what if we need to perform a calculation between two fields that are not on the same business object? Luckily, we have calculated field functions designed for you to access data from related business objects and include it where you want, how you want it.

OBJECTIVES

By the end of this chapter, you will be able to:

- Create a calculated field that returns a single instance from a related business object using the Extract Single Instance function.
- Create a calculated field that looks up and returns a value on a related business object using the Lookup Related Value function.
- Create a calculated field that returns multiple instances from a related business object using the Extract Multi-Instance function.
- Describe the performance considerations when creating a calculated field that works with data from related objects.
- Create a calculated field that returns data from a related business object, given a set of requirements.

Confidential © 2018 Workday, Inc.

SCENARIO

Logan McNeil needs to create a matrix report that shows the gross and net amount of the last completed payroll for each employee.

These are the fields she needs to display in the report:

Worker	Supervisory Organization	Job Profile	Gross Pay	Net Pay
John Chen	Finance & Administration	General Counsel	$13,614.00	$6727.07
Yumiko Sato	Sales & Marketing	Vice President, Marketing	$6836.22	$3684.08

In order to construct this report, you will need to use two different calculated field functions:

- **Lookup Related Value** enables you to pull a value from a field that exists on a related business object. This will allow you to pull the workers' gross and net pay from the Payroll Result business object into a report using the Worker business object.
- **Extract Single Instance** enables you to look at a group of related instances, and isolate a single instance in order to extract a specific value. In this case, we will isolate the instance for the last completed payroll from the group of all complete payrolls.

Reminder: Unlike advanced reports, matrix reports cannot use fields from related business objects without using a calculated field function.

Confidential © 2018 Workday, Inc.

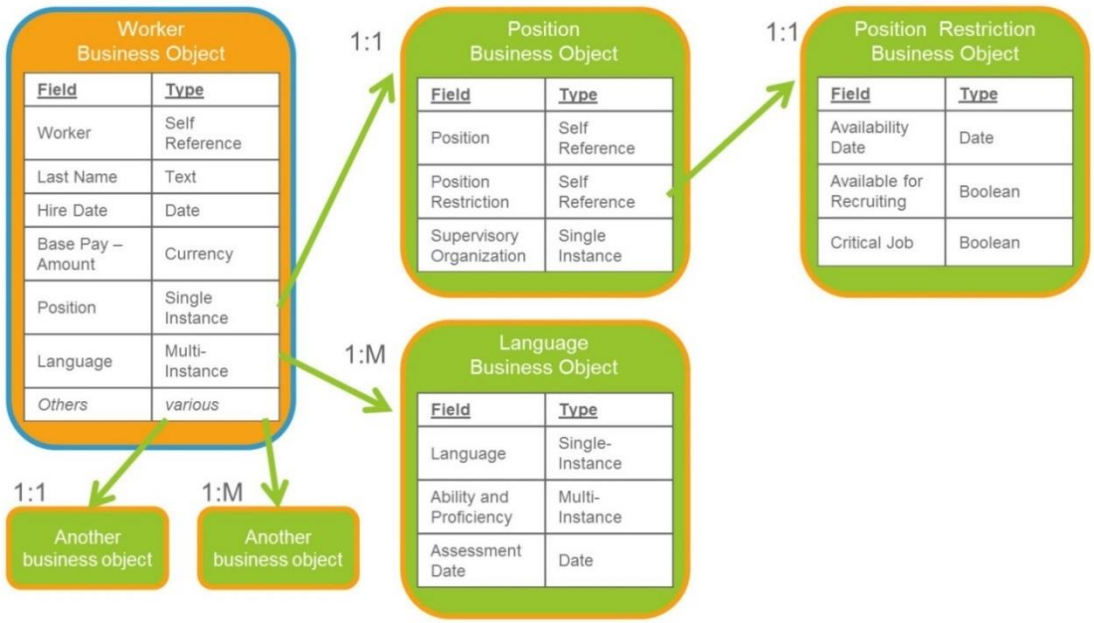
WORKING WITH RELATED BUSINESS OBJECTS

Oftentimes when creating reports, you will need to retrieve and manipulate data from a business object other than the report's primary business object. For example, what if you are creating a report using the Worker business object as your PBO, but need to include data from a related business object, like the Language business object? Workday has calculated field functions that can retrieve and transform the data from your RBO, enabling you to put the data where you want it and display it how you want it.

The calculated field function Lookup Related Value allows you to retrieve a value from an instance on a related business object and “promote” it to your primary business object. This is useful in cases where you need the value from the RBO to be available from your PBO. For example:

- What if you need to perform an arithmetic calculation between two fields that exist on separate business objects?
- What if you need to report on a field that your reports primary business object cannot directly access?
- What if you need to include a field in a business process condition rule, but it is not available given the context of the rule?

With Advanced reports, you can include fields from related business objects directly in your report without needing a calculated field. Advanced reports include fields from RBOs that are “one level deep." However, when you are creating a Simple or Matrix report, or if you want your Advanced report to access data from a related business object of your report's related business object, or “two levels deep," you will need to use a calculated field.



31 - Graphical representation of the 1:1 and 1:Many relationships that business objects have in Workday

Confidential © 2018 Workday, Inc.

LOOKUP RELATED VALUE

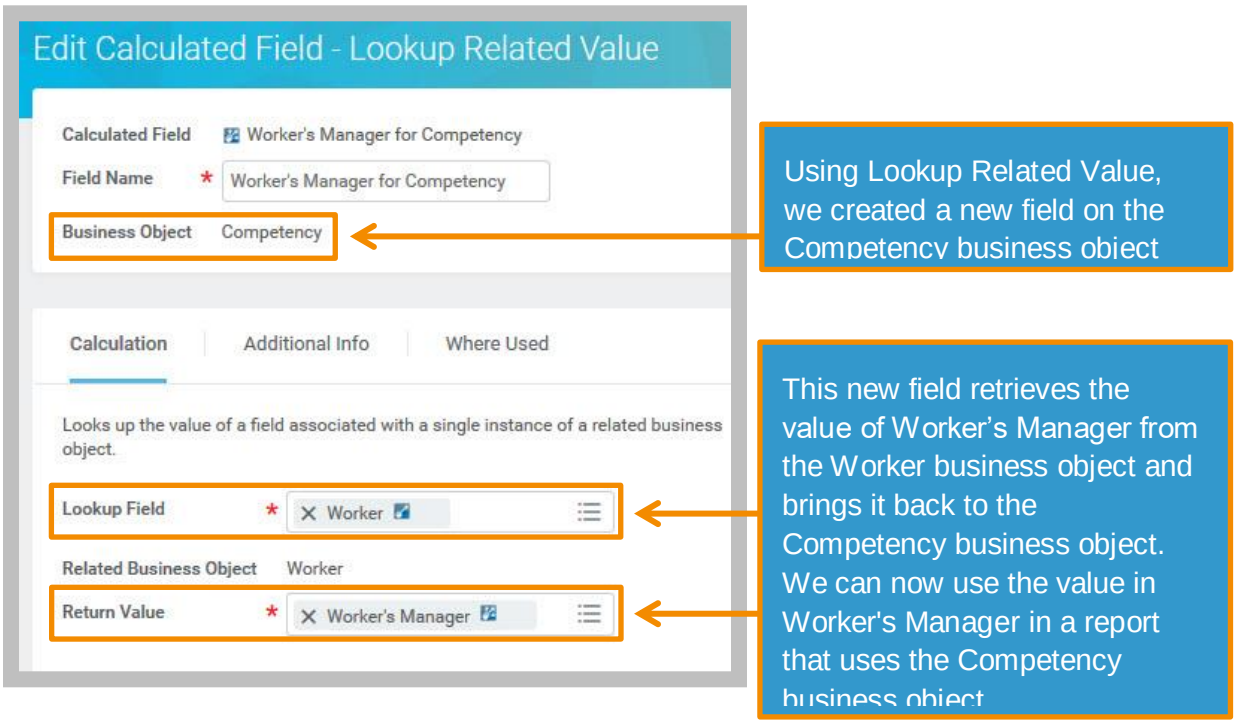
The Lookup Related Value function retrieves a value from a field on a related business object. This function promotes that value from the related business object to the primary business object. Once the value is available on the primary business object, you can use it for a calculation, rule, or reporting.

Here are some examples of looking up a value on a related business object:

- Promote the value of a Worker's Manager from the Worker business object to the Competency business object for a matrix report using Competency as its PBO.
- Make a field from Worker available to a compensation event condition rule.
- Promote a field from an RBO to the PBO to make it available for grouping and totaling on an advanced report.
- Promote a field from an RBO to a PBO to use it in combination with a field on the PBO to create a calculated field.

In order to use the Lookup Related Value calculated field function, there must be a 1:1 relationship between the PBO and RBO.

In the example below, we extract Worker's Manager on the Worker business object for a report based on the Competency object.



32 - Example of a Lookup Related Value field

Confidential © 2018 Workday, Inc.

USING THE BUSINESS OBJECT DETAILS REPORT

As previously mentioned, the two business objects used in your Lookup Related Value calculated field must have a 1:1 relationship. If you are unsure of the relationship between the two objects, you can use the Business Object Details report to determine whether the relationship between your two objects is 1:1 (single instance) or 1:M (multi-instance).

Confidential © 2018 Workday, Inc.

EXTRACT SINGLE INSTANCE

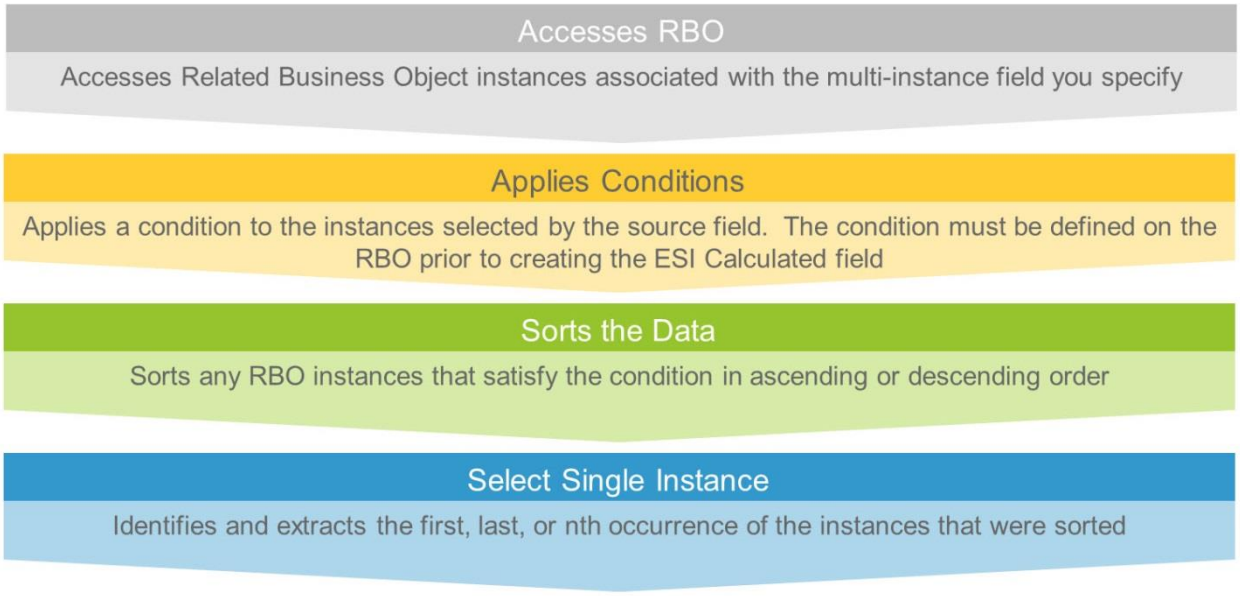
The Extract Single Instance function returns a single instance from a group of related instances on a related business object. The single instance is one of many in a field that has a 1:M relationship with the PBO. This function is typically used to retrieve the last, first, or “nth” instance from a set of instances that meet a specific condition. Based on the number of instances on the related business object that satisfy the condition specified, either zero or one instance will be returned. The sort field and direction will enable you to select the occurrence that meets your needs.

Here are some examples of how you can use an Extract Single Instance:

- First Master's degree an employee received
- Last completed performance review for an employee in 2008
- Second time off request of 2016
- Last Payroll Result completed
- Oldest unapproved expense report for a worker

Sometimes you want to use Lookup Related Value for a field on business object that has a 1:M relationship with your calculated field’s business object. You can use the Extract Single Instance function to create a 1:1 relationship and then use the Lookup Related Value function to extract the value.

HOW EXTRACT SINGLE INSTANCE DETERMINES RETURN VALUE



33 - Map of how the Extract Single Instance function determines a return value

Confidential © 2018 Workday, Inc.

For example, the following represents a list of expense reports created by one worker.

Expense Report	Expense Report Date	Created On	Amount	Status
EXP-00003301	01/25/2008	04/22/2008	$1,275.00	Approved
EXP-00004259	09/24/2013	11/06/2013	$2,290.49	Canceled
EXP-00004556	08/27/2013	11/06/2013	$2,761.97	Canceled
EXP-00003505	06/20/2009	06/11/2010	$1,624.77	Canceled

If you want to extract the oldest expense report that hasn't been approved, you can use an Extract Single Instance field with the following configurations:

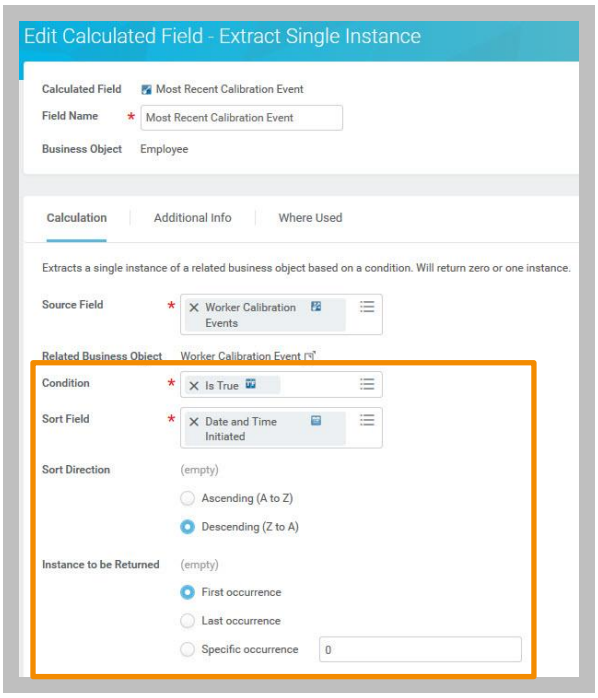
Extract Single Instance (Condition = Not Approved, Sort = Created On (Ascending), Occurrence = 1st

Expense Report	Expense Report Date	Created On	Amount	Status
EXP-00003505	06/20/2009	06/11/2010	$16.24.77	Canceled

Reminder: Use the most specific and targeted source field from which to extract an instance. To optimize performance, you want your report to only have to process the minimal number of instances.

When creating an Extract Single Instance field, you must specify the sorting options that determine which instance to extract. In the following example, the calculated field will return the most recent worker calibration event for each employee.

Confidential © 2018 Workday, Inc.



34 – Example of an Extract Single Instance field

CONDITION

Here, you specify the condition to use to filter the instances on the related business object and narrow down your results. If you do not need a condition, you can select a global field like “Is True” to accept all instances of that field.

SORT FIELD

The sort field determines what value by which you want to sort the instances. In this case, the values are sorted by Date and Time Initiated. This is a required field, so if the condition eliminates all but one field, or you otherwise do not need a sort, you can use a global field like Any Field to return the instance.

SORT DIRECTION

Next, you need to decide the direction in which to evaluate the instances. Remember, that in order to optimize performance, the field should evaluate the fewest possible instances. For example, if you are sorting by date and want to return the most recent instance, you should start at the latest value and select the first available instance. This is quicker than starting with the first or earliest date and selecting the last value available.

Confidential © 2018 Workday, Inc.

INSTANCE TO BE RETURNED

Finally, you must specify the instance to return, either first occurrence, last occurrence, or specific occurrence.

Confidential © 2018 Workday, Inc.

ACTIVITY 5.1 – LOOKUP RELATED VALUE AND EXTRACT SINGLE INSTANCE

Business Case: Logan McNeil needs to create a matrix report that shows the gross and net amount of the last completed payroll for each employee.

TASK #1: CREATE EXTRACT SINGLE INSTANCE FIELD

1. Sign in as Logan McNeil (lmcneil).
2. First, you need to isolate the last completed payroll for each employee. Run the **Create Calculated Field** task.
3. Enter the following information:

Field Name	***Entry Value***
Field Name	WICT CF Last Payroll Result
Business Object	Worker
Function	Extract Single Instance

4. Click **OK**, and then enter the following information:

Field Name	***Entry Value***
Source Field	Payroll Results (Completed)
Condition	Is True
Sort Field	Payment Date
Sort Direction	Descending (Z to A)
Instance to be Returned	First occurrence

Note: Notice that only after entering the Source Field do the other fields become actionable. Additionally, the Related Business Object auto-populates based on the Source Field you select.

Confidential © 2018 Workday, Inc.

5. Click **OK** to save this field.

TASK #2: CREATE LOOKUP RELATED VALUE FIELDS

1. Now that you have isolated the last completed payroll with the Extract Single Instance, you can pull values from that instance using the Lookup Related Value functions. Click the **Create Another Calculation** button, or run the **Create Calculated Field** task.

Field Name	***Entry Value***
Field Name	WICT CF Last Net Pay on Worker
Business Object	Worker
Function	Lookup Related Value

2. Click **OK**, and then enter the following information:

Field Name	***Entry Value***
Lookup Field	WICT CF Last Payroll Result
Return Value	Net Pay

3. Click **OK** to save this field.

4. Now you can create a new calculated field to extract the gross pay amount. However, to maximize efficiency, use this field's **Related Actions** to select **Calculated Field** > **Copy**.

5. Notice that all of the information has been pulled from the WICT CF Last Net Pay on Worker field. Enter the following information:

Field Name	***Entry Value***
Field Name	WICT CF Last Gross Pay on Worker
Return Value	Gross Pay

6. Click **OK** to save this field.

TASK #3: CREATE MATRIX REPORT

1. Now you have all of the fields needed for your report. Run the **Create Custom Report** task.

Confidential © 2018 Workday, Inc.

2. Click **OK**, and then enter the following information:

Field Name	*Entry Value*
Report Name	WICT CF Last Payroll Result by Worker
Report Type	Matrix
Data Source	Workers for HCM Reporting

3. Click **OK** to continue.

4. In the Row Grouping section, add the following information into the first three rows of the Group by Field column:

   - Worker
   - Supervisory Organization
   - Job Profile

   Accept the default sort order for the fields you add here.

5. Scroll down to the Define the Field(s) to Summarize section and enter the following information:

Field Name	*Entry Value*
Summarization Type	Sum
Summarization Field	WICT CF Last Gross Pay on Worker
Label Override	Gross Pay
Format	Frequently Used > #,##0.00
Options	Show Currency Symbol

Note: Since you are only including one value in this field, selecting Sum vs. another option, such as Average, will not affect the data output. However, Summarization Type is a required field.

6. Add a row in this section, and enter the following information:

Confidential © 2018 Workday, Inc.

Field Name	***Entry Value***
Summarization Type	Sum
Summarization Field	WICT CF Last Net Pay on Worker
Label Override	Net Pay
Format	Frequently Used > #,##0.00
Options	Show Currency Symbol

7. Save and run this report.

Activity Complete

Confidential © 2018 Workday, Inc.

SCENARIO

Logan McNeil has been asked to create a report that displays all of the child dependents for each employee and whether or not each child dependent is a full-time student. The report should also contain a list of all dependents, child or otherwise, along with their ages, dates of birth, and relationships to the worker.

These are the fields she needs to display in the report:

Worker	All Children	Child Name	Full-Time Student	Dependent	Relationship	Age	Date of Birth
Benjamin Green	Diana Green Stuart Green	Diana Green		Diana Green	Child	17	01/28/1998
		Stuart Green		Sara Green	Spouse	44	08/04/1971
				Stuart Green	Child	16	12/28/1999

In order to construct this report, you will need to use two different calculated field functions:

- **True/False Condition** to asses if a dependent is a child or not
- **Extract Multi-Instance** to return all child dependents for a worker

Confidential © 2018 Workday, Inc.

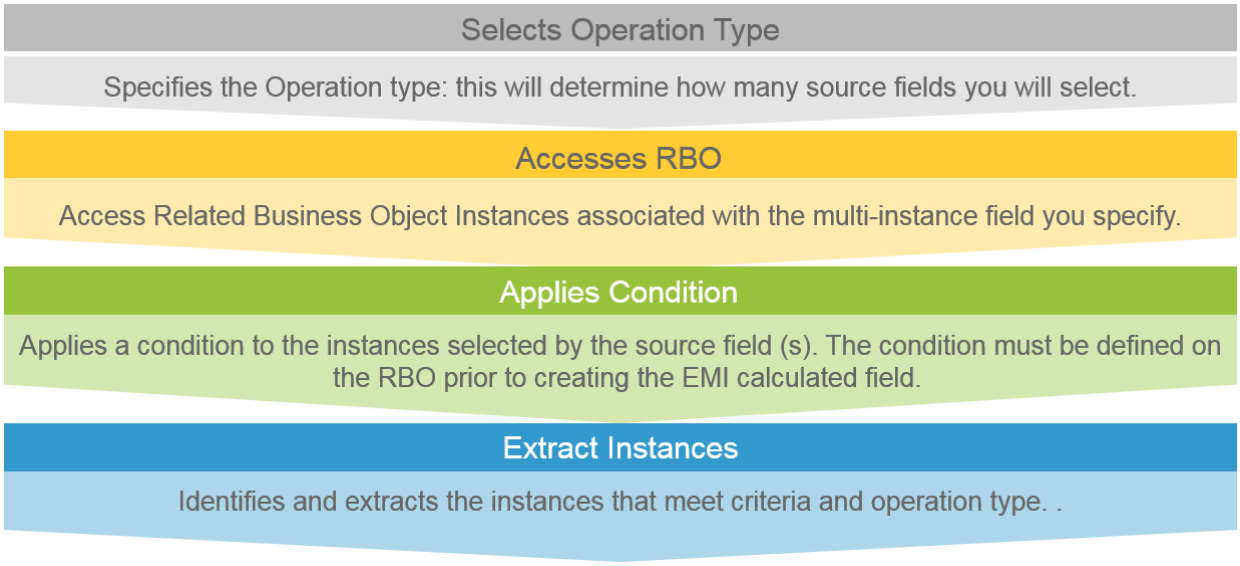
EXTRACT MULTI-INSTANCE

The Extract Multi-Instance function allows you to extract specific instances from a multi-instance field. Based on the number of instances that satisfy the condition, either zero, one, or multiple instances will be returned.

Here are examples of the Extract Multi-Instance calculated field:

- List the training each employee has completed in the last 12 months.
- List the current enrollment elections for an employee.
- List the invoices currently due, but unpaid.
- List any accounts with negative balances.
- Create a specific set of companies for bursting report output.
- Extract projects that are both high-risk and have a status of open.

HOW EXTRACT MULTI-INSTANCE DETERMINES RETURN VALUE



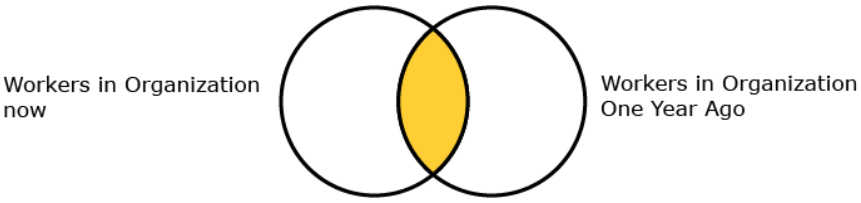
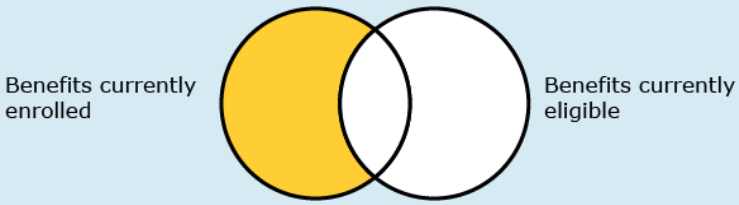
35 - Map of how the Extract Multi-Instance function determines a return value

Confidential © 2018 Workday, Inc.

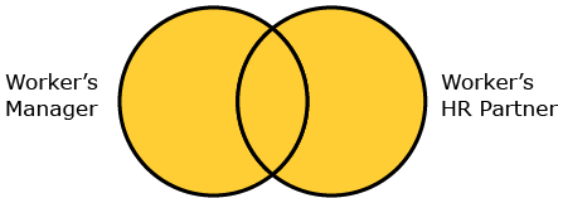
EXTRACT MULTI-INSTANCE OPERATION TYPES

The Extract Multi-Instance function can extract data in a number of ways. The following table summarizes the four different types of Extract Multi-Instance operations.

Note: In functions where two source fields are used, both source fields in the function must be on the same business object.

Type	Definition
Subset	Filters instances found in the specified source field (Source Field 1) and returns the results. Example: Return workers in the organization who are “high potential”.
Intersection	Evaluates the filtered instances from both fields (Source Field 1 and Source Field 2) and returns only the instances that are common to both fields. Example**:** Return workers who are in the organization now and were in the organization one year ago. 
Except	Evaluates the filtered instances from both specified source fields (Source Field 1 and Source Field 2) and returns the instances from the first field minus the instances from the second field. This is particularly useful for exception reporting. Example: Return a list of benefits an employee is currently enrolled in, but not currently eligible for. 

Confidential © 2018 Workday, Inc.

Union	Combines the filtered instances from both specified source fields (Source Field 1 and Source Field 2) and returns the results. Example: Return a list for each employee consisting of their manager and HR Partner. 

Confidential © 2018 Workday, Inc.

ACTIVITY 5.2 – EXTRACT MULTI-INSTANCE

Business Case: Logan McNeil has been asked to create a report that displays all of the child dependents for each employee and whether or not each child dependent is a full-time student. The report should also contain a list of all dependents, child or otherwise, along with their ages, dates of birth, and relationships to the worker.

TASK #1: CREATE CUSTOM REPORT

1. Sign in as Logan McNeil (lmcneil).
2. Search and run the **Create Custom Report** task.
3. Enter the following information:

Field Name	***Entry Value***
Report Name	WICT CF Employee Dependents
Report Type	Advanced
Data Source	Workers for HCM Reporting

4. Click **OK**, and then add the following fields:

Business Object	***Field***
Worker	Worker
Dependents	Dependent
Dependents	Relationship
Dependents	Age
Dependents	Date of Birth

5. Navigate to the **Filter** tab, and create a filter to remove workers who do not have any dependents. How do you configure this filter?
6. Save and run this report.

   Notice that the dependents returned include Spouses and Domestic Partners in addition to children. You will need to isolate the children using a True/False Condition field.

Confidential © 2018 Workday, Inc.

TASK #2: CREATE CALCULATED FIELDS

1. Run the **Create Calculated Field** task.
2. Enter the following information:

Field Name	***Entry Value***
Field Name	WICT CF Dependent is Child T/F
Business Object	Dependent
Function	True/False Condition

3. Click **OK**, and then enter the following information:

Field Name	***Entry Value***
Field	Relationship
Operator	In the selection list
Comparison Type	Value specified in this filter (default value)
Comparison Value	Child

4. Click **OK** to save this field.

   Now that you have isolated the child dependents, you can extract those instances so that you can return them in your report.

5. Click the **Create Another Calculation** button.
6. Enter the following information:

Field Name	***Entry Value***
Field Name	WICT CF Extract All Children
Business Object	Worker
Function	Extract Multi-Instance

7. Click **OK**, and then enter the following information:

Confidential © 2018 Workday, Inc.

Field Name	*Entry Value*
Operation Type	Subset
Source Field	Dependents
Condition	WICT CF Dependent is Child T/F

8. Click **OK** to save this field.

Note: The WICT CF Extract All Children calculated field is now an object type multi-instance field that you have derived from an existing multi-instance relationship. By now having this multi-instance calculated field, you can use your calculated field like any RBO in your report to access fields for your instances.

TASK #3: ADD FIELDS TO REPORT

1. Edit the **WICT CF Employee Dependents** report.
2. Use the Add Row icon to add a row after the Worker field, and enter the following information:

Field Name	*Entry Value*
Business Object	Worker
Field	WICT CF Extract All Children
Column Heading Override	All Children

3. Save and run the report. Now all of a worker's child dependents appear in one column. You can also use the Extract Multi-Instance field like a Related Business Object and return values based on those instances.
4. Edit the **WICT CF Employee Dependents** report.
5. Add two rows after the All Children field, and enter the following information:

Business Object	*Field*	*Column Heading Override*
WICT CF Extract All Children	Name	
WICT CF Extract All Children	Full-time Student	Full-time Student?

Confidential © 2018 Workday, Inc.

Reminder: WICT CF Extract All Children is used as a linking field. This field is not an actual business object and does not store data.

6. Save and run the report. Notice that the report now returns the children's names and their Full-time Student Status. How could you create a field for this report that returns a worker's oldest child?

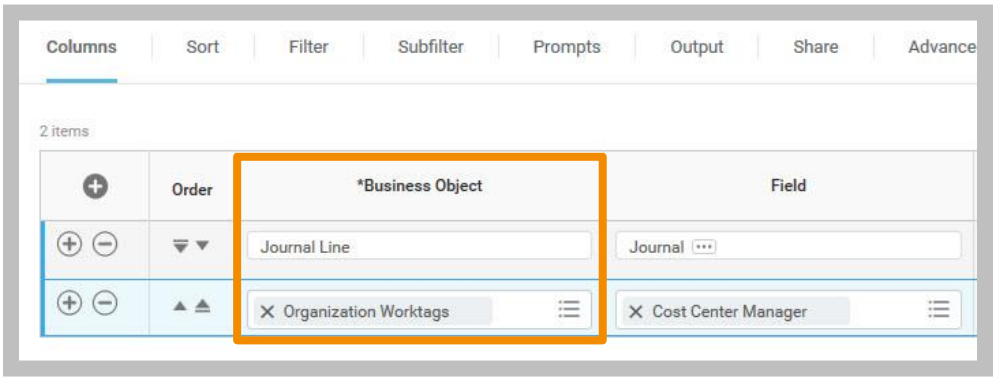
Activity Complete

Confidential © 2018 Workday, Inc.

PERFORMANCE CONSIDERATIONS

For functions that work with related business objects, there are some important performance considerations to note:

- Use the most specific source field possible.
  - When extracting data from a related business object, use the source field most specific to the data you are trying to access. The fewer instances that need to be evaluated, the more efficiently the report will perform.
- Use the Related Business Object fields when possible.
  - When creating advanced reports, you can access data from Related Business Objects by adding the business object and field to your report. You can also use fields from related business objects for sorting and filtering without creating a calculated field. Remember, it is always better to have the fewest number of calculated fields in your report to optimize performance.



36 - Example of using an RBO in an advanced report

Confidential © 2018 Workday, Inc.

SCENARIO (ON YOUR OWN)

Teresa Serrano has been asked to modify a matrix report that shows a list of Journals, their Cost Center, and the sum of the ledger. She needs to add the Cost Center Manager to the report output as well

These are the fields she needs to display in the report:

Journal	Cost Center	Cost Center Manager	Sum of Ledger/Budget Debit minus Credit
6842 – Global Modern Services Ltd. (India) – 01/31/2014 - Payroll	33200 Global Support – Asia/Pac	Nikhil Rao	383,099

See the next activity for more information about how you will create this report.

Confidential © 2018 Workday, Inc.

ACTIVITY 5.3 – RETRIEVING DATA FROM RELATED OBJECTS (ON YOUR OWN)

Business Case: Teresa Serrano has been asked to modify a matrix report that shows a list of Journals, their Cost Center, and the sum of the ledger. She needs to add the Cost Center Manager to the report output as well.

TASK #1: ACTIVITY OBJECTIVES

1. Sign in as Teresa Serrano (tserrano).
2. Copy the **WDINST CF Journal Report** report. Name the new report **WICT CF Journal Report**.
3. Add the Cost Center Manager in the report results.
4. Use the following hints to help you build your report:
    A. Use the Lookup Related Value function to pull the cost center manager information into the report.
    B. This report will include default prompts and prompt values. You can leave these as they are.
5. After configuring the report, see if you can answer the following questions:
    A. How many instances have a Cost Center of 71200 Field Sales – North America?
    B. How many instances have Camilla Stewart as the Cost Center Manager?

Try to do this activity on your own. If you get stuck, you can find the solution guide in **Appendix B** of this course manual.

Confidential © 2018 Workday, Inc.

CHAPTER 5 KNOWLEDGE CHECK

1. What type of report allows you to access fields from Related Business Objects one level away without using a calculated field function?

    A. Matrix report

    B. Advanced report

2. Which calculated field function would allow you to make a field from the Worker object available for use on an event condition rule on a related business object?

    A. Lookup Related Value

    B. Evaluate Expression

    C. Text Constant

    D. Lookup Translated Value

3. Which calculated field function would allow you to return a list of the teams an employee is currently a member of from a related business object?

    A. Extract Single-Instance

    B. Extract Multi-Instance

    C. Lookup Related Value

4. What type of Extract Multi-Instance operation would allow you to return the benefits an employee is eligible for but not currently enrolled in?

    A. Union

    B. Except

    C. Subset

    D. Intersection

Confidential © 2018 Workday, Inc.

CHAPTER 6 – WORKING WITH LOOKUPS

OVERVIEW

In this chapter, we will dive into a couple of calculated field functions that allow you to access multiple levels of data through the use of hierarchies. Hierarchies are used in Workday to establish parent-child relationships. They do not store the definitions of individual objects, such as positions, workers, or financial accounts.

The Lookup Hierarchy and Lookup Hierarchy Rollup calculated field functions allow you to retrieve and report on data from any Workday object that has an associated hierarchical structure, either delivered and custom. Lookup Hierarchy enables the dynamic retrieval of data based on the context of your report, taking into account the hierarchy-level security and accessing only the hierarchy levels or nodes that the user has rights to access. Lookup Hierarchy Rollup is useful when creating matrix reports, as it allows the user to drill through the data using the hierarchy structure and node relationships while maintaining data security.

OBJECTIVES

By the end of this chapter, you will be able to:

- Create a calculated field that dynamically returns the data associated with a node in a hierarchy using the Lookup Hierarchy Function.
- Create a calculated field that allows users to navigate through the nodes of a hierarchy on a Matrix report using the Lookup Hierarchy Rollup function.

Confidential © 2018 Workday, Inc.

DEMO – LOOKUP HIERARCHIES

This demonstration will introduce you to organizational hierarchies in Workday. This will provide you with some context for using the Lookup Hierarchy and Lookup Hierarchy Rollup functions later on in this chapter.

TASK #1: LOOKUP A HIERARCHY STRUCTURE

1. Sign in as Teresa Serrano (tserrano).
2. Search for and select the **Cost Center Hierarchy** cost center hierarchy.
3. Use Cost Center Hierarchy's **Related Actions**, and click the **Org Chart** button.
4. Here, you can see all of the nodes contained within this hierarchy. This top-level, Cost Center Hierarchy, is level 1 of this hierarchy.

   Notice that the 10000 Office of CEO cost center and subordinate nodes are all listed under the Cost Center Hierarchy hierarchy. This is level 2 of the hierarchy.
5. Click the **Information Technology** node.

   Notice that the *60000 Office of CIO* cost center and two subordinate nodes are listed under Information Technology.
6. Now perform a search for *All Spend Categories*, and select the **All Spend Categories** spend category hierarchy.
7. Use the **Related Actions** for this spend category hierarchy (next to the magnifying glass icon), and click the **Navigate Spend Category Hierarchy** button.

   There are two hierarchies nodes contained here: Information Technology and All Other Spend Categories. This is level 1.
8. Click the **Information Technology** node.
9. Here we see another node called Computer Equipment & Accessories.

   If you go down another level, you will see three additional nodes, each of which contains specific spend categories.
10. Scroll up or use the up arrows to navigate back to the top level of this hierarchy.
11. Click the **All Other Spend Categories** node.

Confidential © 2018 Workday, Inc.

Notice that there are many different individual spend categories contained in this node.

12. Rather than selecting individual spend categories, we can use the hierarchy structure to point to a specific level. This will include all spend categories within that node, as well as in subordinate nodes.

    As individual spend categories are added or reorganized, the hierarchy will still capture all of that information. This means that if you add a specific level of a hierarchy to a report, you will not have to make any changes to the report definition as the spend categories in your system change. The report will always point to the proper node and report on the current values in that category for your organization.

13. Now let's take a look at the report you will need to modify for the upcoming activity. Search for and run the **Purchases by Cost Center** report.

    Notice that these columns are all individual Spend Categories. You will want to group these into hierarchies to more easily represent the data.

Confidential © 2018 Workday, Inc.

SCENARIO

Logan McNeil needs to modify the Purchases by Cost Center report to enable grouping and drilling through cost center hierarchy nodes. She will use predefined hierarchies to show results grouped by spend category and enable drilling by cost center.

These are the fields she needs to display in the report:

Cost Center Hierarchy Rollup	Computer Accessories	Computers	Hardware & Software	(Blank)	Total Purchase Amount
Cost Center Hierarchy	$71,409	$1,009,470	$497,500	$56,050,046	$57,628,425
Total	$71,409	$1,009,470	$497,500	$56,050,046	$57,628,425

In order to construct this report, you will need to use two different calculated field functions:

- **Lookup Hierarchy** to be able to group purchase order lines by a defined level in the spend category hierarchy.
- **Lookup Hierarchy Rollup** to be able to view the data in your report as grouped by the Cost Center Hierarchy and use the cost center hierarchy structure to drill through and summarize the amounts into various cost center hierarchy levels.

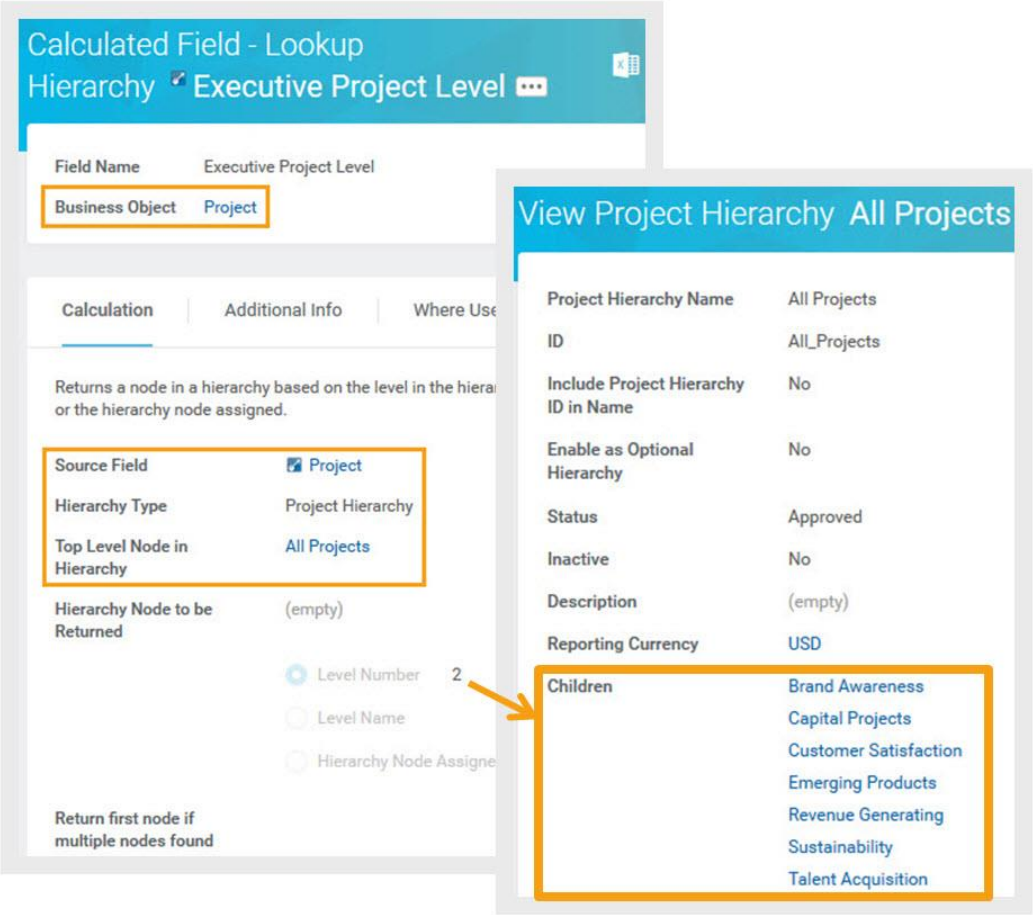
Confidential © 2018 Workday, Inc.

LOOKUP HIERARCHY

The Lookup Hierarchy calculated field makes it easy to report on your hierarchical data in Workday, including custom hierarchies and financial data. Lookup Hierarchy provides the ability to determine a specific:

- Hierarchy node based on a level number.
- Hierarchy node associated with a particular level name.
- Hierarchy node associated with a field in a hierarchy.
    - For Example: If you provide a cost center name, it can return the cost center hierarchy node associated with that particular cost center.

Lookup Hierarchy enables you to dynamically retrieve data by node from any Workday object that has an associated hierarchical structure. Lookup Hierarchy supports both delivered and custom hierarchies.



37 - Example of a Lookup Hierarchy field extracting the specified level of an organizational hierarchy

Confidential © 2018 Workday, Inc.

LOOKUP HIERARCHY ROLLUP

The Lookup Hierarchy Rollup function is designed to be used in conjunction with a matrix report and supports any Workday-delivered or custom hierarchical structure. Using this calculated field function, users can see matrix report data stepping through levels of a hierarchy as they drill down. Summarizations will be rolled up and can be drilled through, leveraging defined hierarchies.

This feature respects the access control that you have to an organization, as configured with Workday security. When you begin drilling down on the Lookup Hierarchy Rollup field, the drill down automatically starts at the highest level in the hierarchy to which you have access. If there is data that you do not have access to, a blank value is returned.

PROCESS

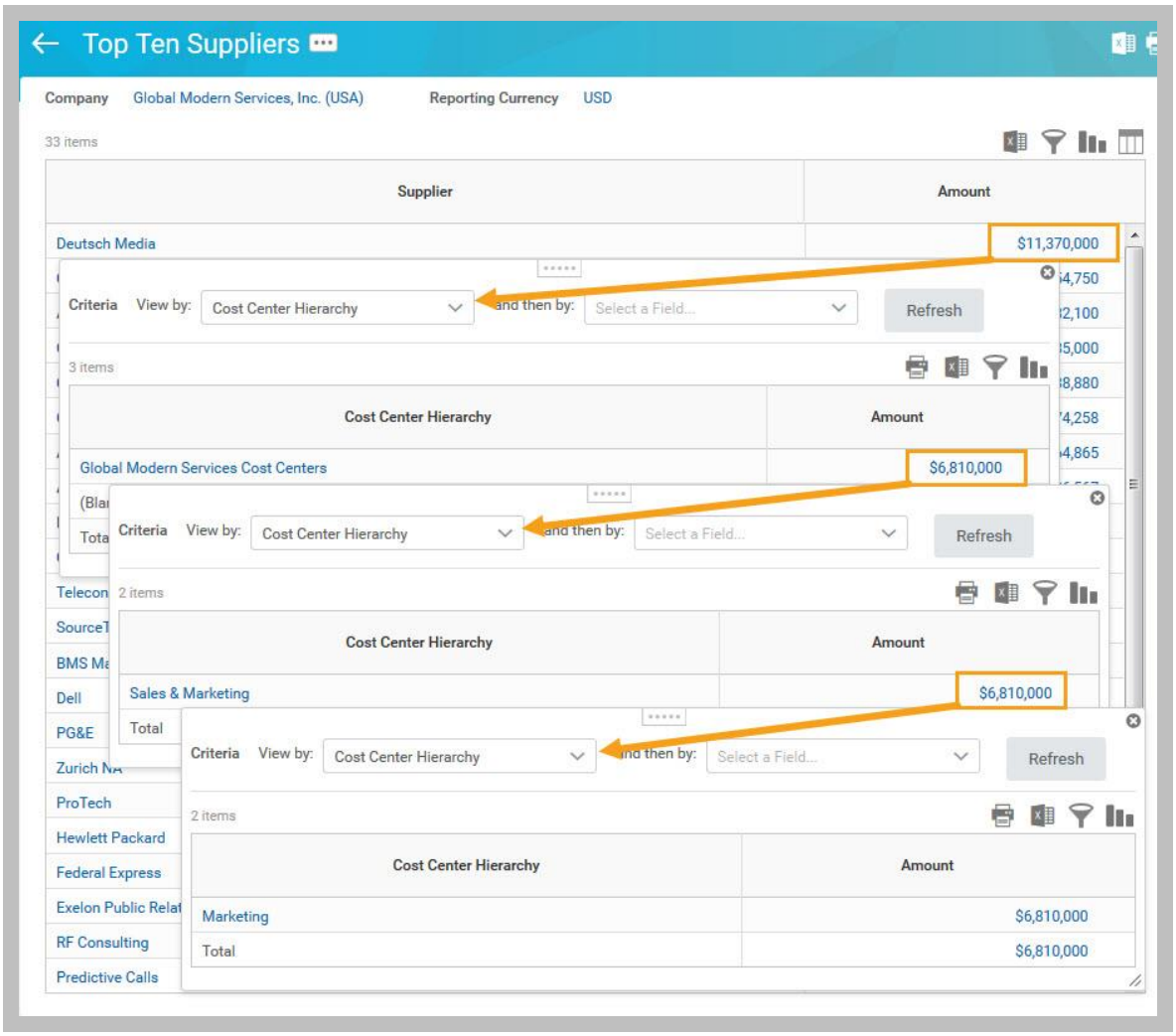
Generally, there are three steps to utilizing a Lookup Hierarchy Rollup field in a matrix report. These steps are as follows:

38 - The three steps to utilizing a Lookup Hierarchy Rollup field

EXAMPLE

Refer to the cost center hierarchy, as shown here in the Top Ten Suppliers matrix report, grouping supplier invoice lines by Supplier.

Confidential © 2018 Workday, Inc.



39 - Screenshot of the ability to drill into values and group results by cost center hierarchy levels

Confidential © 2018 Workday, Inc.

ACTIVITY 6.1 – LOOKUP HIERARCHY ROLLUP AND LOOKUP HIERARCHY

Business Case: Logan McNeil needs to modify the purchases by cost center report to allow for rollups by cost center hierarchies and spend categories captured at a higher level in the spend category hierarchy.

TASK #1: COPY CUSTOM REPORT

1. Sign in as Logan McNeil (lmcneil).
2. Search for and run the **Purchases by Cost Center** report.

   Notice that the cost centers are all listed individually. You need to modify this report to return the Cost Center Hierarchy instead.
3. Use the report's **Related Actions** to copy it.
4. Name the new report *WICT CF Purchases by Cost Center*, and save it.

Note: After you save this report, you will see a warning message letting you know that this report uses fields that are not indexed. Using non-indexed fields may cause your report to run more slowly. For this activity, you can ignore and/or minimize these warnings.

TASK #2: CREATE LOOKUP HIERARCHY AND LOOKUP HIERARCHY ROLLUP FIELDS

1. Run the **Create Calculated Field** task.
2. Enter the following information:

Field Name	***Entry Value***
Field Name	WICT CF Cost Center Hierarchy Rollup
Business Object	Purchase Order Line
Function	Lookup Hierarchy Rollup

3. Click **OK**, and then enter the following information:

Confidential © 2018 Workday, Inc.

Field Name	*Entry Value*
Source Field	Cost Center
Hierarchy Type	Cost Center Hierarchy (default value)
Top Level Node in Hierarchy	Cost Center Hierarchy

4. Configure the Additional Info tab, as necessary, and then click **OK** to save this field.
5. Click the **Create Another Calculation** button.
6. Enter the following information:

Field Name	*Entry Value*
Field Name	WICT CF Spend Category Level 4
Business Object	Purchase Order Line
Function	Lookup Hierarchy

7. Click **OK**, and then enter the following information:

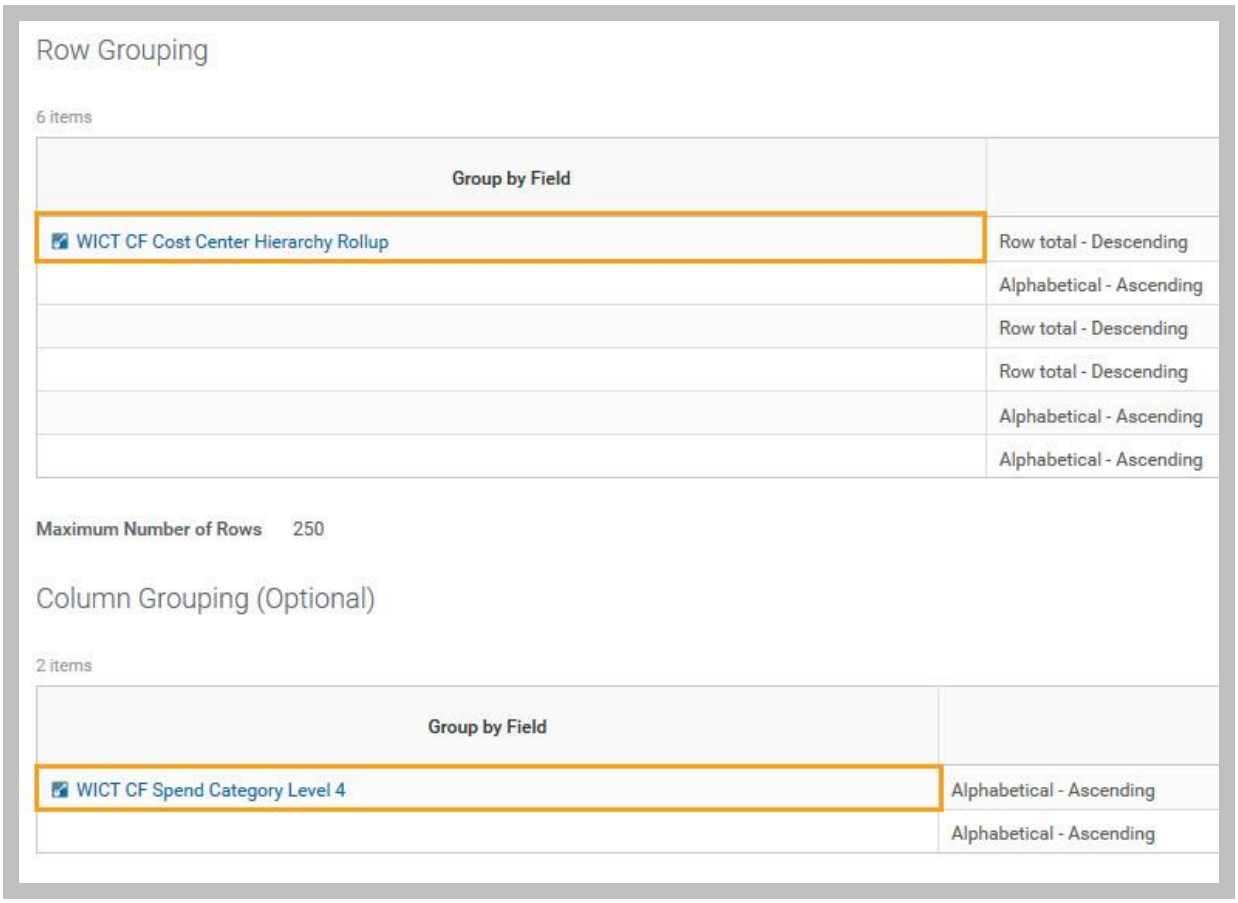
Field Name	*Entry Value*
Source Field	Spend Category
Hierarchy Type	Spend Category Hierarchy (default value)
Top Level Node in Hierarchy	All Spend Categories
Hierarchy Node to be Returned	Level Number: *4*

8. Configure the Additional Info tab, as necessary, and click **OK** to save this field.

TASK #3: EDIT REPORT TO GROUP DATA AT A HIGHER LEVEL

1. Edit the *WICT CF Purchases by Cost Center* report.
2. In the Matrix tab,
   A. Replace the Cost Center row grouping field with the **WICT CF Cost Center Hierarchy Rollup** field.
   B. Replace the Spend Category column grouping field with the **WICT CF Spend Category Level 4** field.

Confidential © 2018 Workday, Inc.



40 - Configuration of the Row Grouping and Column Grouping

3. Navigate to the **Drill Down** tab.
4. Add a row to the top of the Drillable Fields section to add the **WICT CF Cost Center Hierarchy Rollup** field.
5. Save and then run this report.

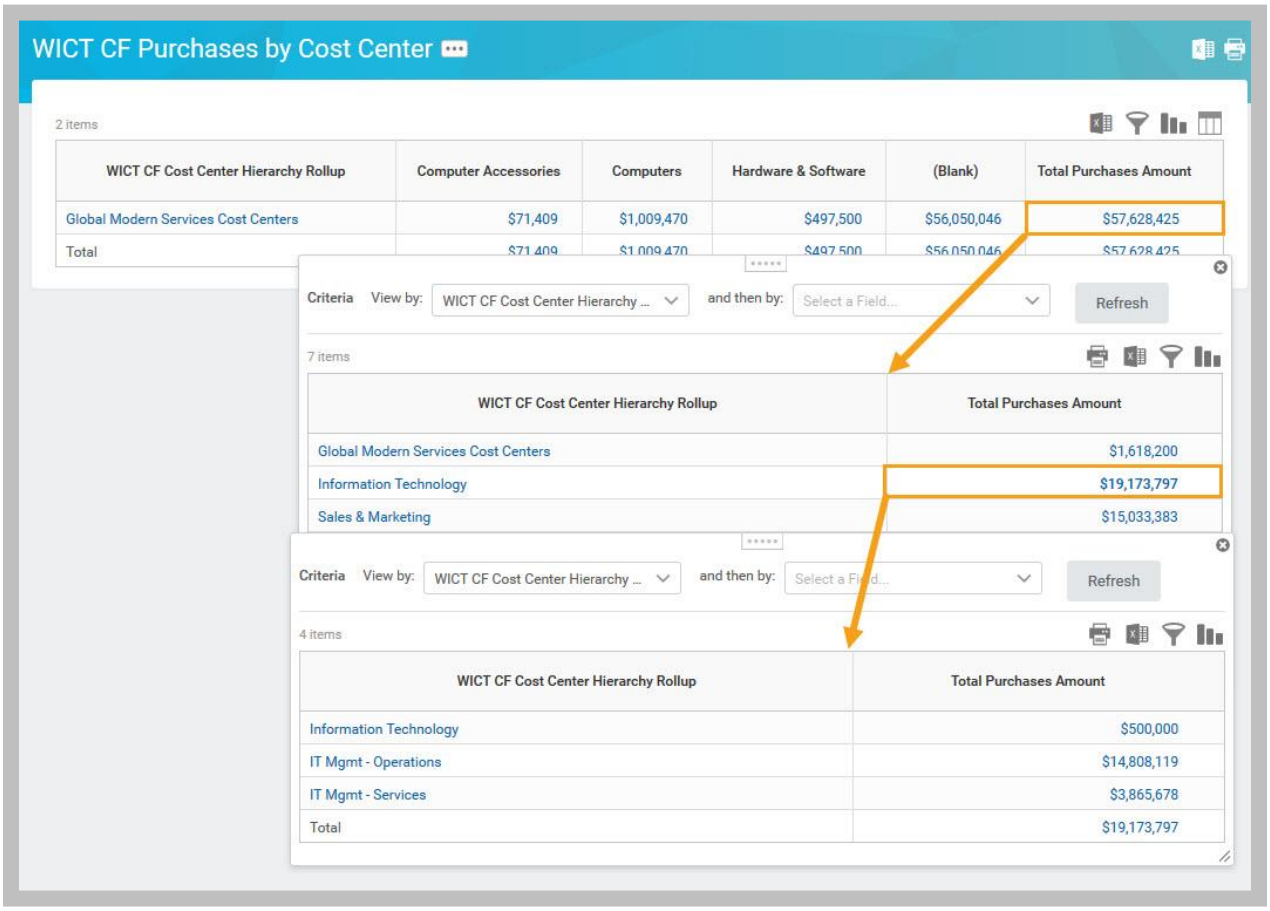
   Now the cost center data is rolled up to the top-level Cost Center Hierarchy for the row grouping, and the Spend Categories are grouped at level 4 of the Spend Category Hierarchy.

6. Click the **Total Purchases Amount** in the Cost Center Hierarchy row.
7. Select to View By the **WICT CF Cost Center Hierarchy Rollup** to break down the total based on the defined cost center hierarchy.
8. Click **Refresh**.

Confidential © 2018 Workday, Inc.

9. In this view, drill into the **Total Purchases Amount** for the Information Technology row.

10. View by the **WICT CF Cost Center Hierarchy Rollup** field again.



41 - Screenshot of the ability to drill into an amount by the Cost Center Hierarchy and view the breakdown by different hierarchy levels

Now you see the purchase order totals according to the nodes and levels in your cost center hierarchy instead of at the individual cost center level originally returned in the report.

Activity Complete

Confidential © 2018 Workday, Inc.

CHAPTER 6 KNOWLEDGE CHECK

1. Which calculated field function allows you to step through various levels of a hierarchy structure to organize data?

    A. Lookup Hierarchy

    B. Lookup Hierarchy Rollup

2. Which calculated function would allow you to return a specific level of a hierarchy structure to group report data by?

    A. Lookup Hierarchy

    B. Lookup Hierarchy Rollup

Confidential © 2018 Workday, Inc.

CHAPTER 7 – CHANGE DETECTION

OVERVIEW

In this chapter, we will cover how you can use calculated field functions to help you build reports that track changes to your organization. You can combine some of the calculated field functions that we have already covered in this course with one new function, the Lookup Value as of Date field, to create reports that detect and track changes to your business. These changes can include salary changes, personnel changes, organizational changes, and more.

OBJECTIVES

By the end of this chapter, you will be able to:

- Create a calculated field that determines the value of a field as of a specified date using the Lookup Value as of Date function.
- Explain how to use calculated fields to show the previous value of a business process event.

Confidential © 2018 Workday, Inc.

SCENARIO

Logan McNeil needs to create a matrix report that shows the total base pay salary changes by range band.

These are the fields that need to display in the report:

Location Hierarchy Level 2	1 – 10% Change	11 – 20% Change	21-30% Change	31 – 40% Change	41% or More Change	Count
North America	110	1	1	1	2	115
Japan & Asia/Pacific	22	0	0	0	1	23

In order to construct this report, you will need to use a variety of calculated field functions:

- **Lookup Hierarchy** to use as the row groupings
- **Lookup Value as of Date** to be able to compare Total Base Pay at two different dates
- **Arithmetic Calculation** to calculate the percent of change the Total Base Pay has undergone
- **Lookup Range Band** to group results into bands and return each band as a column on the report

Confidential © 2018 Workday, Inc.

LOOKUP VALUE AS OF DATE

Before we dive into change detection, let's first discuss the Lookup Value as of Date field function, as it is instrumental in how you measure change in your system.

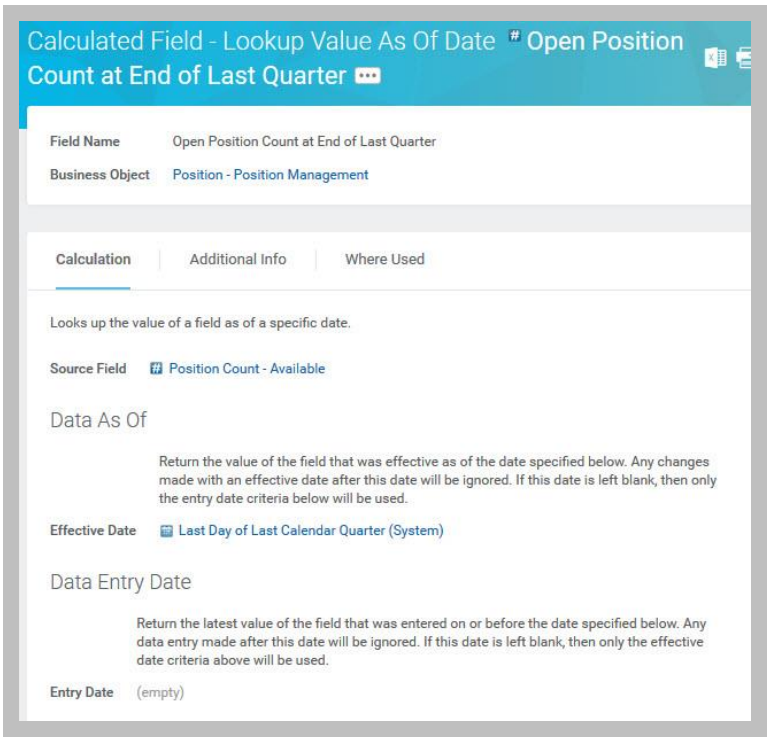
The Lookup Value as of Date function determines the value of a field as of a specific effective and/or entry date.

For business object fields that support effective dating, you can retrieve a field's value that was in effect as of a specific date, retrieve a field's latest value that was entered on or before a specific date, or a combination of both. For business object fields that do not support effective dating, you can only retrieve a field's latest value that was entered on or before a specific date. Business object fields that support effective dating are typically populated and maintained by one or more business processes.

For example, assume an employee's proposed salary change was entered on March 15th, which is the data entry date. That salary change could be recorded to take effect retroactively on March 1st, or take effect on March 15th, or take effect in the future on April 1st. In any of these cases, you can use the Lookup Value as of Date function to return the correct value. In the field configuration, you can configure the Effective Date to return the value of the field as of that specified date. You can also set an Entry Date to return the latest value of the field that was entered on or before that specified date. Depending on your field configuration, you can use the Lookup Value as of Date to either return the value as of the effective date of March 16th, its value that was entered before March 15th, or both.

In the example below, we use Lookup Value As Of Date to get the position count effective dated to the last day of the last calendar quarter. Each time the report is run, it will provide the updated position count that we are interested in for our analysis.

Confidential © 2018 Workday, Inc.



42 - Example of a Lookup Value as of Date field

If the calculation requires a date constant, it must already exist prior to entering the calculated field. If you supply both an effective and entry date, Workday looks only at transactions whose entry date occurred on or before the calculated field's entry date. Of those, it uses the transaction with the latest effective date that is on or before the calculated-field's effective date.

The following are examples of determining the value of a field as of a specified effective date:

- Determine an employee's annual salary as of a certain date.
- List any suppliers whose address or phone number changed last month.

The following are examples of determining the value of a field as of an entry date:

- Determine the day on which an employee entered their Experience into their professional profile.
- Determine when the contract end date for a contingent worker was changed.

The following is an example of determining the value of a field using both entry and effective dates:

- When hiring a worker into an organization, you enter their information on April 1st (Entry date: 04/01/2016). You also configure the effective date of this hire as 04/15/2016. Using report runtime date prompts and the Lookup Value as of Date function, you can return the entry date of the hire, as well as the effective date of the hire.

Confidential © 2018 Workday, Inc.

Note: You can also run a report as of a given effective or entry date using Runtime Date Prompts (Prompts tab) to see data as of a point in time without needing calculated fields. The Lookup Value as of Date function can be useful if you need the value in a separate field for reference in a column of its own on a report, or to be used elsewhere (e.g. in another calculation).

Confidential © 2018 Workday, Inc.

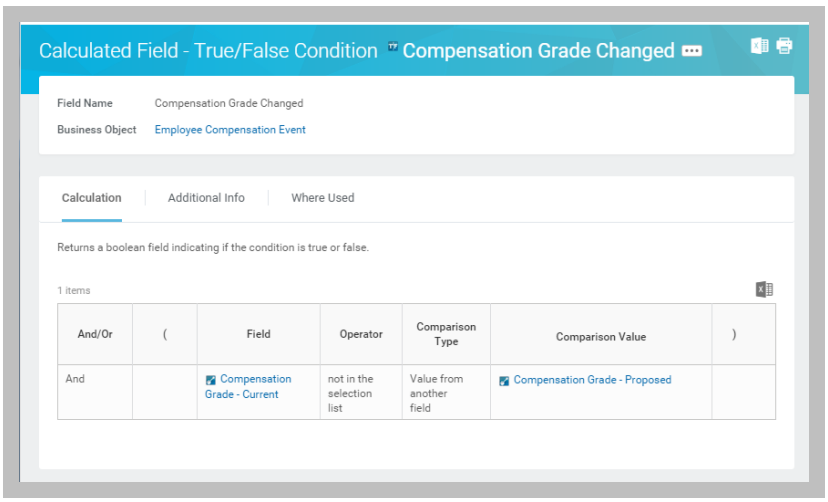
CHANGE DETECTION

Lookup Value as of Date is a useful function for change detection. Using the Lookup Value as of Date calculated field function, you can:

- Lookup value of a field as of two points in time
- Compare field values to see if changed (if not equal)
  - Today vs. yesterday
  - This moment vs. a millisecond ago
  - The effective date of the event vs. the day before the effective date of event
  - A prompted date vs. another prompted date

Note: The Increment or Decrement Date function can help you derive the dates and times you need to measure “the day before” an event or “a millisecond ago”.

Keep in mind that many event objects capture the current and proposed values as part of your business process events where you can see if the value changed. You can directly use these delivered fields in reporting to detect change between the current and proposed fields.



43 - Example of using a proposed value field in a calculated field

Calculated fields can be used in cases where the before and after values are not available to the event, or if you are looking to see changes in values for fields changed outside of business process events or as of different points in time.

For example, what if you want to determine which role assignments were added and removed during the past year? In order to build a report with this information you would need to:

Confidential © 2018 Workday, Inc.

- Create an Extract Multi-Instance (Intersection) field to see which role assignments were the same at the two specified dates (One year ago vs Today).
- Create an Extract Multi-Instance (Except) field to see which role assignments exist now that did not one year ago. These are the “Added” role assignments.
- Create an Extract Multi-Instance (Except) field to see which role assignments existed one year ago that do not exist currently. These are the “Removed” role assignments.

Check out the solution to this reporting scenario, as well as example audit and change detection reports and posts on Workday Community.

Confidential © 2018 Workday, Inc.

ACTIVITY 7.1 – CHANGE DETECTION

Business Case: Logan McNeil needs to create a matrix report that shows the total base pay salary changes by band.

TASK #1: CREATE LOOKUP HIERARCHY FIELD

First, you need to configure the row groupings for the matrix report. You need to return a list of location hierarchies to use as the row groupings. To do that, you can use the Lookup Hierarchy function you learned in the previous chapter.

1. Sign in as Logan McNeil (lmcneil).
2. Run the **Create Calculated Field** task.
3. Enter the following information:

Field Name	***Entry Value***
Field Name	WICT CF Location Hierarchy Level 2
Business Object	Worker
Function	Lookup Hierarchy

4. Click **OK**, and then enter the following information:

Field Name	***Entry Value***
Source Field	Location
Hierarchy Type	Location Hierarchy
Top Level Node in Hierarchy	Location Hierarchy
Level Number	2

5. Click **OK** to save this field.

TASK #2: CREATE LOOKUP VALUE AS OF DATE FIELDS

In order to create the column groupings, you will need several different calculated fields. First, you need to be able to derive a worker's base pay at two different dates to compare. To do this, you can use the Lookup Value as of Date function.

Confidential © 2018 Workday, Inc.

1. Run the **Create Calculated Field** task.
2. Enter the following information:

Field Name	***Entry Value***
Field Name	WICT CF Pay as of Date 1
Business Object	Worker
Function	Lookup Value As Of Date

3. Click **OK** to continue, and then enter the following information:

Field Name	***Entry Value***
Source Field	Total Base Pay Annualized in USD - Amount
Effective Date	Prompt – Date 1 (under Global fields)

Note: Using the Prompt – Date 1 field here will prompt the user for a date. This will allow you to run this report for a varying set of dates, making it more useful. Additionally, you can define default values for these prompts in your report definition if you plan to use the same date values often.

4. Click **OK** to save this field.
5. Click the **Create Another Calculation** button.
6. Enter the following information:

Field Name	***Entry Value***
Field Name	WICT CF Pay as of Date 2
Business Object	Worker
Function	Lookup Value as of Date

7. Click **OK** to continue, and then enter the following information:

Confidential © 2018 Workday, Inc.

Field Name	*Entry Value*
Source Field	Total Base Pay Annualized in USD - Amount
Effective Date	Prompt – Date 2 (under Global fields)

8. Click **OK**.

TASK #3: CREATE ARITHMETIC CALCULATION AND LOOKUP RANGE BAND FIELDS

Now you are able to extract the Total Base Pay amount for an employee at two different dates. Next, you will need to create an Arithmetic Calculation to see how much the amount has changed between those two times, as well as a Lookup Range Band to group the results.

1. Run the **Create Calculated Field** task.

2. Enter the following information:

Field Name	*Entry Value*
Field Name	WICT CF Pay Change Between Dates
Business Object	Worker
Function	Arithmetic Calculation

3. Click **OK** to continue, and then enter the following information:

Field Name	*Entry Value*
Field Type	Numeric
Rounding	Round down to the nearest 0.01
Return Zero on Error	checked

4. In the Arithmetic Expression section, enter the following information:

(	*Field*	*)*	*Operator*
(	WICT CF Pay as of Date 2		- (Subtract)
	WICT CF Pay as of Date 1	)	/ (Divide)
	WICT CF Pay as of Date 1		

Confidential © 2018 Workday, Inc.

Note: Make sure you include the parentheses where noted, as these will affect the output of the calculation.

5. Click **OK** to save this field.
6. Click the **Create Another Calculation** button.
7. Enter the following information:

Field Name	***Entry Value***
Field Name	WICT CF Pay Change Band
Business Object	Worker
Function	Lookup Range Band

8. Click **OK** to continue, and then enter the following information:

Field Name	***Entry Value***
Source Field	WICT CF Pay Change Between Dates
Decimal Places	2
Rounding	Round down

9. Use the **Add Row** icon to add six rows.
10. Define the range bands as follows:

From Value	***To Value***	***Return Value***
-99	0	Negative to No Change
0.01	0.10	1 – 10% Change
0.11	0.20	11 – 20% Change
0.21	0.30	21 – 30% Change
0.31	0.40	31 – 40% Change
0.41	500	41% or More Change

11. Click **OK** to save this field.

Confidential © 2018 Workday, Inc.

TASK #4: CREATE A MATRIX REPORT

1. Now you have all of the fields you need to create this report. Run the **Create Custom Report** task.

2. Enter the following information:

Field Name	*Entry Value*
Report Name	WICT CF Salary Changes in Date Range by Band
Report Type	Matrix
Data Source	Workers for HCM Reporting

3. Click **OK** to continue.

4. In the Data Source Filter field, select the **All Employees** filter.

5. In the Matrix tab, enter the following in the Row Grouping section:

Group by Field	*Sort Rows*
WICT CF Location Hierarchy Level 2	Row Total - Descending

6. In the Column Grouping (Optional) section, enter the following information:

Group by Field	*Sort Columns*
WICT CF Pay Change Band	Logical sort order - Ascending

Reminder: When creating a matrix report, you need to define a Summarization Type in the Define Field(s) to Summarize section. In this activity, just leave it as the default of Count.

7. Next, navigate to the **Drill Down** tab.

8. In the Drillable Fields section, add the following fields:

   - Company
   - Cost Center
   - Supervisory Organization

Confidential © 2018 Workday, Inc.

- Management Level
- Gender

9. In the Detail Data section, add the following fields to the Columns area:

    - Worker
    - WICT CF Pay as of Date 1
    - WICT CF Pay as of Date 2
    - WICT CF Pay Change Between Dates
    - WICT CF Pay Change Band

10. Before you finish your configurations, add a filter to the report to remove any employees that do not have a salary within the selected date range. Navigate to the **Filter** tab.

11. Add a row and enter the following information:

Field Name	***Entry Value***
And/Or	And
Field	WICT CF Pay as of Date 1
Operator	Not equal to
Comparison Type	Value specified in this filter (default value)
Comparison Value	0

12. Add another row below the one you just created, and enter the following information:

Field Name	***Entry Value***
And/Or	And
Field	WICT CF Pay Change Band
Operator	Not in the selection list
Comparison Type	Value specified in this filter
Comparison Value	Negative to No Change

13. Navigate to the **Prompts** tab.

14. Select the **Populate undefined Prompt Defaults** checkbox. This will populate a number of fields; the Prompt – Date 1 and Prompt – Date 2 fields are used in our Lookup Value as of Date fields. The Employee Type and Remove Exclude Headcount fields are included with this data source filter by default.

15. Configure the prompts as follows:

Confidential © 2018 Workday, Inc.

Field	*Label for Prompt*	*Default Type*	*Default Value*	*Do Not Prompt at Runtime*
Employee Type		No default value		(selected)
Remove Exclude from Headcount		No default value		(selected)
Prompt - Date 1	Starting Date	Specify default value	01/01/2011	
Prompt - Date 2	Ending Date	Specify default value	12/31/2011	

16. Click **OK** to save the report.

    This populates a warning to appear, noting that the fields used for grouping and filtering are not indexed, which could hurt performance. Remember, you want to always strive to use indexed fields on a report using an indexed data source.

17. Run the report using the default prompt values.

Reminder: To troubleshoot your calculated field, use the View Calculation Hierarchy option from that field's Related Actions. This will display your calculated field definition and all underlying fields involved from the top down.

TASK #5: ANALYZE THE REPORT RESULTS

1. What Cost Center had the most salary changes in this date range?

   Hint: Drill into the total Count by Cost Center.

2. How many female Director level employees had a 1 – 10% change in North America?

3. Which employee had the biggest pay change?

   Hint: View the details of the 41%+ total.

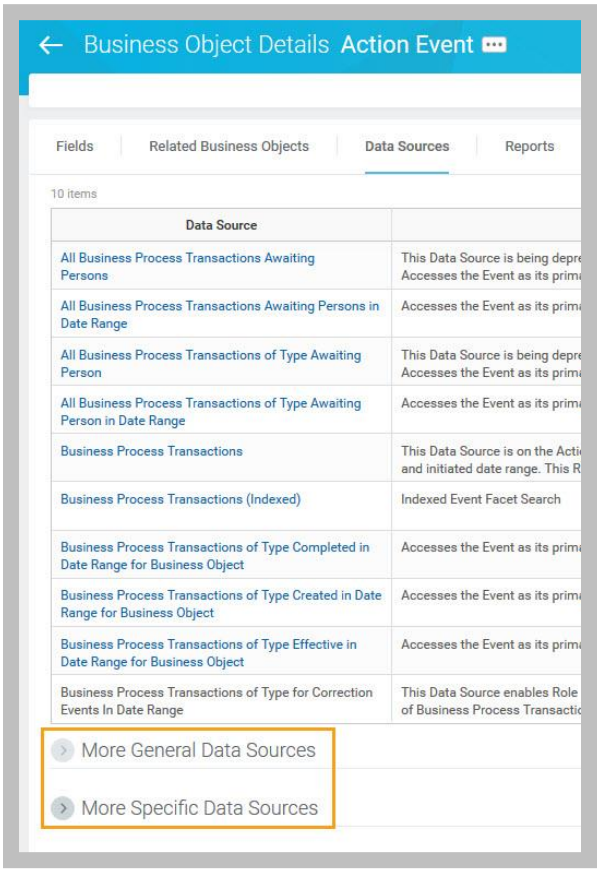
Confidential © 2018 Workday, Inc.

Confidential © 2018 Workday, Inc.

REPORTING ON BUSINESS PROCESS EVENTS

Workday data is commonly updated via business process transactions or events that are captured in your tenant as of an effective date allowing you to future date or past date a given change, such as a compensation change.

Workday provides data sources allowing you to report on these business process transactions or events. The Action Event business object captures overall information about your transactions. You can use data sources to report on the Action Event business object more generally, or you can use specific event objects and data sources for specific types of events.



44 - Business Object Details report for the Action Event object and its data sources

Workday also provides specific data sources for specific types of transactions. It is important to study these specific data sources and specific event business objects to target reporting for optimal performance.

You can use the Business Object Details report for event objects of interest to see available fields, as well as existing reports using that business object.

Confidential © 2018 Workday, Inc.

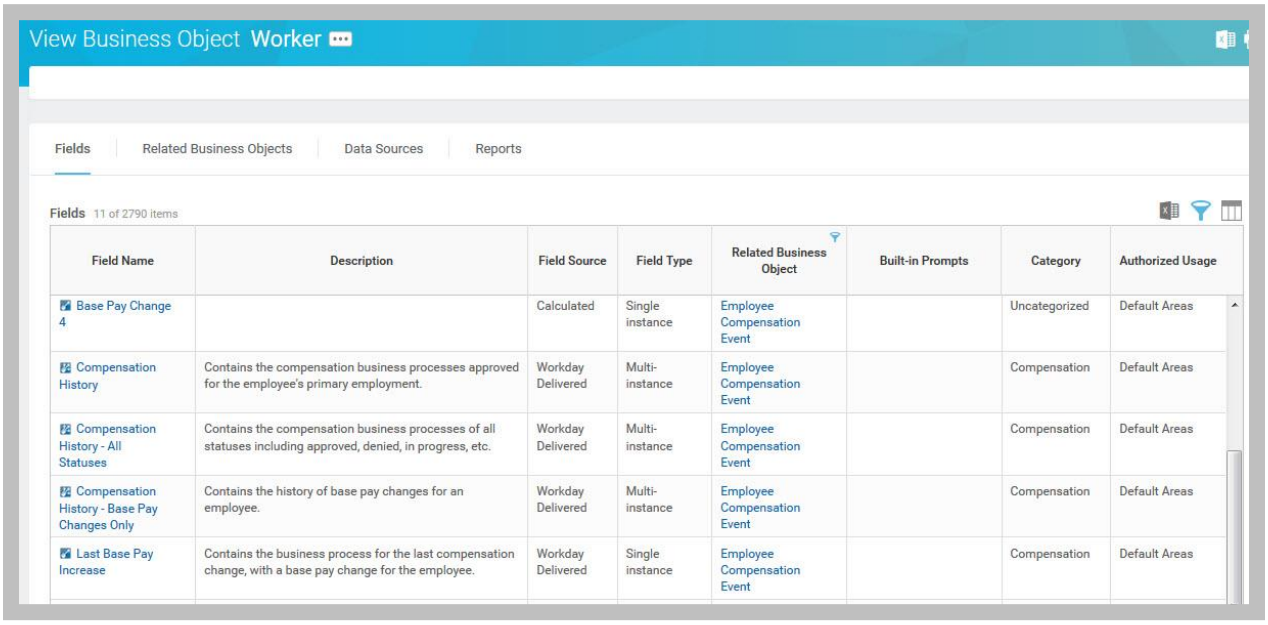
Note: Oftentimes when creating a calculated field or report on business process events, certain values like Supervisory Organization, Cost Center, or Manager will return blank for terminated or future-dated workers who do not have a Cost Center or Manager assigned as of the reporting date. You can create calculated fields to return the most relevant values as possible in these situations. For example, you can create a calculated field that returns a worker's supervisory organization as of today, and stipulate that if the value returned is blank, the calculation will return the Supervisory Organization as of their termination date.

Confidential © 2018 Workday, Inc.

REPORTING ON EVENTS: PBO VS. RBO

When writing a report on events, you can use the Event business object as the PBO of your report to capture event information. You can also write a report using another business object, such as Worker, as your PBO or then include the Event business object as an RBO on your report to include event data.

For example, you can directly report on the Employee Compensation Event business object as the PBO of your report, or report on the Worker business object as the PBO, and get the worker's compensation history as an RBO, as shown below.



Field Name	Description	Field Source	Field Type	Related Business Object	Built-in Prompts	Category	Authorized Usage
Base Pay Change 4		Calculated	Single instance	Employee Compensation Event		Uncategorized	Default Areas
Compensation History	Contains the compensation business processes approved for the employee's primary employment.	Workday Delivered	Multi-instance	Employee Compensation Event		Compensation	Default Areas
Compensation History - All Statuses	Contains the compensation business processes of all statuses including approved, denied, in progress, etc.	Workday Delivered	Multi-instance	Employee Compensation Event		Compensation	Default Areas
Compensation History - Base Pay Changes Only	Contains the history of base pay changes for an employee.	Workday Delivered	Multi-instance	Employee Compensation Event		Compensation	Default Areas
Last Base Pay Increase	Contains the business process for the last compensation change, with a base pay change for the employee.	Workday Delivered	Single instance	Employee Compensation Event		Compensation	Default Areas

45 - Screenshot of the Worker business object containing fields from the Employee Compensation Event RBO

Each worker on the Worker business object can be linked to events on various business objects that are related to worker, for example:

- compensation events,
- benefit changes,
- personal information change events,
- and more.

Confidential © 2018 Workday, Inc.

CURRENT AND PROPOSED VALUES

Event objects hold valuable information about what happened in the event, including field values coming into the event and the new field values after the event has taken place. There are many current and proposed values (worker attributes, such as supervisory organization, job profile, etc.) available for events. Many of these different values exist as separate fields, as shown in the screenshot below. Fields labeled as “Current” represent the value coming into the event (just prior to the event changes) while the fields labeled as “Proposed” represent the values that were proposed (changes) in the event.

View Business Object **Worker Business Process**

Fields | Related Business Objects | Data Sources | Reports

Fields 700 items

Field Name	Description	Field Source	Field Type	Related Business Object	Built-in Prompts	Category	Authorized Usage
Background Check - Current	Returns the Current Background Check Descriptor (status date, status and comments) for Person of this Event. This CRF is intended for creating calculated fields.	Workday Delivered	Single instance	Background Check		Pre-Hire	Default Areas
Background Check - Proposed	Returns the Proposed Background Check Descriptor (status date, status and comments) for Person of this Event. This CRF is intended for creating calculated fields.	Workday Delivered	Single instance	Background Check		Pre-Hire	Default Areas
Background Check Status - Current	Returns the Current status of the Background Check.	Workday Delivered	Single instance	Background Check Status		Pre-Hire	Default Areas
Background Check Status - Proposed	Returns the Proposed status of the Background Check.	Workday Delivered	Single instance	Background Check Status		Pre-Hire	Default Areas
Background Check Status Date - Current	Returns the Current Status Date of the Background Check.	Workday Delivered	Date			Pre-Hire	Default Areas
Background Check Status Date - Proposed	Returns the Proposed Status Date of the Background Check.	Workday Delivered	Date			Pre-Hire	Default Areas
Base Pay - Current	The current base pay for a worker. In the context of a compensation process this would be the old base pay for the worker.	Workday Delivered	Currency			Compensation	Default Areas
Base Pay - Current - Formatted	Do not use. This field was created for generating the merit statement document. Use Base Pay - Current.	Workday Delivered	Text			Merit Statement	Default Areas
Base Pay - Proposed	The proposed base pay for the employee from the Employee Compensation Event or Employee Compensation Event	Workday Delivered	Currency			Compensation	Default Areas

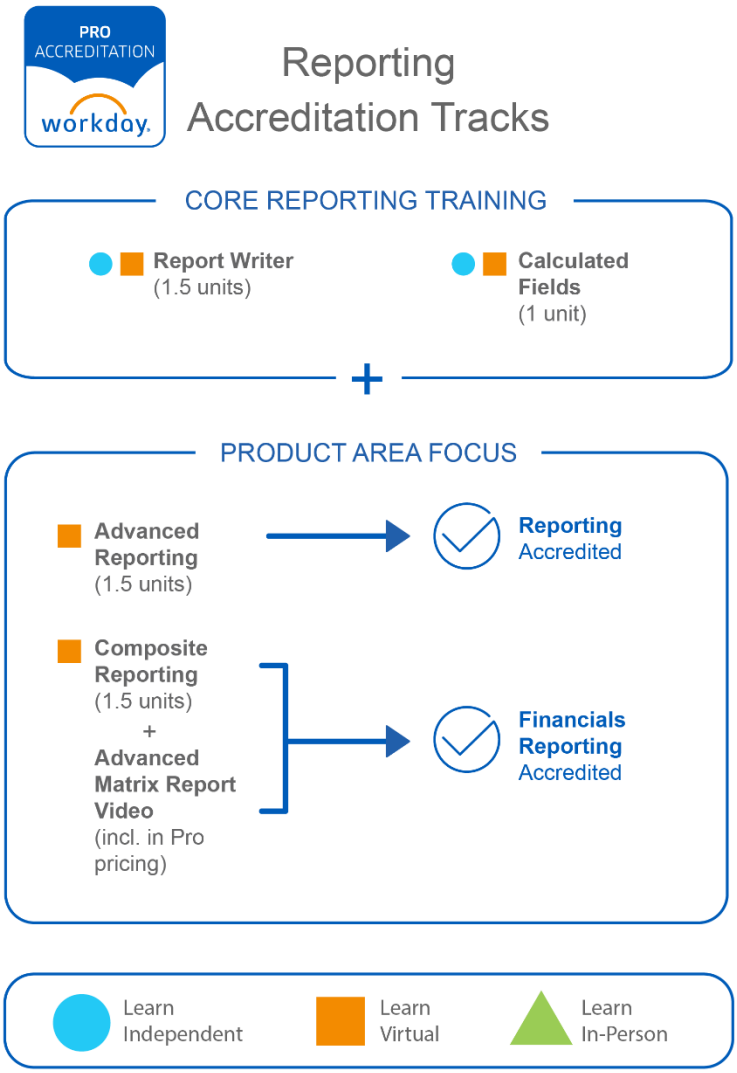
46 - Screenshot of the Worker Business Process business object containing fields for current and proposed values

Confidential © 2018 Workday, Inc.

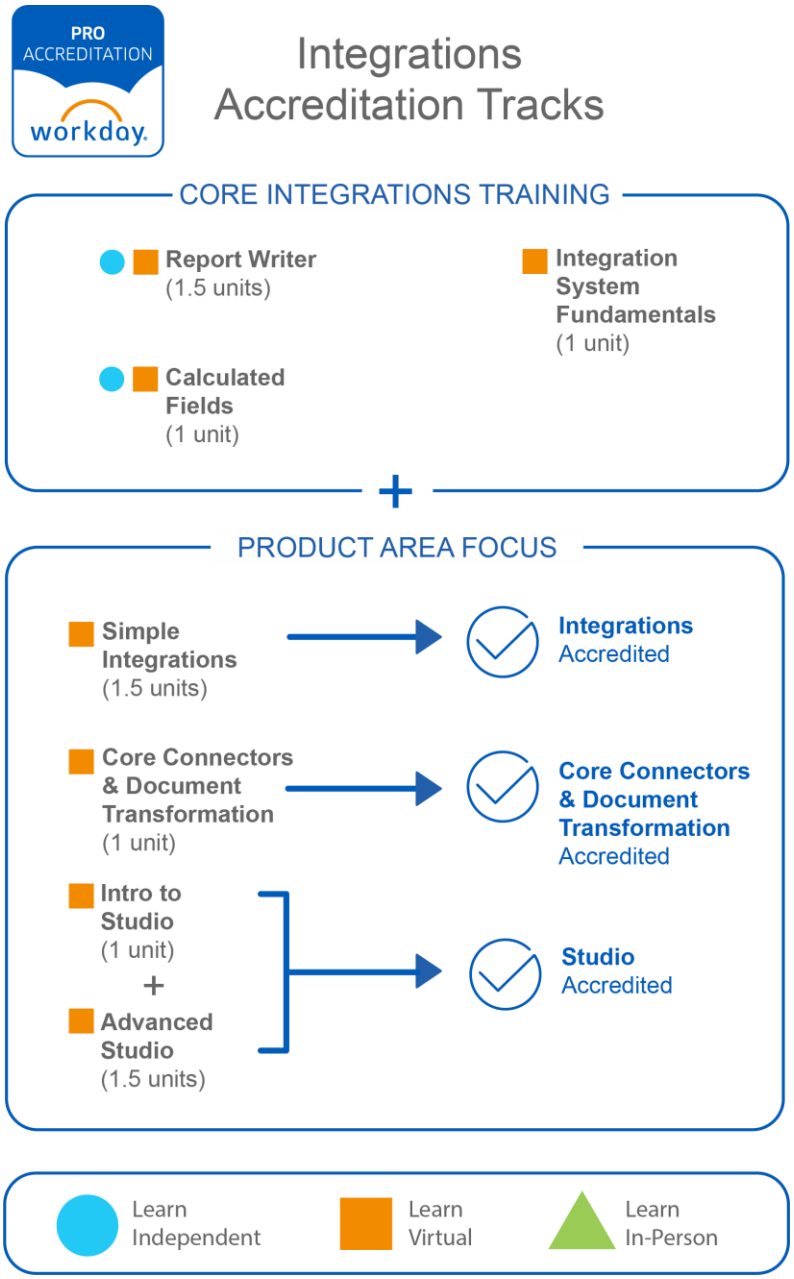
APPENDIX A – WORKDAY PRO

CUSTOMER ACCRETIDATION PROGRAM

Workday Pro is a customer-focused accreditation program targeted at customers who want to actively engage and work side-by-side with the ecosystem on a path to develop a similar level of knowledge and expertise. It consists of several tracks, each with relevant courses, plus a written test.



Confidential © 2018 Workday, Inc.



Learn more: community.workday.com/pro

Confidential © 2018 Workday, Inc.

APPENDIX B – ACTIVITY QUESTION REFERENCE GUIDE

ACTIVITY QUESTIONS ANSWER KEY

This section contains answers to questions posed throughout the activities in this course. It also contains the step-by-step solutions for activities that only contain the high-level requirements.

Confidential © 2018 Workday, Inc.

ACTIVITY 1.2 – FIND EXISTING CALCULATED FIELDS

TASK #1: EXPLORE THE MAINTAIN CALCULATED FIELDS REPORT

4. For example, what kind of field is the Approved and with Warning Validations field? What is the calculated field function of this field? Boolean. True/False Condition.

TASK #2: EXPLORE THE ALL CALCULATED FIELDS REPORT

2. How many results are returned for this business object? 55

5. For example, how and where is Expense Opportunity Status field used? In the analytic indicator **Expense Opportunity Status Indicator** and in the custom report **Opportunities and Employee Expenses**.

TASK #3: EXPLORE THE BUSINESS OBJECT DETAILS REPORT

3. How many fields exist on the Expense Report business object? 369

4. How many related business objects is the Expense Report business object linked to? 100

Confidential © 2018 Workday, Inc.

ACTIVITY 2.1 – DATE FUNCTIONS

TASK #6: EDIT CUSTOM REPORT

4. How could you build a calculated field to determine how many days overdue an expense report payment was before it was paid?

   Create a Date Difference field using the Expense Reports business object, and use the following information:

Field	***Column Heading Override***
Start Date Field	WICT CF Expected Paid Date
End Date Field	Paid Date
Value Returned	In Days
Return Zero on Error	(checked)

Confidential © 2018 Workday, Inc.

ACTIVITY 3.1 – TRUE/FALSE CONDITION AND EVALUATE EXPRESSION

TASK #1: COPY CUSTOM REPORT

6. How many results are returned? 404

TASK #5: EDIT REPORT - ADD EVALUATE EXPRESSION

4A. How many employees are in the Low compensation level? 92

4B. How many employees are in the Medium compensation level? 188

Confidential © 2018 Workday, Inc.

ACTIVITY 4.2 – ARITHMETIC CALCULATION

TASK #3: CREATE AN ARITHMETIC CALCULATED FIELD

6. Run the report for **Global Modern Services, PLC (U.K).**

   A. How many items are returned? 859

   B. In what currency are the results returned? Pounds

   C. Notice that some of the expense reports included in the results are canceled. How can you alter the report to return only expense reports that have not been canceled? In the report definition, add a row in the filter tab and enter the following information:

Field	***Operator***	***Comparison Type***	***Comparison Value***
Expense Report Status	Not in the selection list	Value specified in this filter	Canceled

Confidential © 2018 Workday, Inc.

ACTIVITY 5.2 – EXTRACT MULTI-INSTANCE

TASK #1: CREATE CUSTOM REPORT

5. How do you configure this filter?

Field	***Operator***
Dependents	Is not empty

TASK #3: ADD FIELDS TO REPORT

6. Create a field for this report that returns a worker's oldest child.

   - Create an Extract Single Instance field on the Worker business object.
   - Enter the following information:

Field Name	***Entry Value***
Source Field	Dependents
Condition	WICT CF Dependent is Child TF
Sort Field	Age
Sort Direction	Descending
Instance to be Returned	First occurrence

Confidential © 2018 Workday, Inc.

ACTIVITY 5.3 – (ON YOUR OWN) RETRIEVING DATA FROM RELATED OBJECTS – SOLUTION GUIDE

Business Case: Teresa Serrano has been asked to modify a matrix report that shows a list of Journals, their Cost Center, and the sum of the ledger. She needs to add the Cost Center Manager to the report output as well.

Sign in as Teresa Serrano (tserrano)

TASK #1: COPY CUSTOM REPORT

1. Search and run the **Copy Custom Report** task.
2. Select the **WDINST CF Journal Report**, and click **OK** to continue.
3. Change the name of the new report to *WICT CF Journal Report*, and then click **OK** to save the report.

   If you run the report now using the default prompt values, you will see a list of journals, the cost center that each is associated, and a sum of the debits minus the credits for each journal.

TASK #2: CREATE LOOKUP RELATED VALUE FIELD

1. Try adding the Cost Center Manager field to the report.

   This field is unavailable because this report uses Journal Line as its business object, and Cost Center Manager uses Cost Center as its business object.

2. Run the **Create Calculated Field** task.
3. Enter the following information:

Field Name	***Entry Value***
Field Name	WICT CF LRV Cost Center Manager
Business Object	Journal Line
Function	Lookup Related Value

4. Click **OK**, and then enter the following information:

Confidential © 2018 Workday, Inc.

Field Name	***Entry Value***
Lookup Field	Cost Center
Return Value	Cost Center Manager

5. Click **OK** to save this field.

TASK #3: EDIT CUSTOM REPORT

1. Now you have all of the fields necessary for your report. Edit the WICT CF Journal Report.

2. In the Row Grouping section, enter the following information:

Field Name	***Entry Value***
Group by Field	WICT CF LRV Cost Center Manager
Label Override	Cost Center Manager

3. Save and run the report using the default prompt values.

   Scroll through the results and notice that some Journals do not have a Cost Center or Cost Center Manager.

   A. How many instances have a Cost Center of 71200 Field Sales – North America?

      Answer: 27

   B. How many instances have Camilla Stewart as the Cost Center Manager?

      Answer: 28

Confidential © 2018 Workday, Inc.

ACTIVITY 7.1 – CHANGE DETECTION

TASK #5: ANALYZE THE REPORT RESULTS

1. What Cost Center had the most salary changes in this date range? 33200 Global Support – Asia/Pac
2. How many female Director level employees had a 1 – 10% change in North America? 9
3. Which employee had the biggest pay change? Alain Dubois

Confidential © 2018 Workday, Inc.

APPENDIX C – KNOWLEDGE CHECK ANSWER KEYS

INTRODUCTION

This section contains answers to questions posed throughout the Knowledge Checks in this course.

Note: You can use sequential numbering here because your numbers should not skip around for a knowledge check.

CHAPTER 1 KNOWLEDGE CHECK

1. Where can calculated fields **not** be used?

    C. Security Configurations

2. What can you use the Maintain Calculated Fields report to do?

    A. Create or edit a calculated field

3. Being authorized for the Custom Field Management domain allows you to edit, create, and delete which kinds of calculated fields?

    A. System Wide

CHAPTER 2 KNOWLEDGE CHECK

1. Which calculated field function computes a date that is a specified number of days, months, or years before or after a date field?

    B. Increment or Decrement Date

2. What field type does a Date Difference calculated field return?

    A. Numeric

3. Which calculated field function would allow you to create a field that captures the last four digits of an employee's social security number?

    B. Substring Text

Confidential © 2018 Workday, Inc.

CHAPTER 3 KNOWLEDGE CHECK

1. Which calculated field function would you use to evaluate and categorize the number of days off that an employee has taken over the past year?

    C. Lookup Range Band

2. When creating a calculated field that evaluates multiple conditions, which condition should you list first?

    A. The one that eliminates the greatest number of instances

3. Which calculated field function would allow you to create a field that categorizes employees by their employment status?

    A. Evaluate Expression

4. What field type does a True/False Condition calculated field return?

    B. Boolean

CHAPTER 4 KNOWLEDGE CHECK

1. Which of the following mathematical operations are **not** supported by the Arithmetic Calculation function?

    C. Exponents

2. Which calculated field function would you use to calculate the number of employees who have quit over the past year, given that this information is available on the Organization business object?

    D. Count Related Instances

3. What calculated field function would allow you to represent relocation payments in the same currency for use in an arithmetic calculation to find the average amount?

    E. Convert Currency

Confidential © 2018 Workday, Inc.

CHAPTER 5 KNOWLEDGE CHECK

1. What type of report allows you to access fields from Related Business Objects one level away without using a calculated field function?

    F. Advanced report

2. Which calculated field function would allow you to make a field from the Worker object available for use on an event condition rule on a related business object?

    A. Lookup Related Value

3. Which calculated field function would allow you to return a list of the teams an employee is currently a member of from a related business object?

    B. Extract Multi-Instance

4. What type of Extract Multi-Instance operation would allow you to return the benefits an employee is eligible for but not currently enrolled in?

    C. Except

CHAPTER 6 KNOWLEDGE CHECK

1. Which calculated field function allows you to step through various levels of a hierarchy structure to organize data?

    D. Lookup Hierarchy Rollup

2. Which calculated function would allow you to return a specific level of a hierarchy structure to group report data by?

    A. Lookup Hierarchy

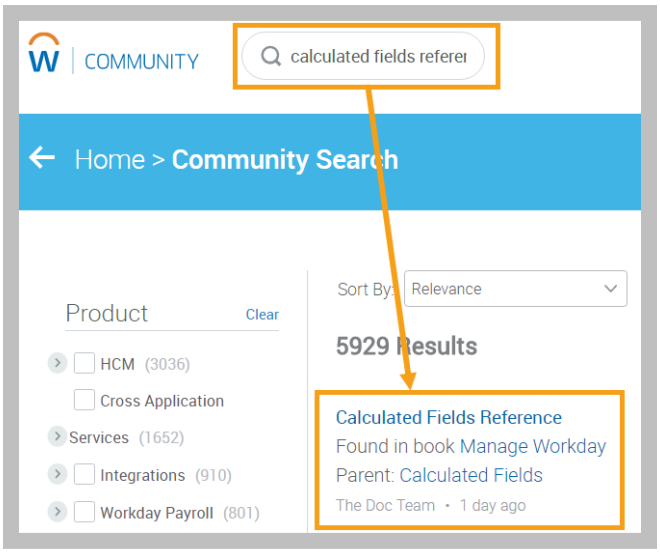
Confidential © 2018 Workday, Inc.

APPENDIX D – CALCULATED FIELDS QUICK GUIDE

CALCULATED FIELDS QUICK GUIDE

This appendix provides a list of all available calculated field functions, a short description of their purposes, and a few examples of how each calculated field function might be used.

For more information on any of these calculated fields, search for “Calculated Fields Reference” on Workday Community.



Calculated Field Function	Field Type Used	Field Type Returned	Definition	Use Case(s)
Aggregate Related Instances	Single Instance Multi-Instance	Multi-Instance	Lists all instances associated with a field in a child object and eliminates any duplicate instances from the results. You can also apply a condition rule to filter the results based on specified criteria	Identify all job profiles within an organization.

Confidential © 2018 Workday, Inc.

Arithmetic Calculation	Currency Numeric	Currency Numeric	Used to perform these arithmetic calculations: Addition, Subtraction, Multiplication, Division	Calculate an employee's hourly, daily, or weekly rate. Calculate 20% of an employee's salary to compare to their bonus amount.
Build Date	Date Date and Time DateTimeZone Time	Date Date and Time DateTimeZone Time	Used to create a new date field by mixing and matching date (or date-time) components from other fields or specified values	Return the first day of the month in which an employee was hired
Concatenate Text	Text Single Instance	Text	Concatenates a series of text fields	Create a name field containing an employee's last name, first name, and preferred name: *Smith, John (Jack)*
Convert Currency	Currency	Currency	Determines the equivalent value of a monetary field in a different currency	Display an employee's salary in Euros, regardless of where the employee works. Convert Canadian employee benefit contributions into USD for consolidated reporting with US benefit data.
Convert Text To Number	Text	Numeric	Used to convert a number that currently exists as a text field into a numeric field	Convert the text, 2014, into a numeric value in order to perform calculations on the year.

Confidential © 2018 Workday, Inc.

Count Related Instances	Single Instance Multi-Instance	Numeric	Dynamically counts instances of a related business object based on a test condition	Count the number of sick days that occurred on Monday or Friday during the last year for each employee.
Date Constant	n/a	Date Date and Time DateTimeZone	Used to create a date, date/time, or date/time/zone constant for use in other calculations	Create a date constant for "12/31/2009" to measure another time against.
Date Difference	Date	Numeric	Computes the number of days, months, or years between two specified dates	Return the number of days remaining before an employee returns from leave.
Evaluate Expression	Boolean	Text Date Date and Time DateTimeZone Time Numeric Currency Boolean Single Instance Multi-Instance	Used to group and transform data by evaluating a series of Boolean test conditions. Once a condition is true, a corresponding value is returned and the system stops testing conditions	Group and return employees' employment status (Active, Leave, Terminated, Contractor) Group and return employees' age group (under 30, 30 – 50, 50 – 70, 70+)
Evaluate Expression Band	Boolean	Text	Similar to Evaluate Expression, evaluates a series of Boolean test conditions. Once a condition is true, a corresponding text value that you define in the field condition is returned. Used primarily in trending reports.	Group and return an employee's location. (Local, In State, Out of State)

Confidential © 2018 Workday, Inc.

Extract Multi-Instance	Single Instance Multi-Instance	Multi-Instance	Extracts a multi-instance field from another instance-based field on a related business object and returns instances that satisfy the specified conditions	List the training each employee has completed in the last 12 months. List the current enrollment elections for an employee.
Extract Single Instance	Multi-Instance	Single Instance	Extracts a single instance field that meets the specified conditions from a multi-instance field on a related business object	Return the last time off request for an employee. Return the current medical enrollment for an employee.
Format Date	Date	Text	Extracts one of the following elements from a date field and returns it as a text field: Year, Year-quarter, Year-month, Fiscal period, Fiscal year, Fiscal year-period, Date-time	Group and summarize headcount activity by month.
Format Number	Numeric	Text	Converts the data type of a numeric field to a text form for use in concatenations, report notifications, etc.	Return the text notification: *Your current annual salary is $82,500.00.*
Format Text	Text Single Instance	Text	Used to modify the case of a text or single instance field into UPPER, lower, or Proper case. This is especially useful in certain integrations	Convert the text “TOM ANDERSON” to “Tom Anderson.”
Increment or Decrement Date	Date	Date	Computes a date that is a specified number of days, months, or years before or after the value of a date field	Calculate the end date of an employee’s six-month probationary period based on their hire date.

Confidential © 2018 Workday, Inc.

Lookup Date Rollup	Date	Single Instance	Used to look up a date and return the date value in the date rollup format specified	For the date, 01/15/2015, use the year-quarter rollup format to return 2015-Q1
Lookup Field with Prompts	Text Date Date and Time DateTimeZone Time Numeric Currency Boolean Single Intance Multi-Instance	Text Date Date and Time DateTimeZone Time Numeric Currency Boolean Single Intance Multi-Instance	Used to provide values for fields with built-in prompts. Workday suppresses the prompts and instead returns results that use your specified prompt values	Return payroll results in USD without being prompted for Currency
Lookup Hierarchy	Single Instance (Hierarchy)	Single Instance (Hierarchy)	Used to return a node in a hierarchy based on the level number, level name, or a field in the hierarchy	Return the second level of the All Projects hierarchy to use as a column in grouping report data
Lookup Hierarchy Rollup	Singe Instance (Hierarchy)	Singe Instance (Hierarchy)	Used in matrix reports to rollup report data based on an organization hierarchy, starting at the topmost level of the hierarchy	Drill into the levels of a cost center hierarchy, starting at the topmost level of the hierarchy.
Lookup Organization	Single Instance	Single Instance Multi-Instance	Determines a specific organization level or node in an organizational hierarchy based on the selected worker's assignment. Valid only for Worker and Employee business objects	Return the division an employee works in.

Confidential © 2018 Workday, Inc.

Lookup Organizational Roles	Single Instance Multi-Instance	Single Instance Multi-Instance	Determines organization role assignments based on specific criteria. Valid only for Worker, Employee, and Organization business objects	List each employee's Expense Representative. Report on the Facilities Manager for each office location.
Lookup Range Band	Numeric Currency	Single Instance	Used to look up a specific value and determine where it falls within a set of ranges that you define	Determine where a worker's total compensation falls into ranges you define and label as Highly Compensated and Not Highly Compensated.
Lookup Related Value	Single Instance	Any: Depends on the field type of the related business object	Used to look up and return the value of a field on a related business object, enabling you to promote fields from a related business object to the primary business object. The field can then be used to report on, filter, sort, group, or summarize	Include a manager's email address when reporting on employees. Require Vice President approval if an employee's one-time retention bonus is greater than 20% of base pay.
Lookup Translated Value	Text	Text	Returns the value of a text field in the language you specify	Return English, French, and German names of organizations.
Lookup Value as of Date	Any	Any	Determines the value of a field as of a specific date and can determine whether a change takes place before, on, or after the effective date	Determine annual salary as of 12/31/2013. Determine age as of a prompted date.

Confidential © 2018 Workday, Inc.

Numeric Constant	n/a	Numeric	Used to create a numeric constant that can be used in other calculations	Create a numeric constant of .09 to be used in other calculations.
Prompt For Value	Text Date Date and Time DateTimeZone Time Numeric Currency Boolean Single Intance Multi-Instance	Text Date Date and Time DateTimeZone Time Numeric Currency Boolean Single Intance Multi-Instance	Used to create a prompt-able field for use in a report's output or filter conditions	Prompt a user for their company when running a report, which will affect the values returned in the output.
Substring Text	Single Instance Text	Text	Used to extract a portion of text from either a text or single instance field and return the result as a text field	From the cost center, Accounting 6373, extract the cost center number, 6373.
Sum Related Instances	Single Instance Multi-Instance	Numeric Currency	Sums the value of a field in instances of a related business object based on a condition	Sum the employer benefit cost of a worker to calculate their total compensation. Sum the total number of days off a worker has taken in a given time period.
Text Constant	n/a	Text	Used to create a text constant for use in other calculations	Create the text constant, Highly Compensated, for use in an Evaluate Expression field.

Confidential © 2018 Workday, Inc.

Text Length	Single Instance Text	Numeric	Returns a numeric field indicating the length of a text or single instance field, including spaces	When integrating a third-party product, a worker's City field cannot be longer than 15 characters. Use a Text Length field to identify which workers will be affected by this limitation.
True/False Condition	Any	Boolean	Used to create a Boolean value for a given field based on a specified condition. The field returns True if the condition is true, and False if not	Create a field indicating if an employee is highly compensated. Create a field to indicate if an employee has less than a year of service.

Confidential © 2018 Workday, Inc.

APPENDIX E – CALCULATED FIELDS PERFORMANCE POINTS

CALCULATED FIELDS PERFORMANCE POINTS

This appendix has some important points to consider when constructing calculated fields or reports that use calculated field functions. The following list contains some considerations that have already been addressed earlier in this course, as well as some additional important points for you to consider:

1. Be careful when adding Calculated Fields (CF's) on an Indexed Report Data Source (RDS) (e.g., Indexed Workers, Trended Workers, Journal Lines), as they can significantly impact performance.

    A. It is still acceptable to use CF's on Indexed RDS's, but you need to performance test the report to see the effect of adding the CF.

2. Use the View Indexed Fields for Data Source report to see what fields are indexed for filtering, grouping, aggregation and detailed reporting, including calculated fields.

3. Where possible, use RBO fields to get to RBO data in a report vs. CFs.

4. Where possible, use subfilters to get to RBO data in a report vs. CFs.

5. If aggregating a multi-instance related object (for example, Count Related Instances or Sum Related Instances), use a source field that contains the least amount of instances.

    A. For example, if you want to add a field that displays the number of base pay changes in a worker's history, create a Count Related Instances field using the source field: Compensation History – Base Pay Changes Only field, rather than Worker Events – Completed or even Compensation History, which would include many more instances to process. Pick the most targeted source field possible to minimize the number of instances processed.

    B. Use the Related Business Objects tab of the Business Object Details report to see the fields on an object that link to related business objects to choose the best and most specific relationship to process for your requirement to minimize the processing time and instances processed.

6. Look at the complexity of the CF, not just the number of CFs in a given report.

    Complex CFs on a report will slow a report down, for example, when used as filters, in summary calculations, as dimensions.

7. Also, consider the number of instances for which the CF has to compute.

Confidential © 2018 Workday, Inc.

For example, if your report is based on employees in an organization and there are 10,000 employees in the org, the CF has to compute something for all 10,000 employees. Design your reports with the right data source selection, as well, to also bring in the most optimal number of instances.

8. When building a True/False CF, make sure that you put conditions that exclude the greatest amount of instances first.

9. When creating an Evaluate Expression CF, make sure you put the conditions in order of likelihood, with the most likely listed first.

10. Benchmark your CFs in sandbox with production-level volumes and data to ensure expected performance levels are met.

Confidential © 2018 Workday, Inc.

APPENDIX F – HELPFUL RESOURCES

HELPFUL REPORTS

This appendix contains some helpful reports that you can use to manage the calculated fields in your system.

MAINTAIN CALCULATED FIELDS REPORT

This report will let you view all the system-wide calculated fields your company has defined in Workday. It can also be used as the control center for tasks related to system-wide calculated fields.

ALL CALCULATED FIELDS REPORT

This report returns all calculated fields in the tenant. It can be specified to return only calculated fields on a specific business object as well. Selecting the Include Report Specific Calculated Fields checkbox will ensure that both system-wide and report-specific fields are included in the report output.

BUSINESS OBJECT DETAILS REPORT

This report returns all fields available on a specified business object, including both Workday-delivered and calculated fields. You can also see related business objects, data sources, and reports for the business object selected.

REPORT FIELDS REPORT

This report is a great reference for fields in your tenant, including Workday-delivered, calculated, and custom fields. Includes prompts for fields and business object to make it easier for you to find the business object or report fields you want more information on.

MAINTAIN CALCULATED FIELDS FOR REPORT REPORT

This report allows you to view the report-specific calculated fields you have defined in Workday. You can search by report name and the report will display any report-specific calculated fields created for that report. You can also create new calculated fields for a report directly from this report.

Confidential © 2018 Workday, Inc.

VIEW CALCULATION HIERARCHY (RELATED ACTIONS)

Remember that you can use a calculated field's Related Actions to select Calculated Field > View Calculation Hierarchy. This will provide you with a top-down view of all the fields and calculations involved in that calculated field.

CALCULATED FIELD EXCEPTION AUDIT

This report allows you to revalidate your system-wide calculated fields and will list any errors found.

REPORT-SPECIFIC CALCULATED FIELDS EXCEPTION AUDIT

This report allows you to revalidate your report-specific calculated fields and will list any errors found.

Confidential © 2018 Workday, Inc.

WORKDAY COMMUNITY

Do not forget that you can find lots of useful information on Workday Community, including user-submitted answers to questions, update and patch notes, and Workday news.

Within Community, you can find the Documentation page where you can search for helpful resources like Calculated Fields Concepts and Calculated Fields Reference.

CALCULATED FIELDS CONCEPTS

This Documentation page provides an overview of Calculated Fields, as well as a list of all the calculated field functions. Most of this material is already covered in this course.

CALCULATED FIELDS REFERENCE

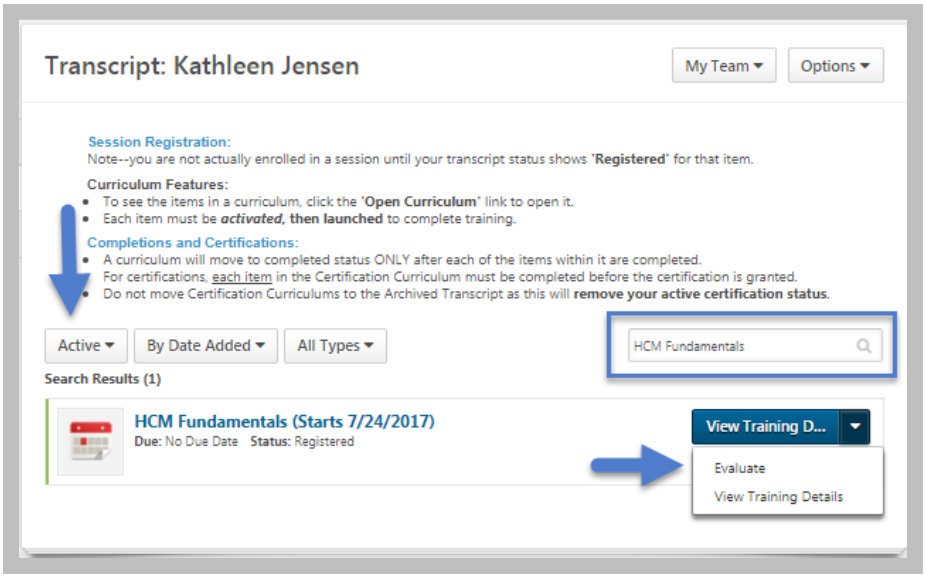
This Documentation page provides a more in-depth look at all 32 of the calculated field functions in Workday. For each calculated field function, you can find a definition, steps for creating the field, and use cases. This is a great place to learn more information about the calculated field functions that were not covered in this course.

Confidential © 2018 Workday, Inc.

APPENDIX G – CLASS EVALUATIONS

AVAILABLE AT THE START OF THE LAST DAY OF CLASS

1. Log in to the Learning Center: https://workday.csod.com
2. Select **View Transcript**.
3. Locate the training session in your **Active** tab. (Use the search field to quickly find your training session.)
4. Click the **View Training Details** pull-down menu and select **Evaluate**.

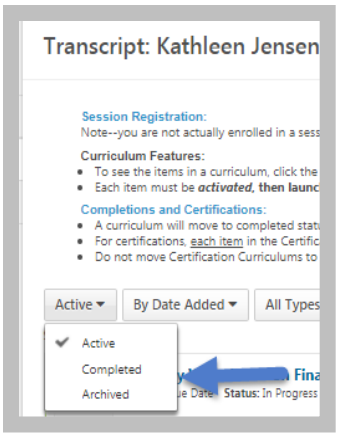


47 - Screenshot of the Evaluate option from the learning center

AVAILABLE AFTER CLASS ENDS AND ROSTER SUBMITTED

1. Log in to the Learning Center: https://workday.csod.com
2. Select **View Transcript**.
3. Select the **Active** tab to toggle to your **Completed** training.

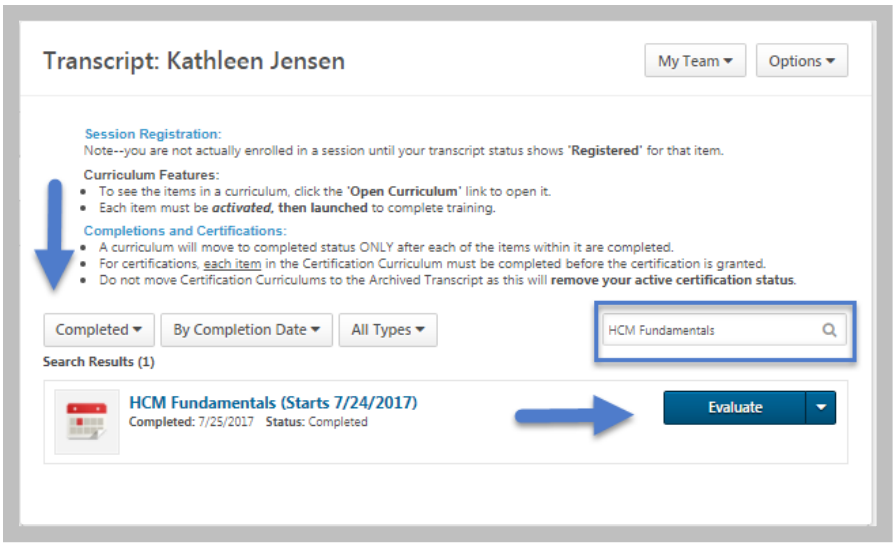
Confidential © 2018 Workday, Inc.



48 - Click Activate to toggle your completed training

4. Locate and select the completed training session. (Use the search field to quickly find your training session.)

5. Click **Evaluate**.



49 - Click the Evaluate button

CLASS EVALUATION (SESSION WITHIN A CURRICULUM): AVAILABLE AT THE START OF THE LAST DAY OF CLASS

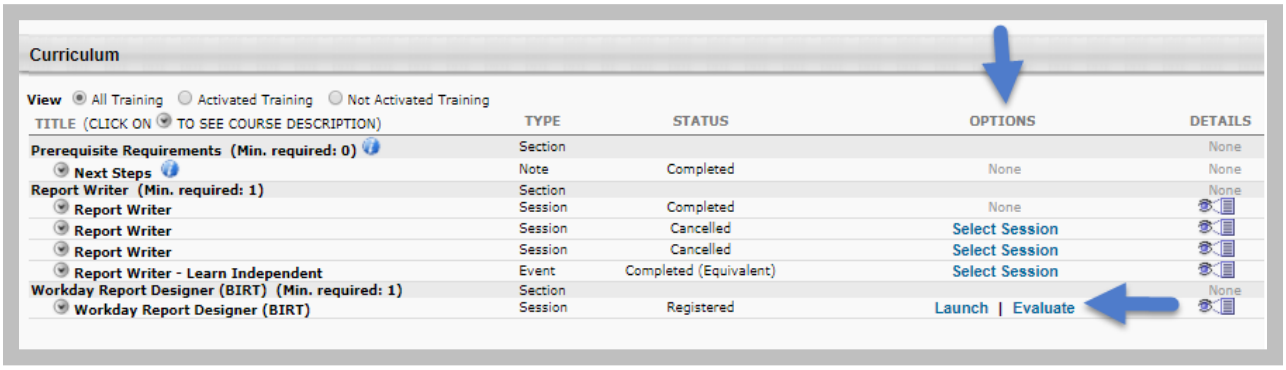
1. Log in to the Learning Center: https://workday.csod.com

2. Select **View Transcript**.

Confidential © 2018 Workday, Inc.

3. Locate the training session within the curriculum in your Active tab. (Use the search field to quickly find your training session and select the Curriculum Training Tile link to open the curriculum.)

4. Select **Evaluate** under the Options column.



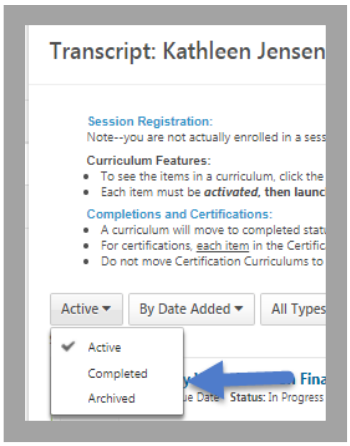
50 - Click Evaluate in the Options column

CLASS EVALUATION (WITHIN A CURRICULUM): AVAILABLE AFTER CLASS ENDS AND ROSTER SUBMITTED

1. Log in to the Learning Center: https://workday.csod.com

2. Select **View Transcript**.

3. Select the **Active** tab to toggle to your **Completed** training.



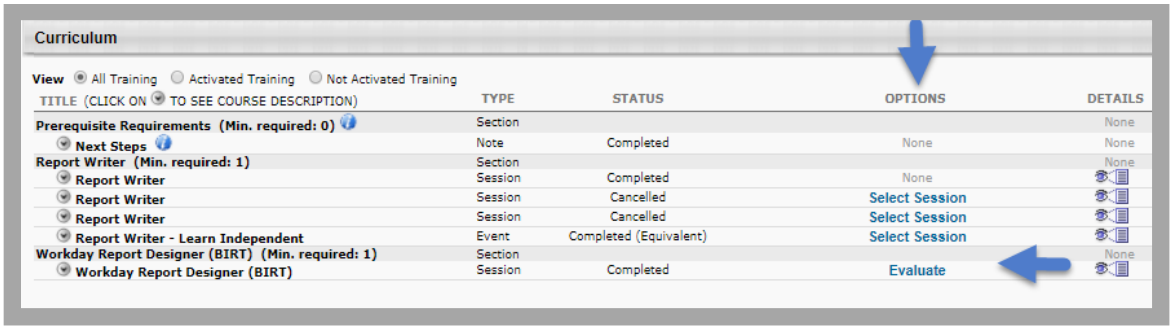
51 - Select Activate to toggle your completed training

Note: If the curriculum is still Active, meaning the curriculum requirements have not been met, the curriculum will remain on the Active tab.

Confidential © 2018 Workday, Inc.

4. Locate and select the completed training curriculum. Select the Training Title link to open the curriculum and locate the session. (Use the search field to quickly find your training session.)

5. Click **Evaluate**.



52 - Click Evaluate

Confidential © 2018 Workday, Inc.